15th International Congress on Psychopharmacology & Child and Adolescent Psychopharmacology / Psychotherapy

Harmonizing Psychopharmacology: Bridging Science and Practice

April 22nd-25th, 2024
Rixos Sungate Hotel, Kemer - Antalya / Türkiye

www.psychopharmacology2024.org

ORGANISATION SECRETARIAT
Çekirge Cd. No : 51/C Osmangazi
Bursa - TURKEY
Phone : +90 224 444 9 443
onur.oral@burkon.com

SCIENTIFIC SECRETARIAT
Fenerbahçe Mh. Kısmet Sk. Kısmet Apt. No:3 D:2
Kadıköy İstanbul - TURKEY
Phone & Fax: +90 216 464 2888
icp2024congress@gmail.com

## INVITATION

It is our great pleasure to announce that the Turkish Association for Psychopharmacology (TAP)'s 15th International Congress on Psychopharmacology & Child and Adolescent Psychopharmacology / Psychotherapy (ICP 2024) will be held on April 22-25, 2024 in Antalya, Türkiye.

15th ICP & ISCAP Organizing Committee

ISBN no: '978-625-6443-16-7'

## CONFERENCE PROCEEDINGS

Web Site Link:

https://www.psychopharmacology2024.org/

ICP 2024 Outstanding Research Award Nominees Brief Reports

# COMMITTEES

M. Kemal Sayar (Türkiye)

**President**

**Turkish Association for Psychopharmacology & Congress**

Mucahit Ozturk (Türkiye)

**Co-President (Child & Adolescent Psychiatry)**

Marek Kubicki

**President (International Affairs-2024)**

**Secretariat**

Ayşe Sakallı Kani (Adult Psychiatry)

Muhammed Tayyib Kadak (Child and Adolescent Psychiatry)

**Organising Committee**

**Adult Psychiatry and Psychopharmacology**

Erdoğdu Akça (Türkiye)

Feyza Arıcıoğlu (Türkiye)

Mesut Çetin (Türkiye)

Ömer Faruk Demirel (Türkiye)

Serhat Ergün (Türkiye)

Ayse Sakallı Kani (Türkiye)

Hasan Turan Karatepe (Türkiye)

Kemal Sayar (Türkiye)

Yasir Şafak (Türkiye)

Ömer Yanartaş (Türkiye)

Mesut Yıldız (Türkiye)

Gökhan Ünal (Türkiye)

**Child and Adolescent Psychiatry**

Şaziye Senem Başgül (Türkiye)

Alperen Bıkmazer (Türkiye)

Onur Burak Dursun (Türkiye)

Vahdet Görmez (Türkiye)

Tuncay Sandıkçı (Türkiye)

Mahmut Cem Tarakçıoğlu (Türkiye)

Muhammed Tayyib Kadak (Türkiye)

Bahadır Turan (Türkiye)

# Outstanding Research Award Nominees Brief Reports

15th International Congress on Psychopharmacology & International Symposium on Child and Adolescent Psychopharmacology

## 0009 - Metacognitive Beliefs and Smartphone Addiction: Exploring the Relationship Among University Students in Bosnia

Merve Güçlü-Aydoğan[1], Pınar Ünal-Aydın[2], Orkun Aydın[2]

[1] Department of Psychology, Ibn Haldun University, Istanbul, Turkey
[2] Department of Psychology, International University of Sarajevo, Sarajevo, Bosnia and Herzegovina

**Objective:** In contemporary society, the scope of addiction has expanded beyond traditional substances to encompass behavioral patterns such as gambling, internet usage, gaming, and the pervasive overuse of smartphones. These behavioral addictions fall within the domain of addiction, presenting challenges to individuals' well-being and functioning. Concurrently, metacognition, a multifaceted concept primarily linked to cognitive processes' regulation, control, organization, and assessment, plays a crucial role in shaping individuals' responses to cognitive-affective experiences.

Maladaptive functioning in metacognition may lead to psychopathological cognitive processes, giving rise to dysfunctional beliefs regarding the significance of cognitive-affective experiences and the methods employed to control them. Specifically, in the realm of technology use, recent literature suggests a notable positive correlation between problematic smartphone use and certain metacognitive tendencies. This correlation underscores the intricate interplay between cognitive processes and addictive behaviors in the context of technology.

This study seeks to explore and analyze the relationship between smartphone addiction and metacognitions related to problematic smartphone use, focusing on university students in Bosnia. The primary objective is to investigate how metacognitive processes, particularly dysfunctional beliefs about cognitive-affective experiences and control methods, may contribute to or exacerbate smartphone addiction among this demographic.

Furthermore, the research aims to delve into the cognitive regulatory processes that may play a pivotal role in perpetuating problematic smartphone behaviors. By examining the positive correlation observed in previous studies between overall internet usage time and metacognitive beliefs associated with smartphone use, the study aims to shed light on how excessive engagement with technology might reinforce specific cognitive mechanisms contributing to addictive tendencies.

### Methods
**Participants:** A total of 706 university students participated in this study, representing a diverse sample from Bosnia. The participants were recruited using the convenience sampling method, reflecting a broad cross-section of the university student population. The sample included both male (41.9%, n = 296) and female (58.1%, n = 410) participants, with a mean age of 21.25 (SD = 2.125).

### Measures:
**1. Smartphone Addiction Scale-Short Version (SAS-SV):** The 10-item SAS-SV, developed by Kwon et al. (5), was the primary measure for assessing problematic smartphone usage. Participants responded to items on a 6-point Likert scale, ranging from 1 (strongly disagree) to 6 (strongly agree). The SAS-SV has demonstrated reliability and validity, including effective use in a young adult sample in Bosnia. In the current study, the SAS-SV exhibited good internal consistency (Cronbach's α = .88).

2.      **Metacognitions About Smartphone Use Questionnaire (MSUQ):** The 24-item MSUQ, developed by Casale et al. (1), was administered to capture participants' metacognitions related to problematic smartphone use. It comprises subtests, including PM-ECR (Positive Metacognition about emotional and cognitive regulation), NM-UH (Negative metacognition about uncontrollability and cognitive harm), and PM-SR (Positive Metacognition about social advantages). Participants rated each item on a 4-point Likert scale, ranging from 1 (do not agree) to 4 (agree very much). The MSUQ demonstrated strong internal consistency, with Cronbach's alpha values of .94 for the total scale in this study.

3.      **Sociodemographic Scale:** Participants' demographic information was collected using a sociodemographic scale, providing details about educational level, gender, total time of internet and other relevant background characteristics.

**Procedure:** The study employed an online survey methodology for data collection. Participants were recruited through convenience sampling, and the survey link was distributed among university students in Bosnia. All participants who voluntarily participated in the study were informed about the nature of the study and their right to withdraw from it at any time. All participants signed informed consent for participation in the study. The study received ethical approval from the Institutional Review Board of the International University of Sarajevo (05/10/2021; IUS-REC-01-829/2021), ensuring the protection and well-being of participants throughout the research process.

**Data Analysis**: Descriptive statistics, including means and standard deviations, were calculated for participant demographics and survey responses. Pearson correlation analysis explored the relationships between the total internet usage time, MSUQ subtests, and smartphone addiction (SAS-SV). Multiple linear regression analyses were employed to assess the associations between total internet usage time, MSUQ subtests, and smartphone addiction.

**Results:** The study included a diverse sample of university students in Bosnia, with a mean age of 21.25 (SD = 2.125). The gender distribution among participants revealed that 41.9% (n = 296) were males, while 58.1% (n = 410) were females.

The Pearson correlation equation revealed a statistically significant positive correlation between the overall internet usage time and all subtests of the Metacognitions About Smartphone Use Questionnaire (MSUQ) with the Smartphone Addiction Scale-Short Version (SAS-SV). This implies that as the duration of internet usage increased, there was a concurrent rise in both metacognitive tendencies related to smartphone use and the likelihood of experiencing smartphone addiction.

Results from the linear regression analysis further elucidated these associations. A significant and positive association was observed between the total time of internet use and two specific MSUQ subtests: MSUQ-PM-ECR (Positive Metacognition about emotional and cognitive regulation) and MSUQ-NM-UH (Negative metacognition about uncontrollability and cognitive harm). This finding suggests that prolonged internet usage was linked to elevated levels of both positive and negative metacognitions, contributing to an increased risk of smartphone addiction.

However, in contrast, the linear regression analysis did not identify a statistically significant association between the Smartphone Addiction Scale-Short Version (SAS-SV) and the MSUQ-PM-SR (Positive Metacognition about social advantages) subtest. This implies that positive metacognitions specifically related to the regulation of smartphone use did not exhibit a significant association with smartphone addiction.

**Discussion:** The study's findings offer valuable insights into the nuanced relationship between smartphone addiction and metacognition, particularly among university students in Bosnia. The identified positive correlation between internet usage time and metacognitive beliefs related to smartphone use accentuates the potential reinforcement of specific cognitive mechanisms contributing to addictive tendencies with excessive engagement in technology.

The positive association between overall internet usage time and metacognitive beliefs aligns with previous research, suggesting that prolonged exposure to online activities may contribute to the development and reinforcement of specific metacognitive tendencies. The internet, serving as a platform for various smartphone-related activities, becomes a crucial factor influencing individuals' beliefs about the significance of smartphone use.

The study's identification of positive metacognitions as influential in the initial phase of addictive behavior echoes the broader literature on addictive tendencies. Individuals who perceive smartphones as beneficial to emotional regulation and cognitive abilities are more likely to engage in addictive behaviors. This resonates with cognitive-behavioral models of addiction, emphasizing the role of cognitive processes in shaping behavior.

Conversely, the study's recognition of negative metacognitions about the inability to control smartphone use increasing the risk of developing a full-blown addiction aligns with established theories on self-regulation and addiction. The inability to exert control over one's behavior, coupled with maladaptive beliefs, creates a vulnerability that contributes to the persistence of addictive patterns (2,3,4).

The implications of the study extend to interventions targeting technological addictions. Cognitive-behavioral interventions, which focus on modifying maladaptive metacognitions, emerge as a promising avenue for preventing and treating smartphone addiction. By addressing individuals' beliefs about the impact of smartphone use on emotions and cognitive abilities, interventions may disrupt the reinforcing cycle of addictive behaviors.

However, the study recognizes certain limitations that warrant consideration. The cross-sectional nature of the research design limits the establishment of causal relationships between metacognition and smartphone addiction. Longitudinal research is imperative to delineate the temporal dynamics and causal links between these variables comprehensively.

The study's specific focus on university students in Bosnia also raises questions about the generalizability of the findings to broader populations. Future investigations should incorporate diverse samples to ensure the external validity of the results across different cultural and demographic contexts. Understanding the universality or cultural specificity of the relationship between metacognition and smartphone addiction will enhance the applicability of interventions on a global scale.

In conclusion, this study significantly contributes to the growing body of knowledge on behavioral addictions, emphasizing the interplay between metacognition and smartphone addiction. The identified associations underscore the potential efficacy of interventions targeting metacognitive aspects in addressing technological addictions. As technology

continues to evolve, further research in this rapidly changing landscape is crucial for refining interventions and adapting strategies to address emerging forms of addictive behaviors.

**Keywords:** Bosnia students; smartphone addiction; metacognitions; metacognitive beliefs; young adults

## REFERENCES

[1] Casale, S., Caponi, L., & Fioravanti, G. (2020). Metacognitions about problematic Smartphone use: Development of a self-report measure. Addictive behaviors, 109, 106484. https://doi.org/10.1016/j.addbeh.2020.106484

[2] Spada, M. M., & Wells, A. (2005). Metacognition, emotion, and alcohol use. Clinical Psychology & Psychotherapy, 12, 150–155. https://doi.org/ 10.1002/cpp.431

[3] Spada, M. M., Caselli, G., & Wells, A. (2013). A triphasic metacognitive formulation of problem drinking. Clinical Psychology & Psychotherapy, 20, 494–500. https://doi.org/10.1002/cpp.1791

[4] Spada, M. M., Caselli, G., Nikčević, A. V., & Wells, A. (2015). Metacognition in addictive behaviors. Addictive behaviors, 44, 9–15. https://doi.org/10.1016/j.addbeh.2014.08.002

[5] Luk, T. T., Wang, M. P., Shen, C., Wan, A., Chau, P. H., Oliffe, J., Viswanath, K., Chan, S. S., & Lam, T. H. (2018). Short version of the Smartphone Addiction Scale in Chinese adults: Psychometric properties, sociodemographic, and health behavioral correlates. Journal of behavioral addictions, 7(4), 1157–1165. https://doi.org/10.1556/2006.7.2018.105

**Table 1**
Socio-Demographic Features of the Sample

|  | N | % |
| --- | --- | --- |
| Educational level |  |  |
| Bachelor | 690 | 97.7 |
| Master | 13 | 1.8 |
| PhD | 3 | .4 |
| Gender |  |  |
| Male | 296 | 41.9 |
| Female | 410 | 58.1 |
| Apps that students use mostly |  |  |
| Internet | 48 | 6.8 |
| YouTube | 151 | 21.4 |
| Instagram | 279 | 39.5 |
| Twitter | 22 | 3.1 |
| Facebook | 15 | 2.1 |
| WhatsApp | 99 | 14.0 |
| Other | 92 | 13.0 |
| Total time of internet |  |  |
| 1-2 hours per day | 41 | 5.8 |
| 3-4 hours per day | 206 | 29.2 |
| 5-6 hours per day | 147 | 20.8 |
| More than 6 hours per day | 312 | 44.2 |
| Screen time before bed |  |  |
| Yes | 467 | 81.4 |
| No | 90 | 15.7 |

**Table 2**

Pearson Correlations Between the Study Variables

| | Variables | 1. | 2. | 3. | 4. | 5. |
|---|---|---|---|---|---|---|
| 1. | Total time of Internet | 1 | | | | |
| 2. | SAS-SV-Total | .30** | 1 | | | |
| 3. | MSUQ-PM-ECR | .19** | .59** | 1 | | |
| 4. | MSUQ-PM-SR | .21** | .49** | .67** | 1 | |
| 5. | MSUQ-NM-UH | .21** | .61** | .61** | .54** | 1 |

Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Note. SAS-SV: Smartphone Addiction Scale-Short Version, MCUQ: Metacognitions about Smartphone use Questionnaire, MSUQ-PM-ECR: Positive Metacognitions about Emotional and Cognitive Regulation, MSUQ-PM- SR: Positive Metacognitions about Social Advantages, MSUQ-NM-UH: Negative Metacognitions about Uncontrollability and Cognitive Harm

**Table 3**

Multiple Regression Statistic with Predictors of MCUQ

| Dependent Variable | Predictors | B | Standardized βeta | t | p |
|---|---|---|---|---|---|
| | Total time of internet | 1.64 | .15 | 5.31 | **p = .00** |
| | MSUQ-PM-ECR | .40 | .30 | 7.27 | **p = .00** |
| SAS-SV-Total | MSUQ-PM-SR | .21 | .05 | 1.27 | p = .20 |
| | MSUQ-NM-UH | .52 | .37 | 10.19 | **p = .00** |

Note. SAS-SV: Smartphone Addiction Scale-Short Version, MCUQ: Metacognitions about Smartphone use Questionnaire, MSUQ-PM-ECR: Positive Metacognitions about Emotional and Cognitive Regulation, MSUQ-PM- SR: Positive Metacognitions about Social Advantages, MSUQ-NM-UH: Negative Metacognitions about Uncontrollability and Cognitive Harm

## 0012 - Examination Of the Relationship Between Love Attitudes and Attachment Styles, And Personality Traits in Women Who Have Experienced Domestic Violence

Selin Balki Tekin[1], Ayse Nur Inci Kenar[2], Hande Şenol[3]

1. Clinic of Psychiatry, Denizli State Hospital, Denizli, Turkiye

2. Department of Psychiatry, Faculty of Medicine, Pamukkale University, Denizli, Turkiye

3. Department of Biostatistics, Faculty of Medicine, Pamukkale University, Denizli, Turkiye

**Introduction:** Domestic violence against women is a public health problem that can cause psychological problems, the effects of which are felt in many areas of life, and material and moral burdens for society. Domestic violence (DV) is defined as any type of violent behavior directed from one individual to another in order to put pressure, humiliate, punish, or relieve anger within a group that calls itself a family. When left untreated, it is often a repetitive behavior that escalates as the relationship progresses.[1]

Social, economic, and psychological empowerment of women is a protective factor in reducing the risk of violence against women. In this context, it is very important to increase women's self-confidence, self-sufficiency, communication skills, coping styles, ego strength, and spiritual resilience [2]. For this, we need to know the personality characteristics of women who are subjected to violence, their attachment styles in relationships, and their love attitudes towards their spouses, and to evaluate the relationships between them. This will allow us to use this data in possible supportive therapy meetings or violence prevention work groups with these people.

Although there are few studies examining the dimensions of violence related to psychopathology, personality traits, and attachment styles separately, no study has been found in the English literature that examines love attitudes and the three variables together in women who experienced DV and compares these dimensions with women who did not experience it [3-5] .

In this study, it was aimed to examine the relationship between love attitudes, and attachment styles and personality traits in women who have experienced domestic violence (DV) and to compare these characteristics with women who were not exposed to violence. It is thought that these characteristics to be examined may be guiding for the supportive psychotherapy process for women subjected to violence.

**Methods:** This study is an epidemiological analytical research; it is a multidisciplinary study conducted with the Department of Psychiatry and the Department of Biostatistics.

A total of 128 women, aged between 18 and 45, 64 women who have experienced/experienced domestic violence (by their partner), and 64 women who have not been subjected to domestic violence, were included in the study. A sociodemographic data form consisting of 49 questions and including questions about the violence they have been exposed to and 4 scale forms (Attitudes Towards Love Scale, Adult Attachment Style Scale, Domestic Violence Against Women Scale, Big Five-50 Personality Test) were administered to the study group.

A 32-item sociodemographic data form that does not include violence data and 3 scale forms (Attitudes Towards Love Scale, Adult Attachment Style Scale, Big Five-50 Personality Test) were applied to the control group.

This research was approved by the Pamukkale University Non-Interventional Clinical Research Ethics Committee with the decision numbered 06 dated 05.04.2022.

**Instruments**

**Sociodemographic Data Form:** A sociodemographic data form prepared by the researcher was applied to participants to evaluate the sociodemographic characteristics and violence-related data of them.

**Attitudes Towards Love Scale: Short Form:** The Short Form (LAS) was developed by Hendrick, Hendrick, and Dicke (1998) based on Lee (1973)'s love dimensions. Turkish validity and reliability study of the scale was conducted by Büyükşahin and Hovardaoğlu (2004) . It consists of 24 items ;6 subscale scores, each containing 4 items, can be calculated from the 5-point Likert-type scale. These sub-dimensions are called gameplaying love, possessive love, passionate love, friendly love, logical love and altruistic love.[6]

**Adult Attachment Style Scale:** Each attachment style is represented by 6 items, and the attachment style with the highest score determines the individual's attachment style. Turkish validity and reliability study of the scale was conducted by Kesebir et al . The scale includes the items Avoidant Attachment (1,2,5,6,15,17), Anxious Attachment (3,4,7,13,14,16), and Secure Attachment (8,9,10,11,12,18). [7]

**Five-Factor Personality Inventory - Short Form:** The Five-Factor Personality Inventory Short Form (5FPI-SF) made by Tatar (2017) has 50 items, 24 of which are reverse scored. Each item in the scale was prepared as a five-point Likert scale, with the lowest score (1) being "Not at all appropriate" and the highest score (5) being "Very appropriate". The Five-Factor Personality Inventory Short Form contains 10 items in each dimension and consists of five sub-dimensions: " conscientiousness ", "emotional stability", "extraversion", "agreeableness" and "intellect" [8].

**Domestic Violence Against Women Scale**

It was developed by Kılıç in 1999. The Cronbach alpha coefficient of the scale and its subscales was determined between 0.73 and 0.94 . This scale, consisting of a total of 50 questions, is a triple Likert type scale. The lowest score for the entire scale is 50 and the highest score is 150. 34 items are scored directly and 16 items are scored reversely. The total score obtained from the entire scale shows the level of "domestic violence against women".[9]

**Results:** Among women who were exposed to violence, altruistic and passionate love attitudes (p=0.000, p=0.026, respectively); and among women who were not subjected to violence friendly and possessive love attitudes (p=0.010, p=0.000, respectively) were higher.

In women exposed to violence, anxious and avoidant attachment styles were higher (p=0.000, p=0.000, respectively), and emotionally balanced personality traits was higher (p=0.006).

A positive relationship was found between altruistic love and logical love attitudes and anxious attachment styles (p=0.021, r=0.288, p=0.033, r=0.267, respectively). A negative correlation was found between altruistic love and extraversion and emotional stability (p=0.038, r= -0.261; p=0.030, r= -0.271, respectively), between game-playing love and conscientiousness and emotional stability (p=0.046, r= -0.250; p=0.027, r= -0.277, respectively), and between passionate love and emotional stability (p= 0.009, r = -0.323). A positive correlation was found between friendly love and agreeableness  (p=0.017, r=0.296).

**Discussion:** Emotional stability personality trait, friendly and possessive love attitudes can be a protective factor against violence and/or facilitating coping with violence, while anxious and avoidant attachment style, altruistic and passionate love attitude make it difficult to cope with violence. Mental health professionals should try to make women exposed to violence gain these features in their supportive psychotherapy processes; in order to increase their ability to defend themselves psychologically, to increase their level of selfconfidence, to help them improve their communication skills in relationships. It is hoped that this will contribute to the capacity of women victims of DV to struggle against violence during and after it.

Despite the increasing interest and awareness in recent years, there are still insufficient number of studies on the mental health of women exposed to violence and on providing benefits to these women within the psychotherapeutic framework. It is thought that this study can form the basis for future studies.

**Keywords:** domestic violence, personality traits, attachment styles, attitudes towards love, women

**References**

1. Irmak Ç, Altıntaş M. The resilience, attachment, coping, and Psychopathology of Battered Women: Comparison of sheltered versus in-home women. Anatolian Journal of Psychiatry. 2017;18(2):561-570. doi:10.5455/apd.261145

2. RESPECT women: Preventing violence against women. Geneva: World Health Organization; 2019 (WHO/RHR/18.19).

3. Karahasanoğlu G, Kaya FS. The Examination Of The Relationship Of University Students Between Attitudes Towards Love, Personality Traits, Attachment Styles. Marmara University Journal of Women and Gender Studies. 2022 Nov 12;3(1):51–62.

4. Baser D, Dogucu M. Investıgatıon Of The Relatıonshıp Between Self-Esteem, Basıc Personalıty Traıts And Domestıc Vıolence Of Marrıed Woman. Journal of Social Policy Studies. 2021;21(50):278-313.

5. Yoruk Tepe I, Calık Var E. Investıgatıon Of The Relatıonshıp Between Unıversıty Students' Attıtudes Towards Love And Date Vıolence. Journal of International Social Research. 2021;14:1005-1019.

6. Büyükşahin A, Hovardaoğlu S. A Study of Couples' Love Attitudes Within Lee's Multidimensional Love Styles Framework. Turkish Journal of Psycology. 2004;19(54):59–75.

7. Dereboy F, Kesebir S, Kökçü F. Adult Attachment Style Scale: Adaptation, Reliability and Validity Study. New Symposium Journal. 2012;50(2):99–104.

8. Tatar A. Translation of big-five personality questionnaire into Turkish and comparing it with Five factor personality inventory short form. Anatolian Journal of Psychiatry. 2017;18:51-61. doi:10.5455/apd.220580

9. Kılıç B. Aile İçi Kadına Yönelik Şiddetin Belirlenmesi ve Hemşirenin Rolü . İ.Ü. Sağlık Bilimleri Enstitüsü, Yüksek Lisans Tezi. 1999.

Table 1. Correlation Of The Attitudes Towards Love Scale And The Adult Attachment Styles Scale İn Women Experienced Domestic Violence

| Attitudes Towards Love | | Attachment Styles | | |
| --- | --- | --- | --- | --- |
| | | Secure Attachment | Avoidant Attachment | Anxious Attachment |
| Altruistic Love | r | -,088 | ,126 | ,288 |
| | p | ,489 | ,322 | ,021* |
| Friendly Love | r | ,103 | ,001 | ,196 |
| | p | ,416 | ,991 | ,120 |
| Passionate Love | r | -,133 | ,057 | ,242 |
| | p | ,295 | ,656 | ,054 |
| Logical Love | r | -,033 | -,115 | ,267 |
| | p | ,797 | ,364 | ,033* |
| Game playing Love | r | ,086 | ,054 | ,244 |
| | p | ,500 | ,672 | ,052 |
| Possessive Love | r | ,057 | ,025 | ,223 |
| | p | ,656 | ,846 | ,076 |

*$p<0.05$, Spearman Correlation Analysis was performed.

Table 2. Correlation Of The Attitudes Towards Love Scale And The Big Five Personality Inventory Short Form İn Women Experienced Domestic Violence

| Attitudes Towards Love | | Personality subdimensions | | | | |
|---|---|---|---|---|---|---|
| | | Extraversion | Agreeableness | Conscientiousness | Emotional Stability | Intellect |
| Altruistic Love | r | -,261 | .068 | .023 | -,271 | -.024 |
| | p | .038* | .592 | .858 | .030* | .853 |
| Friendly Love | r | -.053 | ,296 | -.034 | -.059 | -.163 |
| | p | .676 | .017* | .793 | .645 | .198 |
| Passionate Love | r | -.117 | -.068 | .020 | -,323 | -.174 |
| | p | .356 | .591 | .872 | .009* | .168 |
| Logical Love | r | .045 | .169 | -.036 | .002 | .011 |
| | p | .724 | .182 | .777 | .985 | .930 |
| Game playing Love | r | -.151 | .162 | -,250 | -,277 | .068 |
| | p | .232 | .200 | .046* | .027* | .594 |
| Possessive Love | r | -.056 | .162 | -.199 | -.065 | .002 |
| | p | .659 | .201 | .116 | .610 | .989 |

*$p < 0.05$, Spearman Correlation Analysis was performed.

## 0017 - Evaluation of Serum IL-33 and sST2 Levels in Patients with Schizophrenia and Their Healthy Siblings

Ayşe Gülden Kaya[1], Rabia Nazik Ekinci[2], Esma Andaç Uzdoğan[3], Işık Batuhan Çakmak[4], Erol Göka[2]

[1]Psychiatry Department, Merzifon Karamustafa Paşa State Hospital, Amasya, Turkey

[2]Psychiatry Department, Ankara Bilkent City Hospital, Ankara, Turkey

[3]Biochemistry Department, Ankara Bilkent City Hospital, Ankara, Turkey

[4]Psychiatry Department, Sungurlu State Hospital, Çorum, Turkey

**Objective:** Inflammation has an important place in the neurobiology of schizophrenia, some biomarkers may be associated with the progression and treatment of diseases, and they may have protective roles on the neurocognitive system. Alarmins are also among these biomarkers. IL-33(interleukin-33) is an "alarmin" cytokine that is rapidly released out of the tissues in situations such as pathogens, physical stress, and toxin exposure that cause cell damage. ST2 (Suppression Of Tumorigenicity-2) is the only known receptor of IL-33 and is a member of the IL-1 superfamily. Soluble ST2 is one of the two forms of ST2 and exists in dissolved form, serving as a decoy receptor for IL-33. Some studies found out that these molecules may be a marker of schizophrenia. A study revealed that increases in IL-33 and sST2 levels were associated with better cognitive functions in patients with schizophrenia.(1) In another study, it was shown that HMGB1, IL-33 and sST2 levels were found to be significantly higher in male schizophrenia patients compared to healthy controls, and no significant difference was detected for S100B.(2)

This research aims to reveal IL-33 and sST2 markers and cognitive functions in schizophrenia patients in remission, their siblings without psychiatric illness, and healthy controls. The main hypothesis of the study is that the levels of IL-33 and sST2 markers will differ between patients, siblings and healthy controls and that cognitive functions will correlate with the marker levels.

**Methods:** This research is a cross-sectional study. This study included participants aged 18-65 who applied to Ankara Bilkent City Hospital Psychiatry Polyclinic between March 2022 and July 2022, and whose voluntary consent was obtained. Forty-three consecutive patients who met the diagnostic criteria for schizophrenia according to DSM-5, had no active symptoms in the last 6 months, were included. Twenty-six consecutive siblings, primarily from the siblings of the patients included in the sample, and forty healthy volunteers were included. Psychiatric disorders were excluded by SCID-5 interview in the siblings and control groups. In all groups, mental retardation, autoimmune diseases, immunological diseases and infections, neurological diseases, those using anti-inflammatory, antibiotics, steroids and antihistamines in the last week, those with active alcohol and substance usage disorders and pregnancy were excluded. Healthy volunteers with first-degree relatives with psychotic disorders were not accepted into the study.

A total of 8 participants (3 patients and 5 healthy volunteers) were excluded from the study due to newly developed exclusion criteria. As a result, 40 patients, 26 siblings and 35 healthy volunteers were accepted to the study. Cognitive testing could not be performed in 10 patients, 10 siblings and 1 healthy volunteer. Since a maximum of 88 samples can be studied in an ELISA kit, the markers were studied from 39 patients, 24 siblings and 25 consecutive healthy controls who first applied to the study. PANSS(Positive and Negative Syndrome Scale), CGI(Clinical Global Impression Scale) and PSPS(Personal and Social Performance Scale) were applied to the patient group. Blood samples were taken from the whole sample between 8-9 am in the morning after 12 hours of fasting and fasting blood glucose, HDL (high-density lipoprotein), LDL(low-density lipoprotein), TG(triglyceride), CRP(C-Reactive Protein), HbA1c(HemoglobinA1c) were measured. Serum IL-33 and serum sST2 levels were measured, and then blood pressure, height, body weight and waist circumference were measured on the same day. The sociodemographic data form, mini-mental test, clock drawing test, trail-making test, verbal fluency test, go-no-go task and Stroop test were applied.

Data analysis was done in the IBM SPSS Statistics 25.0(IBM Corporation, Armonk, NY,USA) package program. Results for p<0.05 were considered statistically significant.

**Results:** The groups showed similar distribution in terms of gender and age. In the patient group the average duration of the disease was found to be 9.20 years. While the average time since the first complaints started was 11.60 years,the average time without treatment was 3.49 years. The average number of exacerbations was 3 and the number of hospitalizations was 2.80.

**Table.1**

---

**Sociodemographic Characteristics of the Sample**

|  | Patient Group (n=40) | Sibling Group (n=26) | Healthy Control Group (n=35) |  |
|---|---|---|---|---|
| Gender(F/M) | 17/23 | 18/8 | 18/17 | χ2 = 4,538 p=0,103 |
| Age(years) (x̄,min-max) | 36, 20-55 | 40, 24-60 | 30, 18-53 | χ2=5,595 p=0,061 |
| Marital status (Single/married) | 35/5 | 15/11 | 11/24 | χ2 =24,643 p<0,001* |

Kruskal-Wallis, p<0.05 * statistically significant, x̄ =Median, min=Minimum, max=Maximum

Schizophrenia patients had higher BMI, waist circumference, TG, fasting glucose values and lower HDL values than healthy controls, and there was no difference between the groups in terms of LDL and TA values.

There was a significant difference between the groups in the subgroups of the verbal fluency test, the subgroups of the trail making test and the 4 subgroups of the Stroop test. Bonferronni corrections revealed that the siblings showed a similar distribution to the other two groups on the SAT, and the siblings performed similarly to the patients in all subgroups of the Stroop test.

A statistically significant difference was found between the groups in terms of IL-33 levels. According to the Bonferroni Corrected pairwise comparison test results, the schizophrenia group was found to have higher results than both the healthy control group and the sibling group. It was determined that sibling and healthy control groups showed similar distribution in terms of IL-33 levels.

When sST2 levels were compared, a statistically significant difference was found between the groups. According to the results of the pairwise comparison test with Bonferroni Correction, the patients had lower levels than the healthy control group, and the sST2 levels of the sibling group showed a similar distribution with the schizophrenia group and the healthy control group.

**Table.2**

**Comparison of IL-33, sST2 and CRP Levels of Participants**

|  | Patient Group (n=39) | Sibling Group (n=24) | Healthy Control Group (n=25) |  |
|---|---|---|---|---|
| IL-33 (x̄;min-maks) | 122,73; 60,65-519,99 | 87,25; 37,95-425,29 | 84,06; 32,99-455,08 | χ2= 8,472 p=0,014* |
| sST2 (x̄,min-maks) | 4,06; 1,59-12,21 | 4,66; 2,24-10,70 | 5,67; 2,91-12,76 | χ2= 9,669 p=0,008* |
| CRP (x̄,min-maks) | 2,00; 0-32,70 | 1,15; 0-24 | 0,50; 0-5,90 | χ2= 12,228 p=0,002* |

Kruskal-Wallis, p<0.05 * statistically significant, x̄ =Median, min=Minimum, max=Maximum

No correlation was found between the markers and age or between the markers and gender. Additionally, the relationship between markers and tobacco use was investigated, and no significant correlation was found.

IL-33 serum level showed a moderately strong inverse relationship with HDL level(r= -0.308, p<0.01).

No statistically significant correlation was detected between marker levels and cognitive test scores in the patient group. A moderately strong negative relationship was found between IL-33 serum level and the functionality score in schizophrenia patients.(r =- 0.380, p<0.05)

The area under the ROC curve for IL-33 measurements was found to be statistically significant in distinguishing the healthy control group and the schizophrenia group. [Area under the curve=0.676 (95% confidence interval; 0.536-0.816) and p=0.018]

The area under the ROC curve of sST2 measurements was found to be statistically significant in distinguishing the healthy control group and the schizophrenia group. [Area under the curve=0.731 (95% confidence interval; 0.606-0.856) and p=0.002]
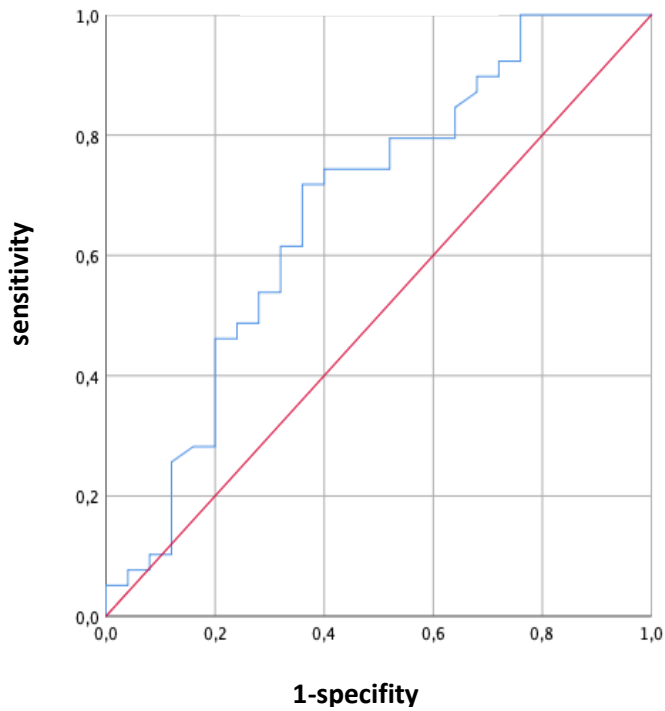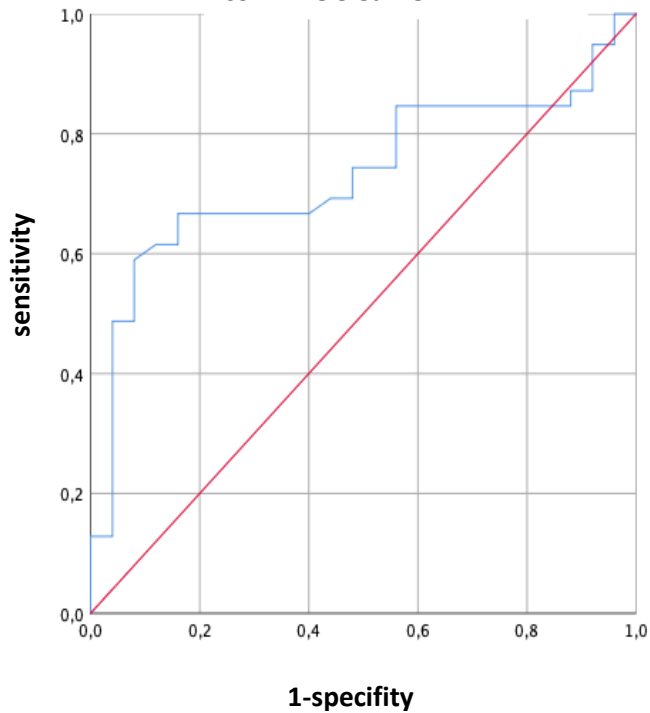
**fig.1**

### IL-33 ROC Curve



**fig.2**

### sST-2 ROC Curve



**Discussion:** To our knowledge, there is no other study in the literature examining IL-33 and sST2 levels in relatives of psychotic patients.

In the literature, there appear to be different results for IL-33 and sST2 levels in schizophrenia patients. In a study the chronic schizophrenia patient group had higher IL-33 and sST2 levels than healthy controls.(2) Campos-Carli et al. found similar serum IL-33 and sST2 levels for the controls and patient groups. (1) No significant change was detected in IL-33 values after 3 months of follow-up in the study included 27 drug-naive psychosis patients.(3)

In the study conducted by Borovcanin et al., IL-33 levels of first-episode psychosis patients and schizophrenia patients in remission were found to be similar to healthy controls, while high IL-33 levels were detected in patients in the exacerbation period. In the same study, sST2 levels were found to be higher in first-episode psychosis patients than in patients in the exacerbation period and in patients in remission; no difference was found between patients in remission and healthy controls.(4) The number of samples, heterogeneity in the sample, and possible confounding factors may have an impact on the finding of different results for markers in the literature. In some studies, information on possible confounding factors such as substance abuse, smoking-alcohol use, and metabolic parameters was not collected. In addition, it is not fully known whether the types and doses of antipsychotics have an effect on these markers. In a study conducted by Koricanac et al. for risperdone, clozapine and aripiprazole treatments, no significant difference was found in IL-33 levels in patients receiving different treatments.(5)

Campos-Carli et al. found that IL-33 and sST2 levels were associated with better cognitive performance in schizophrenia patients. (1) Our study showed that cognitive performances had an inverse relationship with IL-33 and CRP and a positive relationship with sST2 in the whole sample, but there was no statistically significant relationship between any test and marker in the patient group. This may be related to the limited number of samples or the different functioning of marker pathways in patients.

**Keywords**: Biomarkers, Cognitive Functions, Schizophrenia, Siblings, Metabolic Syndrome

**References**

1. de Campos-Carli SM, Miranda AS, Dias ICS, de Oliveira A, Cruz BF, Vieira ÉLM, et al. Serum levels of interleukin-33 and its soluble form receptor (sST2) are associated with cognitive performance in patients with schizophrenia. Comprehensive Psychiatry. 2017;74:96-101.
2. Kozłowska E, Brzezińska-Błaszczyk E, Agier J, Wysokiński A, Żelechowska P. Alarmins (IL-33, sST2, HMGB1, and S100B) as potential biomarkers for schizophrenia. Journal of Psychiatric Research. 2021;138:380-7.
3. Subbanna M, Shivakumar V, Venugopal D, Narayanaswamy JC, Berk M, Varambally S, et al. Impact of antipsychotic medication on IL-6/STAT3 signaling axis in peripheral blood mononuclear cells of drug-naive schizophrenia patients. Psychiatry and Clinical Neurosciences. 2020;74(1):64-9.
4.Borovcanin MM, Janicijevic SM, Jovanovic IP, Gajovic N, Arsenijevic NN, Lukic ML. IL-33/ST2 Pathway and Galectin-3 as a new analytes in pathogenesis and cardiometabolic risk evaluation in psychosis. Frontiers in psychiatry. 2018;9:271.
5.Koricanac A, Tomic Lucic A, Veselinovic M, Bazic Sretenovic D, Bucic G, Azanjac A, et al. Influence of antipsychotics on metabolic syndrome risk in patients with schizophrenia. Front Psychiatry. 2022;13:925757.

## 0024 - Are S100b And Vilip1 Involved in A Common Mechanism Of Neuroinflammation in Major Depressive Disorder?

Nagihan Ayaz Naycı[a]*, Aybeniz Civan Kahve[b,c], Hasan Kaya[d], Andaç Uzdoğan[e], Yağmur Darben Azarsız[d], Süreyya Barun[c], Erol Göka[d]

[a]Kirikkale Yüksek Ihtisas Hospital, Department of Psychiatry, Kirikkale, Turkey
[b] Gazi University Faculty of Medicine, Department of Psychiatry, Ankara, Turkey
[c] Gazi University Faculty of Medicine, Department of Medical Pharmacology, Ankara, Turkey
[d] University of Health Sciences, Ankara City Hospital, Department of Psychiatry, Ankara, Turkey
[e] University of Health Sciences, Ankara City Hospital, Department of Biochemistry, Ankara, Turkey

**1.Introduction:**The etiology and pathophysiology of MDD remain uncertain(1).In recent years the 'neuronal plasticity' theory in the pathogenesis of depression has been put forward.Various clinical and imaging studies have highlighted the role of reduced or impaired neuronal plasticity in neural regions involved in mood regulation in depression(2).Immune system and inflammatory system activity in depression has been investigated for a long time.Repeated studies have reported abnormal cytokine levels in the peripheral blood of MDD patients,suggesting a potential link between MDD and activation of the inflammatory response(3).The damage that occurs in both neurons and glial cells in MDD, followed by growth and differentiation, has attracted the attention of researchers as potential biomarkers.S100B is a member of the calcium-binding protein family,is released from activated or damaged astrocytes,and is known to play a role in neuroplasticity with neurotrophic or neurotoxic effects depending on its concentration(4).There are many studies on S100B in the field of psychiatry,especially focusing on schizophrenia and mood disorders.It has been shown that serum S100B levels are higher in patient groups than in healthy controls(5).This has been considered an indicator of glial pathogenesis. VILIP1 plays a role in the calcium-mediated signal transduction, regulation of cell signaling during cell development and differentiation(6).It is involved in the neurotrophin mechanism,therefore it is believed that it may affect neuronal plasticity(7).Studies on VILIP1 in the literature have primarily focused on neurodegenerative diseases,and it has been suggested that VILIP1 is a marker of neuronal damage(6).In our study,we aimed to evaluate the role of neuroinflammation in neuronal cells and glial cells in the pathophysiology of MDD through two different neuroinflammatory markers,S100B and VILIP1.

**2.Methods**: **Participants and Procedure:**Within the scope of the study,65 people who applied to psychiatry clinic of Ankara City Hospital between September 2022 and May 2023 and diagnosed with MDD were evaluated.A healthy control group consisting of 66 individuals,matched with the patients in terms of age and gender,and who provided informed consent,was established.In total,131 participants were evaluated in the study.In both groups;'Autoimmune, inflammatory,metabolic,endocrinological disease,pregnancy,use of psychotropic medication in the last 6 months'were determined as exclusion criteria.Following the initial interviews with the patients,blood samples were collected before starting antidepressant treatment,and concurrent assessments using the Hamilton Depression Rating Scale(HDRS) and Clinical Global Impression(CGI) were conducted.Out of the 65 patients,20 did not come for their eighth-week follow-up,so the eighth-week assessments were conducted with 45 patients.During this assessment,psychometric tests were repeated,and blood samples were collected once again.Blood samples were also collected from the healthy control group,and HDRS was administered.

**Biochemical measurements:**Patient and healthy control group individuals were subjected to a minimum 8-hour fasting period,and blood samples were collected at 8 AM to measure.The collected blood samples were centrifuged at 3000xg for ten minutes,then stored at -80°C.S100-B and VILIP1 levels were measured using an ELISA method with a USCN kit.

**Statistical analysis:**Research data were loaded into a computer environment and analyzed using SPSS for Windows 21.0.The normal distribution of variables was examined both through histograms and probability plots and using analytical methods.In the comparison of continuous variables that did not show a normal distribution between healthy controls and the patient group,the Mann-Whitney test was used.The chi-square test was used for the comparison of categorical variables between the two groups.The Wilcoxon Signed-Rank Test was used for the comparison of continuous variables for dependent groups.The relationship between variables was examined using the Spearman correlation test.

**3.RESULTS:** A total of 131 people,65 patients and 66 healthy controls,were included in the study.There was no significant difference between the two groups in terms of age, gender and body mass index (p:0.628,p:0.532,p:0.174,respectively).The education period of healthy controls were statistically significantly higher than the patients(p:0.003)**(Table1)**

*Table1.*Comparison of sociodemographic characteristics between patients diagnosed with MDD and healthy controls.

| | Patients diagnosed with MDD(n:65) | Healthy controls (n:66) | Statistical analysis |
|---|---|---|---|
| **Age(years)** | 31.9±12.4 | 31.89±11.1 | p:0.628 , Z*:-0.484 |
| **Gender**<br>**Woman**<br>Male | 54(%83.1)<br>11(%16.9) | 52(%78.8)<br>14(%21.2) | p:0.532<br>$\chi^2$:0.390 |
| **Marital Status**<br>**Single**<br>Married | 32(%49.2)<br>33(%50.8) | 38(%57.6)<br>28(%42.4) | p:0.338<br>$\chi^2$:0.917 |
| **Education period(years)** | 10.8±3.8 | 12.8±3.3 | **p:0.003**, Z:-3.014 |
| **Employment Status**<br>**Employed**<br>**Unemployed**<br>Student | 15(%23.1)<br>31(%47.7)<br>19(%29.2) | 42(%63.7)<br>2(%3.0)<br>22(%33.3) | **p<0.001**<br>$\chi^2$:38.388 |
| **Body Mass Index** | 25.0±5.3 | 23.5±4.1 | p:0.174, Z:-1.358 |

$\chi^2$:Chi-square value;*:Statistical value from Mann-Whitney U Test

Before starting to treatment,patients diagnosed with MDD had S100B levels of 881.7±600.5 pg/ml and VILIP1 levels of 324.2±161.9 pg/ml,while healthy controls had S100B levels of 724.4±404.9 pg/ml and VILIP1 levels of 359.7±182.0 pg/ml. There was no statistically significant difference between these groups(respectively;p:0.253,p:0.247)**(Table2)(Figure1).**

*Table2.Comparison of pre- and post-treatment S100B and VILIP1 levels in patients diagnosed with MDD with healthy controls*

| | Pre-treatment (n:65) | Healthy Controls (n:66) | Statistical Analysis* | Post-treatment (n:45) | Statistical Analysis * |
|---|---|---|---|---|---|
| **S100B Levels (pg/ml)** | 881.7±600.5 (min:10-max:2894.7) | 724.4±404.9 (min:10.0-max:2421.1) | p:0.253 Z:-1.144 | 839.1±75.8 (min:23.3-max:2724.4) | p:0.133 Z:-1.502 |
| **VILIP1 Levels (pg/ml)** | 324.2±161.9 (min:5.0-max:685.5) | 359.7±182.0 (min:5.0-max:815.3) | p:0.247 Z:-1.158 | 314.4±154.1 (min:34.2-max:961.8) | p:0.093 Z:-1.679 |

*:Mann Whitney U Test(MDD pre-treatment vs. healthy controls);**:Mann Whitney U Test(MDD post-treatment vs. healthy controls)

**Figure 1.** Distribution of S100B* and VILIP-1** levels in patients diagnosed with Major Depressive Disorder and healthy controls
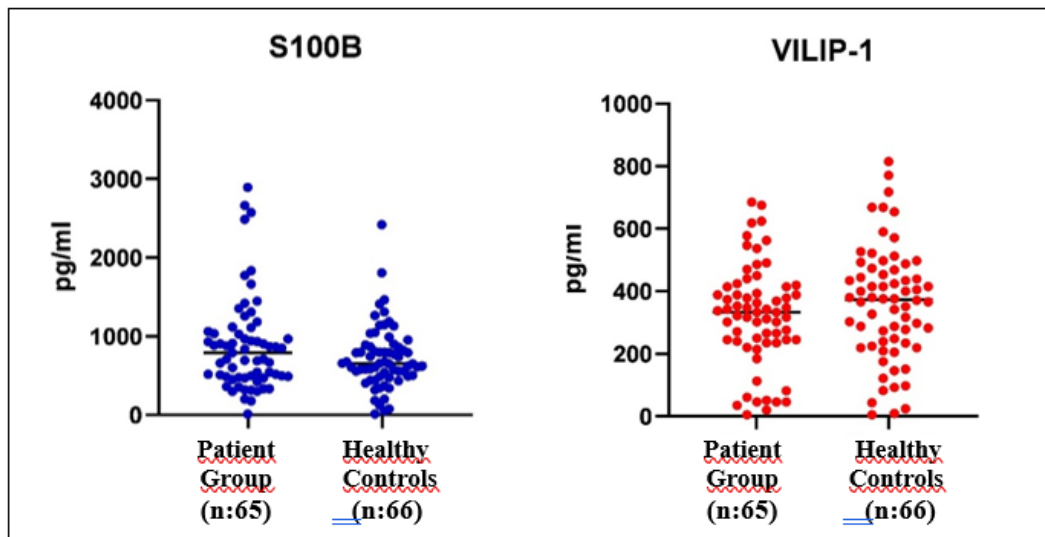


*S100B: S100 Calcium Binding Protein; **VILIP-1: Visinin Like Protein-1*

No significant difference was detected when comparing S100B levels before and after treatment(p: 0.786).No significant difference was detected when comparing VILIP1 levels before and after treatment (p: 0.453)**(Figure 2).**

**Figure 2:** Change in S100B* and VILIP-1** levels of patients diagnosed with Major Depressive Disorder at the eighth week after treatment compared to before treatment
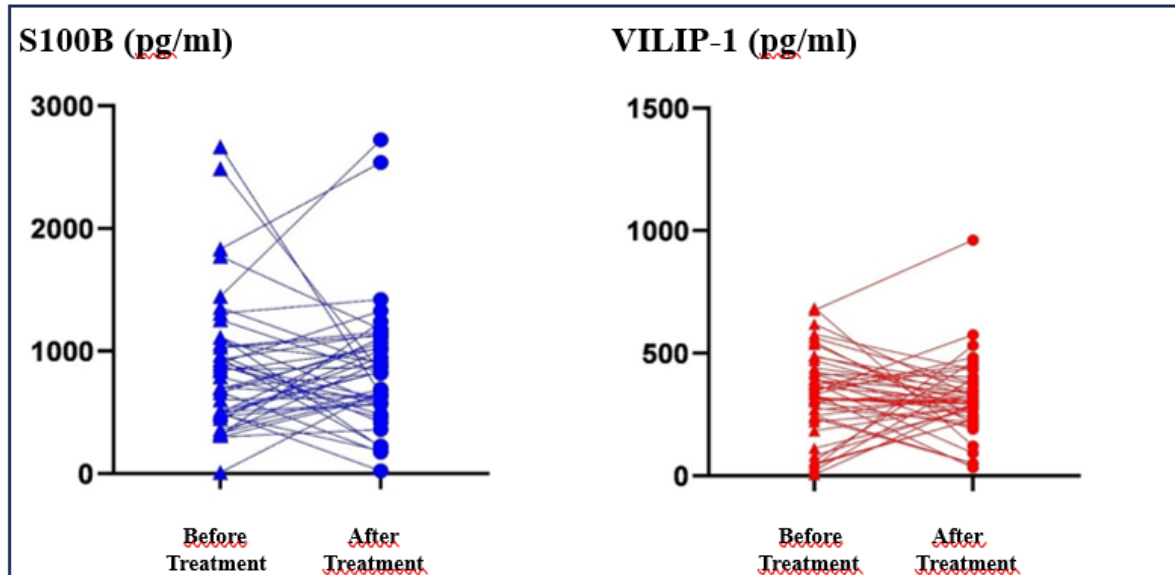


\* Wilcoxon Signed Rank Test for dependent group comparison (p:0.786, Z:0.271)

\*\* Wilcoxon Signed Rank Test for dependent group comparison (p:0.453, Z:-0.751)

In the correlation analysis conducted, both pre-treatment and at the eighth week of treatment, there was a positive statistically significant relationship between S100B levels and VILIP1 levels (respectively;$p<0.001$,r: 0.506;$p<0.001$,r: 0.602).When the same relationship was examined in healthy controls,a positive statistically significant correlation was found between S100B and VILIP1 ($p<0.001$,r: 0.497)(**Table 3**).

*Table 3.*Correlation analyses*between S100B and VILIP1 levels in patients diagnosed with MDD

| Variables | | S100B Levels Pre-treatment | VILIP1 Levels Pre-treatment | S100B Levels After-treatment | VILIP1 Levels After-treatment |
|---|---|---|---|---|---|
| S100B Levels Pre-treatment | r | 1,000 | **,506**[**] | ,240 | ,100 |
| | p | . | ,000 | ,112 | ,512 |
| VILIP1 Levels Pre-treatment | r | **,506**[**] | 1,000 | ,017 | ,147 |
| | p | ,000 | . | ,910 | ,335 |
| S100B Levels After-treatment | r | ,240 | ,017 | 1,000 | **,602**[**] |
| | p | ,112 | ,910 | . | ,000 |
| VILIP1 Levels After-treatment | r | ,100 | ,147 | **,602**[**] | 1,000 |
| | p | ,512 | ,335 | ,000 | . |

*Spearman's correlation test

## 4.Discussion

Our study aimed to clarify the role of S100B,a glial cell marker,and VILIP1,a neuronal protein,in MDD.In recent years,it has been suggested that the loss of neuroplasticity and cellular durability may lie in the pathophysiology of MDD,the loss of glial cells has been attributed predominantly to astrocytes and oligodendrocytes,and the proteins associated with these cells have been brought into focus(8).In studies conducted with S100B in the literature, S100B levels in the serum and CSF of patients diagnosed with MDD were found to be higher than in healthy controls(9,10).Compared to previous studies, the high levels of S100B in the patient group can be interpreted as compatible with the literature. When pre- and post-treatment S100B levels were compared with healthy controls, a decrease in serum level was observed after eight weeks of treatment. There are few prospective studies in the literature regarding S100B and antidepressant treatment, and the results are conflicting. The different results obtained in studies conducted in this field can be attributed to factors such as homogeneous patient groups and small number of studies, small sample size and short follow-up period.Although S100B is highly specific to the central nervous system, it is also expressed in peripheral tissues such as adipose tissue, skeletal muscle or heart(11). The strengths of our study are that there was no statistical difference in BMI between the patient and healthy control groups and the exclusion of neurological and autoimmune diseases.Relatively little research has been conducted on VILIP1-related psychiatric disorders.VILIP1 has been found to be elevated in serum and cerebrospinal fluid in multiple sclerosis, Alzheimer's disease, and ischemic stroke.VILIP1 has been recognized as a marker of neuronal damage, but the cellular mechanisms remain unclear(12).In a postmortem study conducted in the hippocampus of schizophrenia patients,it was reported that VILIP1 expression increased(13).In our study,there was a positive and statistically significant relationship between S100B levels and VILIP1 levels before and after eight weeks of treatment.The positive correlation between VILIP1 and S100B in MDD was interpreted as suggesting that the two protein families may play a similar role in a common pathway in the neuroinflammatory process in neurons and glial cells.Pre-treatment VILIP1 levels were higher, although not significantly,in patients with MDD,suggesting that this may be a compensatory release in response to neuronal damage.It can be seen that both proteins contribute to neuronal differentiation and gene expression, at least through calcium homeostasis; the fact that they show significant correlation in both patients and healthy controls in our study also supports this information,but the mechanisms are still unclear.

Our study should be evaluated considering some limitations.Firstly,our research only includes outpatients who applied to the psychiatry outpatient clinic.The neuroinflammatory response may differ in individuals with severe and prolonged depressive symptoms.In our study,venous blood samples were taken,and it was determined that especially VILIP1 was measured at very low concentrations.In addition, the evaluation of the patients at the eighth week after treatment could be considered short in terms of monitoring changes related to neuronal plasticity.

This study is the first to evaluate the role of S100B and VILIP1 in the pathophysiology of MDD together.The positive correlation between S100B and VILIP1 in our study could provide valuable insights for new diagnostic opportunities,predictive markers for treatment response and drug development targets in future MDD research.

**Keywords**: Major Depressive Disorder, S100-B, VILIP-1, Neuroinflammation, Biomarkers

# References

1.    Malhi GS, Mann JJ. Depression. Lancet. 2018;392(10161):2299–312.

2.    Ronald S. Duman, Ph.D., George K. Aghajanian, M.D., Gerard Sanacora, M.D., Ph.D., and John H. Krystal MD. Synaptic plasticity and depression: New insights from stress and rapid-acting antidepressants. Nat Med. 2016;22(3):238–249.

3.    Köhler CA, Freitas TH, Maes M, de Andrade NQ, Liu CS, Fernandes BS, et al. Peripheral cytokine and chemokine alterations in depression: a meta-analysis of 82 studies. Acta Psychiatr Scand. 2017;135(5):373–87.

4.    Liu Q, Li R, Yang W, Cui R, Li B. Role of neuroglia in neuropathic pain and depression. Pharmacol Res. 2021;174:105957.

5.    Arolt V, Peters M, Erfurth A, Wiesmann M, Missler U, Rudolf S, et al. S100B and response to treatment in major depression: A pilot study. Eur Neuropsychopharmacol. 2003;13(4):235–9.

6.    Mcgrowder DA, Miller F, Vaz K, Nwokocha C, Wilson-clarke C, Anderson-cross M, et al. brain sciences Cerebrospinal Fluid Biomarkers of Alzheimer's Disease : Current Evidence and Future Perspectives. Brain Sci. 2021;(11):1–56.

7.    Spilker C, Gundelfinger ED, Braunewell K-H. Evidence for different functional properties of the neuronal calcium sensor proteins VILIP1 and VILIP-3: from subcellular localization to cellular function. Biochim Biophys Acta - Proteins Proteomics. 2002;1600(1):118–27.

8.    Schroeter ML, Mueller K, Sacher J, Steiner J, Schoenknecht P. Serum S100B Represents a New Biomarker for Mood Disorders. Curr Drug Targets. 2013;14:1237–48.

9.    Grabe HJ, Ahrens N, Rose HJ, Kessler C, Freyberger HJ. Neurotrophic factor S100beta in major depression. Neuropsychobiology. 2001;44(2):88–90.

10.   Rothermundt M, Arolt V, Wiesmann M, Missler U, Peters M, Rudolf S, et al. S-100B is increased in melancholic but not in non-melancholic major depression. J Affect Disord. 2001;66(1):89–93.

11.   Ambrée O, Bergink V, Grosse L, Alferink J, Drexhage HA, Rothermundt M, et al. S100B serum levels predict treatment response in patients with melancholic depression. Int J Neuropsychopharmacol. 2015 May 19;19(3):1–9.

12.   Halbgebauer S, Steinacker P, Riedel D, Oeckl P, Anderl-Straub S, Lombardi J, et al. Visinin-like protein 1 levels in blood and CSF as emerging markers for Alzheimer's and other neurodegenerative diseases. Alzheimer's Res Ther. 2022;14(1):1–10.

13.   Gierke P, Zhao C, Bernstein H-G, Noack C, Anand R, Heinemann U, et al. Implication of neuronal Ca2+-sensor protein VILIP1 in the glutamate hypothesis of schizophrenia. Neurobiol Dis. 2008;32(1):162–75.

## 0029 - The Medıatıng Role of Fomo in the Relatıonshıp Between Sleep Qualıty and Productıvıty in Physıcıans

Pelin Göksel

Fatsa Public Hospital, Ordu, Adult Psychiatry

**Objective**: Fear of Missing Out (FoMO), which is described as the fear of missing out on developments in social environments, refers to the anxiety experienced by individuals thinking that other people are experiencing rewarding experiences that they do not experience themselves and is characterized by the desire to constantly follow up and stay update and connect. This situation brings along a problematic use of social media and negatively affects the individual's psychological well-being. Recent studies have determined that FoMO is associated with many other problems or mental disorders such as online game addiction, social anxiety disorder, problematic mobile phone use, and a decrease in academic performance.

Especially in recent times, researchs has found that psychosocial elements like excessive use of social media, addiction to social platforms, the fear of missing out on social interactions, and addiction to digital games are increasingly having an adverse impact on the quality of sleep. The number of studies addressing the use of social media and related factors in physicians' sleep quality is rather limited in the literature. A study conducted in India pointed to poor sleep quality and daytime sleepiness in physicians, yet no relationship was found between these factors and social media use habits. In another study conducted on medical faculty students, it was found that there was a significant relationship between poor sleep quality and mobile phone addiction.

It is believed that individuals with high FoMO will be more alert to notifications, and will have poorer concentration due to a part of their attention sources being busy, ultimately affecting their work productivity negatively. Particularly studies conducted on young individuals have suggested that social media use decreases academic performance by negatively affecting cognitive skills such as attention, memory, and learning. FoMO, which is a concept closely associated with social network use, aggravates efficient spare time management and multiple-task tracking and reduces academic adaptation. Research have also shown the detrimental impact of inadequate sleep quality on productivity.

An examination of existing literature reveals studies indicating a notable connection between Fear of Missing Out (FoMO) and both diminished sleep quality and a decline in academic performance. However, it's worth noting that these studies primarily focused on adolescents and university students, with none of them measuring work productivity. Our research was designed to examine how Fear of Missing Out (FoMO) relates to physicians' sleep quality and work productivity.

Path analysis was employed to investigate if FoMOS acts as a mediator in the connection between sleep quality and work productivity. A graphical representation of the model is illustrated in Figure 1.

Figure 1. Mediation Model established between FoMOS, CSSQS and EWPS
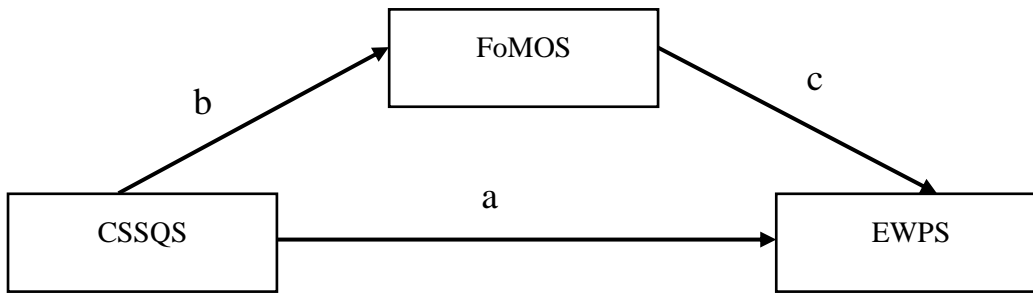


FoMOS: Fear of Missing Out Scale

CSSQS: Cumhuriyet Subjective Sleep Quality Scale

EWPS: Endicott Work Productivity Scale

**Methods**: As the participants needed to use social networks actively to test the hypotheses of the study, by reviewing the literature, being older than 45 years was determined as an exclusion criterion. Snowball sampling method was used. Self-report scales were sent to the physicians online. The data were collected between 15 December 2023 - 1 January 2024. 184 physicians aged between 24-45 years were included in the research. Fear of Missing Out Scale (FoMOS), Cumhuriyet Subjective Sleep Quality Scale (CSSQS), and Endicott Work Productivity Scale (EWPS) were utilized as data measurement tools.

Approval for the study was granted by the Ordu University Clinical Research Ethics Committee on December 8, 2023 (2023/326).

The study data were analyzed using IBM SPSS ver. 23.0 and JASP ver. 0.15 software. The categorical variables were expressed as numbers and percentages. The normal distribution of the continuous variables was tested through the Kolomogorov-Smirnov test. The relationships between continuous variables were analyzed using the Pearson correlation test when the assumption of normality was met, and the Spearman rank correlation test when the assumption of normality was not met. Path analysis was used to determine whether FoMOS had a mediating role in the relationship between CSSQS and EWPS. The threshold for statistical significance was established at $p<0.05$.

**Results**: When the sociodemographic and clinical data were analysed, it was seen that the mean age of the participants was 31.26±4.92, 59.8% were female, and 59.2% were married. Approximately two-thirds of the participants (69.6%) worked as specialist physicans. The majority of the specialist physicians (78.4%) worked in internal medicine. Regarding social network use frequency, the top three applications were WhatsApp (95.7%), YouTube (87.9%), and Instagram (86.4%).

Correlations between the scales were examined through the Spearman rank and Pearson correlation tests. As a result of the analyses, it was found that there was a positive and weak correlation between CSSQS and FoMOS (Spearman's rho=0.238, p=0.001), a positive and weak correlation between EWPS and FoMOS (Spearman's rho=0.378, p<0.001), and a positive and weak correlation between CSSQS and EWPS (r=0.384, p<0,001). The correlations were statistically significant. The data regarding the correlations between the scales are summarized in Table 1.

Table 1. Correlations between FoMOS, CSSQS, and EWPS

| | FoMOS | | EWPS | |
|---|---|---|---|---|
| | **Correlation Coefficient** | **p-value** | **Correlation Coefficient** | **p-value** |
| **CSSQS** | 0.238 | **0.001**[1] | 0.384 | **<0.001**[2] |
| **EWPS** | 0.378 | **<0.001**[1] | | |

[1]Spearman rank correlation test, [2]Pearson correlation test

FoMOS: Fear of Missing Out Scale, CSSQS: Cumhuriyet Subjective Sleep Quality Scale, EWPS: Endicott Work Productivity Scale

When the results obtained from the mediation model were examined, it was seen that CSSQS had a positive and statistically significant effect on EWPS (β=0.580, p<0.001) EWPS on FoMOS (β=0.150, p<0.001), and FoMOS on EWPS (β=0.600, p<0.001). The indirect effect of CSSQS on EWPS through the mediation of FoMOS was also found to be positive and statistically significant (β=0.090, p<0.001). In this case, it was concluded that FoMOS had a mediating role in the relationship between CSSQS and EWPS. The fit indices which show that the path analysis model in which the mediating effect of FoMOS was investigated fit with the data were found to be in acceptable values with CFI:1.000 (>0.95 very good fit), GFI:1.000 (>0.95 very good fit) and RMSEA: 0.000 (<0.05 very good fit). Accordingly, it can be stated that the established path analysis model fitted the data very well. The results regarding the mediating model are presented in Table 2.

Table 2. The results of the path analysis model established between FoMOS, CSSQS, and EWPS

| | Standardized β | Confidence Interval | p-value |
|---|---|---|---|
| Direct Effect | | | |
| CSSQS → EWPS | 0.580 | 0.578-0.582 | <0.001 |
| CSSQS → FoMOS | 0.150 | 0.148-0.152 | <0.001 |
| FoMOS → EWPS | 0.600 | 0.596-0.605 | <0.001 |
| Indirect Effect | | | |
| CSSQS → FoMOS → EWPS | 0.090 | 0.089-0.091 | <0.001 |

CFI: 1.000, GFI: 1.000, RMSEA: 0.000

FoMOS: Fear of Missing Out Scale, CSSQS: Cumhuriyet Subjective Sleep Quality Scale, EWPS: Endicott Work Productivity Scale

**Discussion**: The sociodemographic and clinical data of the 184 physicians included in the study and their scale scores are presented in Tables 1 and 2. The study analyzed the correlations between the scales and found that there were positive and weak correlations between CSSQS and FoMOS, EWPS and FoMOS, and CSSQS and EWPS. The mediating role of FoMOS was investigated through path analysis, and it was concluded that FoMOS had a mediating role in the relationship between CSSQS and EWPS.

Upon reviewing the literature, it becomes apparent that there are varying findings regarding the association between FoMO and sleep quality. In a large-scale study of university students, sleep quality was linked to social media addiction, however no significant association with FoMO was found. (32). 283 university students were included in a study in which the theoretical model regarding the relationship between interpersonal stress and FoMO and sleeplessness and poor mental health was tested through path analysis, it was found that higher interpersonal stress and FoMO were associated with sleeplessness and poor mental health, and FoMo level that was one standard deviation above the mean was associated with an increase of 0.14 standard deviation in the mean score in sleeplessness. In the present study, it was seen that interpersonal stress had a stronger relationship with sleeplessness than FoMO (33). During the COVID-19 pandemic, research on mobile phone addiction revealed that FoMO played a mediating role in the connection between mobile phone addiction and reduced sleep quality (34). A qualitative study that investigated the factors affecting sleep quality concluded that socialization, FoMO, and social/technological attention distracting factors negatively affected sleep quality (35). In the current investigation, a positive but weak correlation was observed between FoMOS scores and elevated CSSQS scores, indicative of lower sleep quality. This finding aligns with similar outcomes reported in existing literature. Nevertheless, almost all studies conducted in this regard have been conducted with the participation of university students. In the study we conducted on a sample of physicians, the mean age was higher compared to the studies in the literature, and it is possible that sleep quality was affected by factors related to the profession. In addition, not having evaluated factors that might affect sleep quality such as social media use at nighttime and screen exposure duration can be considered a limitation of our study. In conclusion, further studies that will shed light on the relationship between FoMO and sleep quality in the sample of physicians are needed.

There is a scarcity of research on the correlation between FoMO and work productivity in the available literature. In a 2020 study involving 748 participants, a positive relationship was identified between FoMO and both social media usage and daily functioning, including work productivity. Additionally, in a study involving university students, FoMO was linked to difficulties in adapting to university life and coursework, acting as a mediator between social media engagement and academic adjustment. Another study in Iran, which included 447 medical students, revealed a direct negative association between FoMO and academic performance. Our study's findings align with the limited existing literature on the connection between FoMO, academic performance, and work productivity.

**Keywords:** FoMO, sleep quality, productivity

**References**

Adams SK, Williford DN, Vaccaro A, Kisler TS, Francis A, Newman B. The young and the restless: Socializing trumps sleep, fear of missing out, and technological distractions in first-year college students. Int J Adolesc Youth. 2017;22:337-48.

Rozgonjuk D, Sindermann C, Elhai JD, Montag C. Fear of Missing Out (FoMO) and social media's impact on daily-life and productivity at work: Do WhatsApp, Facebook, Instagram, and Snapchat Use Disorders mediate that association? Addict Behav. 2020;110:106487.

Alinejad V, Parizad N, Yarmohammadi M, Radfar M. Loneliness and academic performance mediates the relationship between fear of missing out and smartphone addiction among Iranian university students. BMC Psychiatry. 2022;22:550.

Almeida F, Marques DR, Gomes AA. A preliminary study on the association between social media at night and sleep quality: The relevance of FOMO, cognitive pre-sleep arousal, and maladaptive cognitive emotion regulation. Scand J Psychol. 2023;64:123-32.

Zhu X, Zheng T, Ding L, Zhang X, Li Z, Jiang H. Exploring associations between social media addiction, social media fatigue, fear of missing out and sleep quality among university students: A cross-section study. PLoS One. 2023;18:e0292429.

## 0030 - The Effect of Workplace Stress and Workplace Bullying on Life Satisfaction in Nurses

Pelin Göksel

Fatsa Public Hospital, Ordu, Turkey

**Objective**: Research indicates that nurses commonly experience workplace stressors, often associated with high workload, the severity of patients' health conditions, conflicts in relationships with physicians or colleagues, lack of social support, and factors related to workplace violence. A recent review has found that Australian nurses experience a moderate to high level of workplace stress. A study conducted with emergency department nurses, utilizing the effort-reward imbalance model to assess workplace stress, found that 83% of the nurses experienced job stress.

Workplace bullying results in low job satisfaction, decreased job performance and productivity, burnout, as well as adverse mental and physical health issues. The recent findings from studies indicate that nurses' exposure to workplace bullying is higher than perceived, occurring on a gender-biased basis. This bullying frequently manifests through methods such as humiliation, ridicule, gossip, and social exclusion. Exposure to workplace bullying has been shown to lead to adverse physical health outcomes. Upon reviewing the literature, it is observed that nurses most commonly experience bullying in the form of verbal abuse; however, rates of physical violence and sexual harassment are surprisingly high as well.

Life satisfaction can be defined as the emotional well-being that occurs when an individual achieves their standards and goals. Sociodemographic and psychosocial factors, including age, gender, economic status, lifestyle, participation in leisure activities, and environmental support, are widely acknowledged to impact life satisfaction. Additionally, variables related to one's profession, such as duration of employment, work environment, professional satisfaction, job stress, and workplace bullying, have been found to be associated with life satisfaction.

It is well acknowledged that nurses, an indispensable and significant component of the aim of our study is to investigate the effects of workplace stress and workplace bullying on life satisfaction in nurses.healthcare sector, experience workplace stress and workplace bullying at high rates.

**Methods**: The study included 164 nurses currently employed in any healthcare institution. The forms were created through Google Forms (Google, California, USA) and distributed to nurses via WhatsApp and group channels. The research data were collected between 15 December 2023 and 1 January 2024. Nursing Stress Scale (NSS), Negative Act Questinaire-Revised (NAQ-R), Satisfaction with Life Scale (SWLS) were used as data collection tools.

The ethical approval for the study was obtained from the Ordu University Clinical Research Ethics Committee on December 8, 2023 (Application No: 311 Decision No: 2023/327).

The data analysis for the study was conducted using IBM SPSS version 23.0. The normal distribution of continuous variables was examined using the Kolmogorov-Smirnov test. The Spearman rank correlation test was used to investigate the relationships between continuous variables, as the normality assumption was not met. The potential impact of the NAQ-R and NSS on the SWLS was investigated through multiple linear regression analysis. The assumption of the normal distribution of residuals, a requirement for the multiple linear regression model, was investigated using the Kolmogorov-Smirnov test. The linearity of the relationship between the dependent variable and independent variables was assessed through a scatter plot. In the existing multiple linear regression model, the presence of multicollinearity among independent variables was investigated using the Variance Inflation Factor statistic. A significance level of $p < 0.05$ was adopted for statistical significance.

**Results**: According to sociodemographic and clinical data, the youngest nurse was 23 years old, while the oldest nurse was 53 years old, with a mean age of participants being 31.39±9.13. Of the participants, 91.4% were female, and 71.8% were married. When examining the departments in which nurses work, it was observed that 37.4% worked in internal units, 25.8% in surgical units, 17.2% in intensive care units, 7.4% in emergency units, and 12.3% in other units (such as blood collection, dialysis, vaccine department). Nurses' years of service ranged from 1 to 49 years, with an average tenure of $15.93 \pm 10.18$ years. 29.4% of the nurses were diagnosed with chronic diseases, while 5.5% were diagnosed with psychiatric illnesses. The sociodemographic and clinical data results are presented in Table 1.

Table 1. Descriptive statistics of the participants

|  | n | % |
|---|---|---|
| **Age** | | |
| Mean±SD | 37.39±9.13 | |
| Min-Max | 23.00-53.00 | |
| Median ($Q_1$-$Q_3$) | 37.00 (29.00-46.00) | |
| **Gender** | | |
| Female | 149 | 91.4 |
| Male | 14 | 8.6 |
| **Marital Status** | | |
| Single | 46 | 28.2 |
| Married | 117 | 71.8 |
| **Employment Service** | | |
| Emergency | 12 | 7.4 |
| Surgery | 42 | 25.8 |
| Internal | 61 | 37.4 |
| Intensive Care | 28 | 17.2 |
| Other | 20 | 12.3 |
| **Tenure** | | |
| Mean±SD | 15.93±10.18 | |
| Min-Max | 1.00-49.00 | |
| Median ($Q_1$-$Q_3$) | 15.00 (6.75-25.00) | |
| **Chronic Disease Diagnosis** | | |
| Yes | 48 | 29.4 |
| No | 115 | 70.6 |
| **Psychiatric Disease Diagnosis** | | |
| Yes | 9 | 5.5 |
| No | 154 | 94.5 |

Mean, SD: Standart Deviation, $Q_1$:1. quartile, $Q_3$:3rd quartile

When examining the inter-scale correlations, a negative and weak correlation was observed between NAQ-R and SWLS scores (Spearman's rho = -0.260, p < 0.001); a positive and moderate correlation was found between NAQ-R and NSS scores (Spearman's rho = 0.570, p < 0.001); a negative and weak correlation was identified between NSS and SWLS scores (r = -0.211, p = 0.007), and a statistically significant relationship was determined. The data regarding inter-scale correlations are presented in Table 2.

7Table 2. The levels of relationship among NAQ-R, NSS, and SWLS scores

|  | SWLS | | NSS | |
| --- | --- | --- | --- | --- |
|  | rho | p-value | rho | p-value |
| **NAQ-R** | -0.260 | **<0.001[1]** | 0.570 | **<0.001[1]** |
| **NSS** | -0.211 | **0.007[1]** | | |

[1]The Spearman rank correlation test    SWLS: Satisfaction with Life Scale    NSS: Nursing Stres Scale
NAQ-R: Negative Act Questionnaire-Revised

The study examined whether NSS and NAQ-R scores were significant predictors of SWLS score using a multiple linear regression model. The assumption of the multiple linear regression model, which checks whether the residuals adhere to a normal distribution, was investigated using the Kolmogorov-Smirnov test. The results indicated that the residuals conform to a normal distribution (Kolmogorov-Smirnov statistic = 0.65, SD= 163, p = 0.085). The scatter plot, depicted in Figure 1, explores the linearity of the relationship between the dependent variable and the independent variables.

Figure 1. The scatter plot depicting the relationship between SWLS and NSS as well as NAQ-R scores.
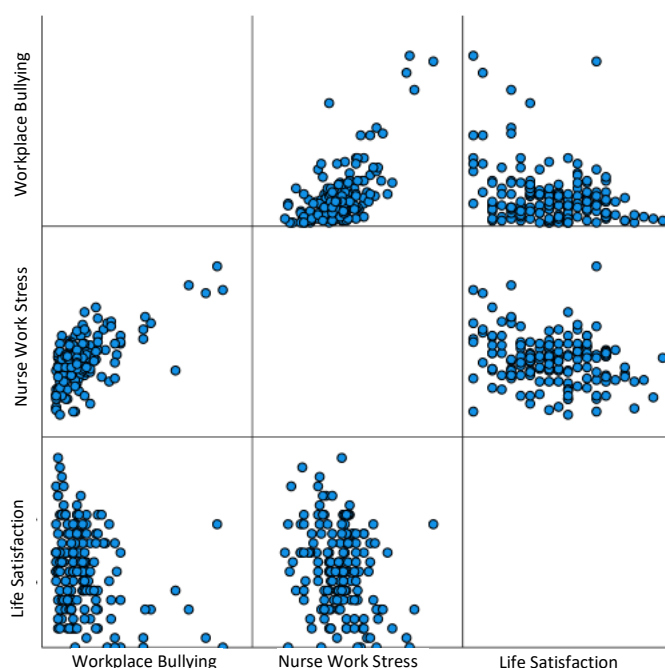


Upon examining the scatter plot provided in Figure 1, it is observed that the assumption of linearity in the model was not violated; however, the levels of the relationship between the dependent variable and the independent variables were found to be very weak. According to the results of the established multiple linear regression model, it was found that the NSS score was not a significant predictor of the SWLS score, while the NAQ-R score statistically significantly predicted the SWLS score. Accordingly, a one-point increase in nurses' NAQ-R scores results in a decrease of 0.076 points in their SWLS scores. In the established regression model, NSS and NAQ-R scores accounted for 31.2% of the variance in SWLS scores.

**Discussion:** In a study conducted with Portuguese nurses, the Depression Anxiety Stress Scale-21 was utilized, revealing a negative correlation between the stress subscale of the scale and life satisfaction. Another study conducted

with nursing students assessed stress using the Perceived Stress Scale, and it found a negative relationship between stress and psychological well-being as well as life satisfaction. In our study, when examining the relationship between stress and life satisfaction, a negative and weak correlation was found. As a result, it can be interpreted that our findings confirm the first hypothesis and align with the existing literature. In addition, the Nursing Stress Scale utilized in our study is more specific in measuring stress related to nurses' professions, thus making a significant contribution to the literature on job stress and life satisfaction among nurses from this perspective.

A study conducted with 211 physicians working in various hospitals in Pakistan demonstrated a negative correlation between workplace bullying and life satisfaction. A study conducted by Peng et al. included 493 nurses, revealing that workplace bullying adversely affects the quality of life and that psychological resilience mediates this relationship. In a study conducted with Chinese nurses, utilizing the NAQ-R to measure workplace bullying, nurses were found to have a workplace bullying score of 38.72±12.30, and the hypothesis that workplace bullying negatively affects quality of life was confirmed, with coping styles serving as mediators in this relationship. The average NAQ-R scores in our study (36.33±15.09) and the negative and weak correlation findings between NAQ-R and SWLS scores can be considered as results consistent with the literature Furthermore, the results confirm the second hypothesis of our study. However, there is a limited number of studies that specifically addressed life satisfaction and exposure to bullying among nurses. The vast majority of existing studies have been conducted using scales assessing quality of life. In addition, our study did not examine the relationship between sociodemographic and clinical data that could potentially influence the association between exposure to bullying and life satisfaction. By acknowledging these limitations, it can be argued that our study contributes to the literature. However, to achieve more precise conclusions on the matter, there is a need for studies employing different measurement tools and incorporating various variables.

Studies examining the predictors of life satisfaction have generally concluded that life standards are the most significant predictor. Studies focusing on the life satisfaction of healthcare professionals have demonstrated that peer support, job demands, work-family stress, and working hours are strong predictors. In our study, our hypothesis that workplace bullying predicts life satisfaction was confirmed; however, workplace stress was not found to be a significant predictor. To the best of our knowledge, our study is the first investigation exploring whether workplace stress and workplace bullying serve as predictors of life satisfaction. Additional investigations are required to draw more precise conclusions regarding the matter.

**Keywords:** workplace stress, workplace bullying, life satisfication

**References**

Badu E, O'Brien AP, Mitchell R, Rubin M, James C, McNeil K, et al. Workplace stress and resilience in the Australian nursing workforce: A comprehensive integrative review. Int J Ment Health Nurs. 2020;29(1):5-34.

Akella D, Seay E. 'Gender' in workplace bullying: A phenomenological study on nurses. J Nurs Manag. 2022;30(6):1700-1712.

Tokay Argan M, Mersin S. Life satisfaction, life quality, and leisure satisfaction in health professionals. Pers Psychiatr Care. 2021;57(2):660-666.

Oriol X, Miranda R, Amutio A. Correlates of Bullying Victimization and Sexual Harassment: Implications for Life Satisfaction in Late Adolescents. J Sch Nurs. 2021;37(3):202-208.

Peng J, Luo H, Ma Q, Zhong Y, Yang X, Huang Y, et al. Association between workplace bullying and nurses' professional quality of life: The mediating role of resilience. J Nurs Manag. 2022;30(6):1549-1558.

## 0033 - Comparative Analysis of Smoked and Vaporized Marijuana: Implications for Withdrawal, Craving, and Addiction Characteristics in Cannabis Use Disorder

Elif Merve Kurt Tunagür, Mustafa Tolga Tunagur

Department of Psychiatry, Sakarya Training and Research Hospital, Sakarya, Türkiye

**Background**: Marijuana is attracting increasing attention due to its changing legal status and its potential impact on public health. There are different ways to inhale marijuana, such as smoking or the water vaporization method known as "bong." Additionally, the innovative bong device commonly used in Türkiye called the "bucket bong", uses water and air pressure to aid the inhalation of vaporized cannabis. Vaporized use is becoming a progressively popular method in marijuana administration, and vaporized use implies a more intense exposure to marijuana compared to smoking. Vaporized marijuana, when compared to smoked marijuana at an equal dose, produces more excellent pharmacodynamic effects and higher concentrations of tetrahydrocannabinol (THC) in the blood (1).

The onset and resolution of psychoactive effects differ between the modalities associated with smoking and vaporizable cannabis. Studies conducted on adult cannabis users indicate that vaporizing concentrates may also heighten subjective drug effects, cognitive/psychomotor impairment, paranoia, and peak blood THC levels compared to smoking cannabis with equivalent THC concentrations (2). Using high-THC concentrates may heighten the risk of developing cannabis use disorder, in addition to other negative consequences linked to exposure to high THC levels, such as an increased risk for psychosis (3, 4). The literature indicates that intravenous, smoked, and vaporized administration shows faster but shorter-lasting effects compared to oral or sublingual routes (2).

There is limited information in the literature on the impact of the route of use of cannabis and other cannabinoids (e.g., by smoking or vaporizing) on substance craving. However, some studies suggest that the method of use of the substance may affect the severity and frequency of cravings experienced by individuals (5). Measures of cannabis use topography (especially puff volume velocity) were also significantly correlated with increased craving, withdrawal severity, and worsened sleep during a brief period of withdrawal (6).

The present study hypothesized that different methods of marijuana use would influence withdrawal symptoms and the severity of the addiction. The aim of the study is to evaluate the impact of chronic use of smoked and vaporized marijuana on craving, withdrawal symptoms, and addiction characteristics.

**Methods**: Fifty-five males with cannabis use disorder who had used marijuana in the past week and met the diagnostic criteria based on The Diagnostic and Statistical Manual of Mental Disorders - Fifth Edition (DSM-5) were included in the study. Informed written consent was obtained from all participants. The participants' cannabis use in the past week was confirmed through urine toxicology. Researchers developed a sociodemographic data form. The data form included data such as age, occupation, marital status, educational level, smoking and alcohol use, treatment applications, number of hospitalizations, route of cannabis use, duration of cannabis use, frequency of cannabis use, physical fights, legal penalties, medical history, and family medical history. Cases were categorized into smoked and vaporized groups based on the method of marijuana use. All participants underwent assessments using the DSM-5 criteria for marijuana withdrawal symptoms, the addiction profile index (API), and the substance craving scale. The Addiction Profile Index (API) is a self-report questionnaire aimed at assessing the severity of substance use disorder and patients' characteristics. The questionnaire evaluates the diagnostic criteria of substance use disorders, the effects of substance use on functioning, craving, and the motivation to stop using. The total score ranged between 0 and 20 points, indicating mild (<12), moderate (12– 14), and severe (>14) substance use disorder. The Substance Craving Scale (SCS) is a self-report scale consisting of five items, and each item is scored between 0 and 6 points. The maximum total craving score is 30.

**Results**: The average age of the 55 male participants was 28.2±6.2. Seventeen cases were in the smoked group, and 38 cases were in the vaporized group. There was no difference between smoked and vaporized groups regarding average age and BMI. Moreover, there was no difference between the smoked and vaporized groups in terms of withdrawal symptoms such as irritability, nervousness, restlessness, depressed mood, and physical discomfort, including abdominal pain, headache, and shakiness/tremor. In the vaporized group, aggression and insomnia symptoms were significantly higher compared to the smoked group.

Additionally, there was no difference between the two groups regarding physical fights, probation, suicide attempts, alcohol use, and family history of substance abuse. A history of legal issues after physical fights, use of other substances, and the frequent use of ecstasy were significantly higher in the vaporized group. The age (year) onset of cannabis use was significantly lower in the vaporized group (16.1±4,8) compared to the smoked group (19.1±5,4). Moreover, there was no difference between the two groups regarding the number of hospitalizations (alcohol and substance treatment center) and duration of cannabis use. Finally, there was no difference between the two groups regarding API-Motivation

and API-Craving. In contrast, API-Impact on Life (API-IOL) and API-total scores, as well as craving scores, were significantly higher in the vaporized group.

**Conclusion**: Based on the comprehensive analysis of smoked and vaporized marijuana use among individuals with cannabis use disorder, our findings underscore the nuanced implications of administration methods on withdrawal, craving, and addiction characteristics. The observed differences in withdrawal symptoms, particularly heightened aggression and insomnia among vaporized marijuana users, emphasize the need for tailored interventions to address specific challenges associated with this method of administration. Moreover, the elevated prevalence of legal issues, use of other substances, and lower age of onset of cannabis use among vaporized users highlight distinct risk profiles that warrant targeted preventive measures and treatment approaches.

The significant associations between vaporized marijuana use and higher API-IOL and API-total scores, as well as increased craving levels, suggest a potentially heightened severity of addiction and its impact on various aspects of users' lives. Vaporized marijuana use was associated with higher plasma THC levels than smoked marijuana use (1). Moreover, previous studies have highlighted that high levels of cannabis increase addiction severity (7). These findings emphasize the importance of considering the method of marijuana administration in assessing addiction severity and designing comprehensive treatment strategies.

Overall, the study contributes valuable insights into the differential impacts of smoked and vaporized marijuana use on withdrawal, craving, and addiction characteristics, informing evidence-based approaches for the management of cannabis use disorder and related public health initiatives. Further research is warranted to explore underlying mechanisms and long-term outcomes associated with distinct methods of marijuana administration.

**Keywords**: Cannabis, vaporized, craving, withdrawal, addiction

**References**

1. Spindle TR, Cone EJ, Schlienz NJ, Mitchell JM, Bigelow GE, Flegel R, et al. Acute Pharmacokinetic Profile of Smoked and Vaporized Cannabis in Human Blood and Oral Fluid. J Anal Toxicol. 2019;43(4):233-58.

2. Spindle TR, Cone EJ, Schlienz NJ, Mitchell JM, Bigelow GE, Flegel R, et al. Acute Effects of Smoked and Vaporized Cannabis in Healthy Adults Who Infrequently Use Cannabis: A Crossover Trial. JAMA Network Open. 2018;1(7):e184841-e.

3. Di Forti M, Quattrone D, Freeman TP, Tripoli G, Gayer-Anderson C, Quigley H, et al. The contribution of cannabis use to variation in the incidence of psychotic disorder across Europe (EU-GEI): a multicentre case-control study. Lancet Psychiatry. 2019;6(5):427-36.

4. Cinnamon Bidwell L, YorkWilliams SL, Mueller RL, Bryan AD, Hutchison KE. Exploring cannabis concentrates on the legal market: User profiles, product strength, and health-related outcomes. Addict Behav Rep. 2018;8:102-6.

5. Newmeyer MN, Swortwood MJ, Abulseoud OA, Huestis MA. Subjective and physiological effects, and expired carbon monoxide concentrations in frequent and occasional cannabis smokers following smoked, vaporized, and oral cannabis administration. Drug Alcohol Depend. 2017;175:67-76.

6. McClure EA, Stitzer ML, Vandrey R. Characterizing smoking topography of cannabis in heavy users. Psychopharmacology. 2012;220(2):309-18.

7. Stuyt E. The Problem with the Current High Potency THC Marijuana from the Perspective of an Addiction Psychiatrist. Mo Med. 2018;115(6):482-6.

## 0038 - Evaluatıng Cases Applying for Specıal Needs Report For Children in Terms of Child and Adolescent Mental Health: An Example of a District State Hospital

Öznur Adıgüzel Akman[1], Enes Sarıgedik[2]

[1]Department of Child and Adolescent Psychiatry, Bülent Ecevit University Faculty of Medicine, Zonguldak, Turkey
[2]Department of Child and Adolescent Psychiatry, Sakarya University Faculty of Medicine, Sakarya, Turkey

**Introduction:** According to the World Health Organization (WHO), health is defined as the state of complete well-being of the individual both mentally, physically and socio-culturally. "Disability", on the other hand, is used to refer to the negative situations that arise in the interaction of individuals with health problems with personal and environmental factors [1]. International Classification of Functioning, Disability and Health"; According to the International Classification of Functioning, Disability, and Health (ICF), this term is used as an umbrella term for disability, activity limitation and participation limitation[2].

There are studies in the literature in which children with special needs are evaluated. In a study conducted in 2017, the sociodemographic data and clinical characteristics of 352 patients referred to the health board of a university hospital were investigated [3]. In another study, data on the special needs levels of 764 children who applied to the health board of the university hospital were reported [4]. In the study conducted by Öztürk and Kayhan 2020, the data of 307 cases, in the study conducted by Güller and Yaylacı in 2021, 1302, and in another study conducted by Aydoğan Baykara et al. 2022, the data of 472 cases were evaluated. All these studies have shown that there is more special need in areas related to child and adolescent mental health. However, as far as we know, these studies reflect the data of university hospitals and state hospitals in the city center. In this study, we evaluated the sociodemographic characteristics, admission diagnoses and special needs levels of patients who applied to a district state hospital for SNRFC; It is aimed to reveal how these diagnostic and special needs levels differ within the branches. Determining the needs of children and adolescents applying for SNRFC will guide both child psychiatry and specialist physicians in other branches.

**Material Method:** Between January 2021 and February 2023, 506 children and adolescents who applied to our hospital by making a SNRFC appointment were included in the study. Information about the sociodemographic characteristics, admissions diagnoses and special needs levels of the patients were obtained by retrospective examination of the archive files. Wechsler Intelligence Scale for Children (WISC-R) and Wechsler Intelligence Scale for Children-IV (WISC- IV) intelligence tests were used to evaluate the cognitive capacities of children older than 6 years of age. Brief intelligence assessment, Kent E-G-Y, Porteus Labyrinths tests were used in maladaptive cases who could not take the test. For children younger than 6 years of age, the Denver II Developmental Screening Inventory was applied. The cognitive levels of the patients were determined on the basis of clinical correlation along with the scales. In order to evaluate the severity of the clinic for patients clinically diagnosed with autism, the Autism Severity Assessment Scale scoring scale for children was used.

**Statistics:** Statistical analysis of the study data was performed using the SPSS 22 package program. The normally distributed data were shown as the mean standard deviation, and the data without the normal distribution were shown as the median (minimum-maximum). Descriptive information is shown as number (n) and proportional data are shown as percentage (%).

**Results:** A total of 506 patients with a mean age of 8.18±4 years were included in our study. While 198 (39%) of the cases were in the female gender; 308 (60%) were male patients. 447 (88%) patients were admitted from the same region and 59 (11%) patients were admitted from outside the province. 270 (54%) patients applied for the first time and 236 (46%) patients applied to the committee for the purpose of renewing their reports. Looking at the duration of the reports, 313 (61.9%) were more than 2-year reports;  It was observed that 33 (6.5%) patients were continuously dismissed.

When we look at the special needs areas, 45.2% of the patients have special needs in the field of child and adolescent psychiatry and 33% in the field of cognitive development; 13.6% had movement development and 12.4% had special needs in the field of language-speech and communication. It is shown in Figure-1.
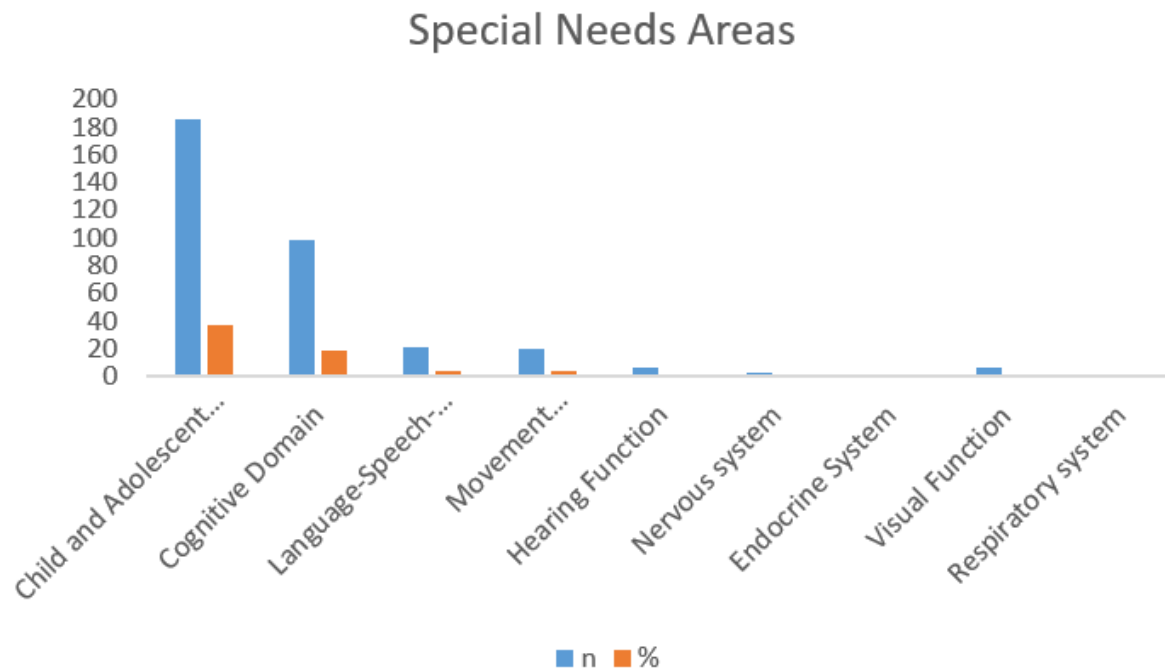
**Figure 1.** Special Needs Areas

When the diagnoses of the patients in the field of child psychiatry were examined, it was seen that 193 (38.1%) patients were diagnosed with Intellectual Disability (ID), 120 patients with Specific Learning Disabilities (SLD), and 93 (18.3%) patients with Autism Spectrum Disorder (ASD).

When the diagnoses received by the patients in branches other than child psychiatry were examined, it was seen that 30 (6%) patients had cerebral palsy, 18 (3.5%) patients had hearing loss, and 15 (3%) patients had special needs due to epilepsy. Cerebral palsy, gait abnormalities, bone development disorders, extremity malformation, phocomelia, torticollis, pes equinovarus, scoliosis, motor dysfunctions, myopathies, burns and spastic tetraplegia were other diagnoses in the field of movement development.

Diagnoses of epilepsy (3%) and cerebral palsy (6%) in the nervous system; In the field of hearing, a special needs report was issued with the diagnosis of hearing loss. In the field of hereditary diseases, among a total of 17 (3.3%) patients; 13 patients were diagnosed with Down Syndrome, 1 patient with Noonan Syndrome, 1 patient with Williams Syndrome and 2 patients with chromosome deletion. Iris colonobu, nystagmus, vision loss, optic eutrophy, blindness, corneal opacity, hyperopia and optic disc disorders have been diagnosed in patients with special needs in the field of vision. Cushing's Syndrome, diabetes and short stature in the endocrine field; chronic obstructive pulmonary disease in the respiratory area; Fallot tetrology in the area of the heart; In the genitourinary area, it was observed that a report was issued with the diagnosis of urinary incontinence.

**Discussion:** In this study, between January 2021 and February 2023, the diagnoses of children and adolescents who applied for SNFRC the levels of special needs they need, and the extent to which these levels are related to which branches were examined. The results provide important clues in terms of evaluation, rehabilitation needs and management of these patients. Although studies have been conducted on a provincial basis in the literature, this study also reflects the district data; At the same time, it differs from other studies in that it uses semi-structured scales that have not been used in other diagnostic studies.

The most common diagnoses were ID (38.1%), ÖÖG (23.7%) and ASD (18.3%), respectively. Similarly, in another study, these rates were reported as 52.7% ID, 17.6% SLD, and 12.4% ASD (5). Although our findings are consistent with the literature, they emphasize the importance of these three diagnoses in special education. In addition, cerebral palsy (6%), epilepsy (3%) and hearing loss (3.5%) were the most common diagnoses in other areas. Cerebral palsy was the most common diagnosis in the field of movement development. The study conducted by Aydoğan Baykara et al. in 2022 also supports this. In another study, 9.7% had epilepsy and 6.8% had cerebral palsy(4).

It is striking that there are significant differences between branches according to the need for special education. When evaluated from this point of view, it was seen that the most special needs need were opened in the field of child psychiatry. After child and adolescent psychiatry (45.2%) and cognitive (33%), the most special needs were needed in

the field of movement development (13.6%), language-speech, communication (12.4%), hearing (3.5%) and nervous system (3.5%). This was followed by hereditary diseases and visual field. In a study, hearing, speech-language disorders and visual disorders were the most common diagnoses after neurological diseases(3).

Although the priority areas are related to child and adolescent mental health, it is of great importance for physicians from other branches to evaluate whether children have special needs in the relevant field in order to provide the necessary support with a holistic approach.

This study has some limitations. Although our study is written with the expectation that it reflects the district data, it also includes the data of cases coming from outside the province due to the lack of appointments to the provincial centers. However, these data constitute only a small proportion of patients. Since it reflects only the data of our hospital and is a single-center study, the data cannot be generalized to the entire population.

Evaluation of patients admitted due to SNFRC and preparation of necessary needs reports is an important area that concerns all physicians, especially child and adolescent mental health physicians. This study shed light on the data on which branches, diagnoses and at what level of education patients need. Supporting our findings with other studies evaluating the differences between district-based SNFRC cases and province-based data and the general approaches of the branches will be a guide for clinicians working in the field.

**Keywords:** SNRFC, special needs, child psychiatry, disability

**References**

[1]      Yıldız R.Care And Rehabilitation Introductıon. Educational Publishing House; 2020. 144 p.

[2]      Karlsson E, Gustafsson J. Validation of the International Classification of Functioning, Disability and Health (ICF) core sets from 2001 to 2019 – a scoping review. Disability and Rehabilitation. 2022;44(14):3736-48.

[3]      Yektaş Ç, Kaplan SE. Evaluation of Health Committee Reports of Patients Admitted to the University of Child and Adolescent Department. Konuralp Medical Journal. 2017;52-6.

[4]      Terzioğlu MA., Büber A., Tanrıverdi Ç, Şenol H. Special needs levels of the cases who applied for special needs reports for children. Pamukkale Medical Journal, 2022, 15(1), 77-85.

[5]      Kayhan M, Öztürk Y. Clinical and Sociodemographic Characteristics of Patients Presenting to a University Hospital with a Special Needs Report for Children. Osmangazi Medical Journal, 2022, 42 (2), 240-248.

## 0068 - Metabolic Profiling in Bipolar Disorder

Talha Ağaç[1], Fatmanur Köktaşoğlu[2], Halime Dulun Ağaç[2], Metin Demirel[2], Şahabettin Selek[2], Mustafa Solmaz[1]

1Department of Psychiatry, University of Health Sciences, Bagcilar Training and Research Hospital, Istanbul, Turkey
2Department of Medical Biochemistry, Faculty of Medicine, Bezmialem Vakıf University, Istanbul, Turkey

**Objective**: Bipolar Disorder (BD) is a disease characterized by extreme fluctuations in energy, mood and functionality. The etiology of BD is not well understood, and there are no diagnostic markers for the disease[1]. New and more effective diagnostic and treatment options can only be developed once clearer data on etiology is obtained [2]. The use of metabolomics can lead to new discoveries that shed light on diseases with unknown etiology. Metabolomics studies examine metabolism and metabolic dynamics from a holistic perspective by examining hundreds of metabolites together rather than a single biomarker[3]. Nuclear Magnetic Resonance (NMR) is utilized in the analysis of metabolomics. Urine samples are a practical and easily applicable analyte for NMR experiments due to their simple structure[3]. Metabolite alterations and possible pathways have been shown to differ among populations of Bipolar Disorder patients. It is suggested that each population should be presented with their own specific alterations [4]. In our study we plan to demonstrate potential changes in metabolic pathways and metabolites in urine of patients with BD and Manic Attack and to identify markers that can aid in the diagnosis of BD or prediction of Manic attacks, in Turkish population.

**Methods**: The study received ethics committee approval from the Health Sciences University Hamidiye Scientific Research Ethics Committee. Patients were clinically diagnosed according to DSM-5 Bipolar Disorder diagnostic criteria. Subsequently, Hamilton Depression Rating Scale (HDRS) and Young Mania Rating Scale(YMRS) were applied and episodes were categorized. The SCL-90R was applied to healthy volunteers. Those who scored 1 or higher on the "General symptom level" and 10 subscales of the SCL-90R were excluded. Patients and volunteers who maintained an 8-10 hour fasting period had no additional chronic or infectious diseases, had no alcohol or substance dependence, had not used alcohol or substances for at least 6 months, and had no mental retardation were included. Patients and volunteers who used medication for any reason in the last 1 month (except for the treatment of Bipolar Disorder in the patient group), had obesity, were pregnant or in the postpartum period and catatonic, were not included. Furthermore, individuals who scored above the cut-off score on both the HDRS (8 points or more) and YMRS (7 points or more) were diagnosed with a mixed episode of Bipolar Disorder and subsequently excluded. Thus, the results were purified by eliminating the effects of the variables. The urine samples were transferred to a urine tube and centrifuged at 3000 rpm for 5 minutes. The resulting supernatant was then transferred to Eppendorf/cryotubes and stored at -80 °C until the time of the study. A metabolic profile was created by comparing the urine of 19 patients experiencing a manic episode of BD with the urine of 27 healthy controls targeted-quantitatively using NMR. Metabolite identifications were performed using Chenomx NMR suite 8.2 (Chenomx Inc.), Human Metabolome Database (HMDB) online platform and literature values [5]. Absolute concentrations for all identified metabolites were determined by peak matching with reference to the signal of the DSS chemical used as an internal standard. The NMR data was quantified using the Chenomx NMR Suite analysis program. A total of 335 metabolites listed in the Chenomx program for 500 MHz NMR spectrometers, which were above the limit of detection (LoD) in the samples screened, were quantified as a result of the NMR analysis. The data obtained was evaluated using the MetaboAnalyst 5.0 program, and metabolite and pathway analysis was performed.

**Psychometric Scales:**
1) Hamilton Depression Rating Scale (HDRS):
The Hamilton Depression Scale has been reported to measure both the level of depression and the change in severity but not to make a diagnosis. As a cut-off score, the depression level is classified as 7 points and below normal, 8-13 points as mild depression, 14-18 points as moderate depression, 19-22 points as severe depression, 23 points and above as very severe depression.

2) Young Mania Rating Scale (YMRS):
Since the Young Mania scale measures severity and change, does not make a diagnosis and is a follow-up scale, diagnoses will be made according to DSM-5. In addition, since the Turkish version of the scale does not calculate a cut-off score and the general tendency in the literature is to use 7 as the cut-off score for the YMDS, we set it as 7 points.

3) Symptom Checklist 90R (SCL-90R):
The Turkish version of the SCL-90R was applied and those who scored 1 or higher in the "General symptom level" and 10 subscales were excluded. Thus, subclinical psychiatric symptoms among healthy volunteers will also be excluded.

**Statistical Analysis:** IBM SPSS, Version 28.0.0.0.0 software package program was used for one-way statistical analysis of the data. Mean, standard deviation, median, minimum and maximum values, percentage ratio and frequency values were used for descriptive statistics of the data. Shapiro-Wilk test was used to determine the conformity of the variables

to normal distribution. Then, for comparisons between patient and control groups, Student's t-test was used for variables fitting the normal distribution and Mann-Whitney U test was used for variables not fitting the normal distribution. Statistical significance value was accepted as $p < 0.05$.

**NMR Analysis:** Quantitation values of the matched resonance signals will be analyzed by Shapiro-Wilk test in terms of distribution type and the significance of the difference between groups will be evaluated by Mann-Whitney U or Student t test in terms of one-way statistical analysis ($p < 0.05$). Univariate statistical analyses (mean, standard deviation of metabolite quantitation data and correlation between sociodemographic or clinical variables) were performed with SPSS software (Version 28.0.0.0, IBM). Quantitative data of resonance signals matched to metabolites in NMR spectra were normalized to fit the normal distribution for statistically significant metabolites, followed by fold change (FC) and t-test. Fold Change is used to understand how much the expression of a gene changes under two different conditions. It shows how many times one measurement increases or decreases compared to another measurement.

Fold change is used to understand the magnitude of a change, while statistical tests such as t-tests are used to determine whether this change is significant between groups. Using the two concepts together is important to verify that the results obtained are both biologically and statistically significant. Multivariate analysis and metabolite-related pathway analyses were reported after data normalization (autoscaling and log-transformation) using the MetaboAnalyst (5.0) platform. Differential modeling between groups was performed mainly by Orthogonal Partial Least-Squares (OPLS) regression analysis. In order to improve discrimination power, Variable Importance in Projection (VIP) plot analysis will be used to select metabolites with variable importance above 1 and build new models including them. VIP-PLS-DA chemometric model performance evaluation was tested by calculating area under curve (AUC) values in CV-ANOVA and receiver operating characteristic (ROC) curve analysis. Pathway and enrichment analysis were performed with the selected metabolites. The power of specific metabolites to discriminate disease or mood episodes will be determined and significant metabolites were examined by correlation analysis in these subtypes.

**Results:**
**Evaluation and Comparison of Sociodemographic Data**

Nineteen participants, consisting of 3 males and 16 females, were included in the study along with 27 healthy controls, consisting of 7 females and 20 males. Comparative evaluation of the sociodemographic data of the participants is given in Table 1 and Table 2.

**Table 1**: Comparative evaluation of sociodemographic data

| Study Participants (n=46) | | | | |
|---|---|---|---|---|
| | **Patients(n=19)** | **Healthy Control(n=27)** | | |
| | Mean ± SD | Mean ± SD | **df/U Score** | **p** |
| **Age[a]** | 35,36±11,43 | 29,92±7,77 | **178,5** | **0,081** |
| **Education(Year)[b]** | 9,78±4,04 | 16±3,86 | **44** | **<0,001\*\*** |
| **BMI[b]** | 28,91±5,05 | 25,52±4,49 | **44** | **0,02\*** |
| **Smoker(p-y)[a]** | 10,39±15,80 | 3,40±6,78 | **204** | **0,19** |

Note: [a] Evaluated by Mann-Whitney U test. U Score is shown. [b] Independent groups T Test was applied. df result is shown

**Table 2**: Comparative evaluation of sociodemographic data

| Study Participants (n=46) | | | | | |
|---|---|---|---|---|---|
| | Patients(n=19) | Healthy Control(n=27) | p | χ2(df) | Odds Ratio |
| Male | 3(%16) | 20(%74) | p<0,001** | 15,154 | 15,238 |
| Female | 16(%84) | 7(%26) | | | |
| Alcohol users | 1 | 5 | p=0,189 | 1,73 | 4,091 |
| Non-alcohol users | 18 | 22 | | | |

χ2= chi-square

The patient group had lower years of education and statistically higher BMI than the healthy control group. Female gender was statistically higher in the patient group compared to the control group. There was no statistical difference between the two groups in terms of age, smoking and alcohol use. According to the substance use exclusion criteria for

both the patient and control groups, it was observed that the participants included did not have past or current substance use.

Urine NMR analysis screened 335 metabolites in the participant's samples. In both patient and control groups, 70 metabolites were detected above the Limit of Detection. Then, all detected metabolites were divided by urine creatinine and compared by standardizing the concentration difference between the samples.

Multivariate analysis and metabolite-related pathway analyses were performed using MetaboAnalyst (5.0) platform after data normalization (autoscaling and log-transformation). Samples were evaluated by taking median values. The cube values of the data were scaled by dividing the mean centered values by their standard deviations. Discriminant analysis methods were then applied. First PCA, then PLS analysis was applied for cross-validation. In the discriminant analysis, it is seen that these molecules are not strong enough to distinguish between 2 groups, patient and control. If the sum of Component 1 (PC1) and Component 2 (PC2) is 70% or more, these two components represent the main structure in the data set quite well and the discriminant power is considered high. According to the principal component analysis (PCA) graph created with the results of NMR analysis of mania patient and control group urine, the two highest variance explanatory components are taken as PC1 and PC2. Accordingly, the data used can be said to summarize 15.6% (8.6% + 6.7%) of the main structure. According to the PLS analysis graph created with the results of NMR analysis performed with the urine of manic patients and control group, although there was a metabolite that showed a statistically significant difference, the pattern that could make a class distinction between patient and control urine did not produce a statistically significant difference. It is seen that the main structure explains 11.5% (6.3%+5.2%). FC analysis showed a statistically significant difference with Taurine and Oxypurinol being low in the patient group and 2-Furoilglycine and 2 Hydroxyvalerate being high in the patient group.

The study identified Taurine metabolite as the strongest difference between the patient group and the healthy control group.

**Table 3**: Results of metabolites with significant t-test results

|         | T-statistic | P value  | -log10(p) | False Discovery Rate(FDR) |
|---------|-------------|----------|-----------|---------------------------|
| Taurine | 3,7159      | 0,000547 | 3,2618    | 0,037764                  |

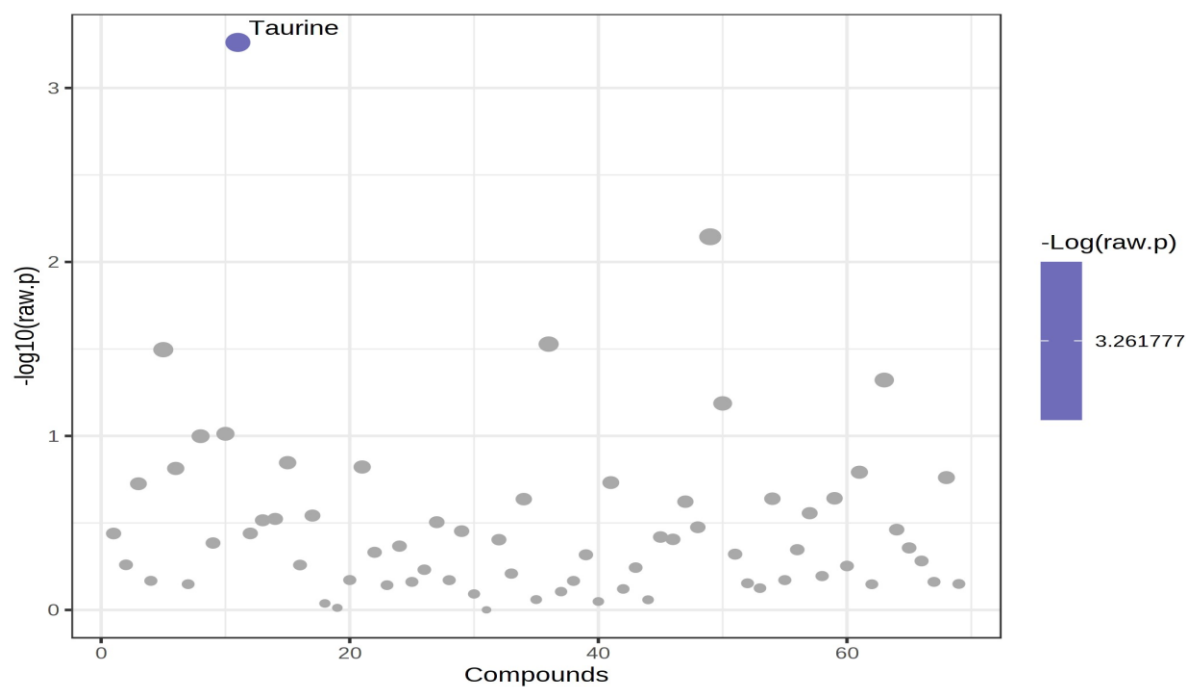

Figure 1: The t-test result was calculated using the AI-supported Metaboanalyst 5.0 program, which differs from one-way statistical analyses.

VIP score >1 in the PLS-DA model in the patient-control comparison was shown as hit metabolites. Pathway analysis revealed a significant difference between the groups in 5 pathways (Table 4, Figure 2):

| Table 4 | Total Cmpd | Hits | Hit metabolites | P value | FDR | Impact |
|---|---|---|---|---|---|---|
| Taurine and hypotaurine metabolism | 8 | 2 | L-Cysteine; Taurine | 0,000735 | 0,029405 | 0,42857 |
| Primary bile acid biosynthesis | 46 | 2 | Glycine; Taurine; | 0,002556 | 0,051112 | 0,01516 |
| Phenylalanine, tyrosine and tryptophan biosynthesis | 4 | 1 | L-Phenylalanine | 0,007166 | 0,095547 | 0,5 |
| Phenylalanine metabolism | 10 | 2 | L-Phenylalanine; Hippurate | 0,023088 | 0,23088 | 0,35714 |
| Pyrimidine metabolism | 39 | 5 | L-Glutamine, 3-Ureidopropionate, N-Carbamoyl-L-aspartate, Uracil; beta-Alanine | 0,033813 | 0,27051 | 0,11308 |

Pathway analysis revealed several pathways, including Taurine and Hypotaurine metabolism, Primary bile acid biosynthesis, Phenylalanine, Tyrosine and Tryptophan biosynthesis, Phenylalanine metabolism, and Pyrimidine metabolism, that could distinguish the patient group from healthy volunteers.
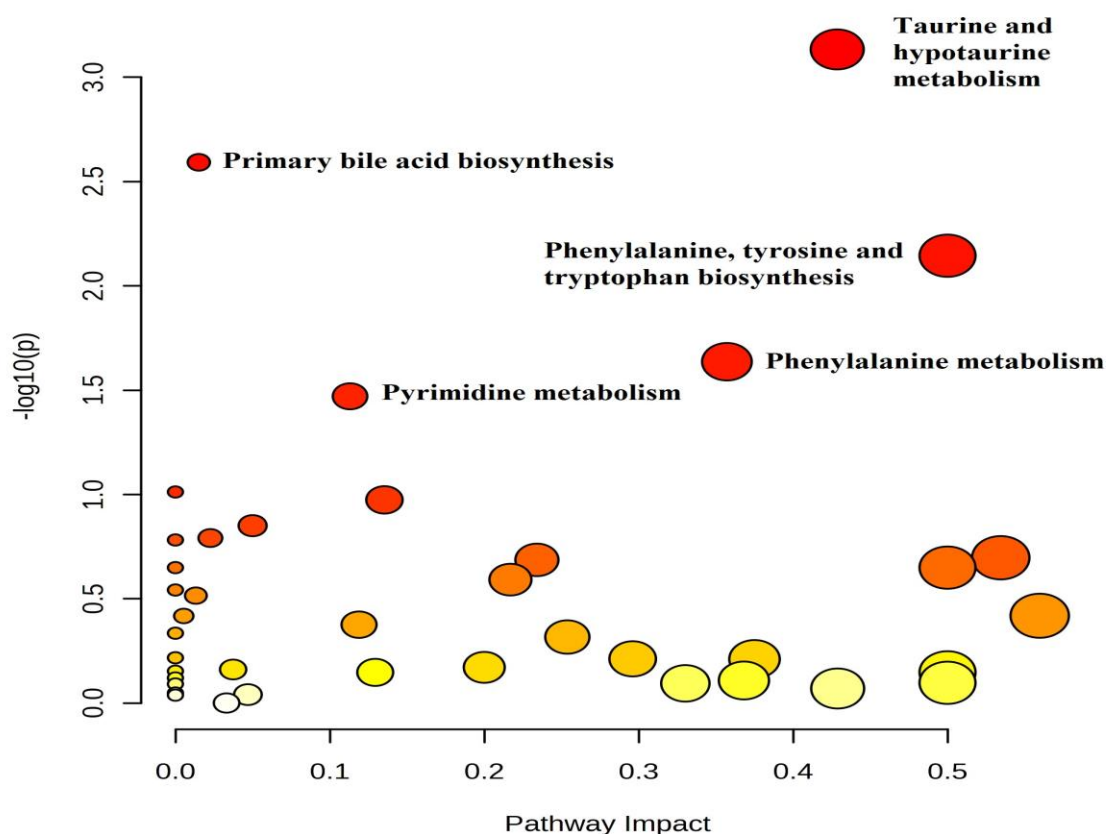


Figure 2: The Metaboanalyst 5.0 program calculated the result of a multi-way pathway analysis using artificial intelligence support.

**Discussion**: To our knowledge, this is the first metabolomics study on bipolar disorder conducted in the Turkish population. The metabolic profile of urine in individuals with BD differs from that of healthy volunteers. The primary aim of metabolic profiling studies is not to provide definitive results, but rather preliminary studies that provide insight into possible target molecules and target pathways. Fingerprints of diseases are searched for and thus provide guidance for diseases whose etiology has not yet been elucidated. Analyzing a wide range of different samples in order to establish a cause-effect relationship will help to look from a broad perspective and obtain more precise results. Further large-scale studies, particularly those examining the Taurine and metabolism pathways, may provide valuable insights into the diagnosis and prediction of manic episodes in BD.

**Key Words:** Bipolar Disorder, Manic Attack, Metabolomics, NMR, Taurine, Urine

**References**:

1. Ribeiro HC, Zandonadi FDS, Sussulini A. An overview of metabolomic and proteomic profiling in bipolar disorder and its clinical value. Expert Rev Proteomics. 2023 Jul-Dec;20(11):267-280. doi: 10.1080/14789450.2023.2267756. Epub 2023 Oct 30.

2. Muneer A. Mixed States in Bipolar Disorder: Etiology, Pathogenesis and Treatment. Chonnam Med J. 2017 Jan;53(1):1-13. doi: 10.4068/cmj.2017.53.1.1. Epub 2017 Jan 25.

3. Pedrini M, Cao B, Nani JVS, Cerqueira RO, Mansur RB, Tasic L, Hayashi MAF, McIntyre RS, Brietzke E. Advances and challenges in development of precision psychiatry through clinical metabolomics on mood and psychotic disorders. Prog Neuropsychopharmacol Biol Psychiatry. 2019 Jul 13;93:182-188. doi: 10.1016/j.pnpbp.2019.03.010. Epub 2019 Mar 20.

4. Hashimoto K. Metabolomics of Major Depressive Disorder and Bipolar Disorder: Overview and Future Perspective. Adv Clin Chem. 2018;84:81-99. doi: 10.1016/bs.acc.2017.12.005. Epub 2018 Feb 1.

5. Wishart DS, Guo A, Oler E, Wang F, Anjum A, Peters H, Dizon R, Sayeeda Z, Tian S, Lee BL, Berjanskii M, Mah R, Yamamoto M, Jovel J, Torres-Calzada C, Hiebert-Giesbrecht M, Lui VW, Varshavi D, Varshavi D, Allen D, Arndt D, Khetarpal N, Sivakumaran A, Harford K, Sanford S, Yee K, Cao X, Budinski Z, Liigand J, Zhang L, Zheng J, Mandal R, Karu N, Dambrova M, Schiöth HB, Greiner R, Gautam V. HMDB 5.0: the Human Metabolome Database for 2022. Nucleic Acids Res. 2022 Jan 7;50(D1):D622-D631. doi: 10.1093/nar/gkab1062.

## 0078 - Resting-State FMRI Findings in Adolescents with Binge Eating Disorder

Büşra Arslan[1], Zehra Koyuncu[1], Betül Kırlangıç[1], Meryem Seçen Yazıcı[2], Nihal Serdengecti[3], Ahmet Öz[4], Mahmut Cem Tarakçıoğlu[1], Didem Güneş Kaya[5], Oya Ercan[5], Serdar Arslan[4], Muhammed Tayyib Kadak[1]

[1]Department of Child and Adolescent Psychiatry, Istanbul University Cerrahpasa, İstanbul, Turkey
[2]Child and Adolescent Psychiatry Clinic, Zonguldak Maternity and Childrens Hospital, Zonguldak, Turkey
[3]Child and Adolescent Psychiatry Clinic, Yuksekova Public Hospital, Yüksekova, Hakkari, Turkey
[4]Department of Radiology, Istanbul University Cerrahpasa, İstanbul, Turkey
[5]Deparment of Pediatrics, Istanbul University Cerrahpasa, İstanbul, Turkey

**Objective:** Binge Eating Disorder (BED) is the most common eating disorder across all age groups. Binge Eating (BE) refers to the consumption of a significantly larger amount of food in a short period compared to most individuals under similar conditions, accompanied by a loss of control feeling. Previous research has indicated a link between BED and increased impulsivity and impaired executive function skills. Additionally, an increase in accompanying internalizing symptoms has been reported in individuals with this diagnosis.

The aim of our study is to evaluate eating disorder symptoms, eating awareness, executive function skills, levels of impulsivity, internalizing symptoms, and resting state fMRI findings in adolescents diagnosed with BED.

**Method:** The study included 22 individuals in the case group aged 12-18 years, who met the DSM-5 criteria for Binge Eating Disorder and were clinically observed to have normal intelligence. Exclusion criteria for our case group were determined as having psychiatric diagnoses such as mental retardation, autism spectrum disorder, specific learning disorder, schizophrenia, bipolar disorder, obsessive-compulsive disorder, and any medical diagnosis. For the comparison group of our study, 23 individuals aged 12-18 years who did not differ in terms of age, gender, and BMI from the individuals in the case group were included. Individuals with known medical illnesses and those with any psychiatric diagnosis according to the DSM-5 diagnostic system were excluded from the comparison group.

In the first stage, self-report forms consisting of Sociodemographic Data Form, Eating Disorder Examination Questionnaire (EDE-Q), Mindful Eating Questionnaire (MEQ), Revised Children's Anxiety and Depression Scale (R-CADS), Behavioral Inhibition System/Behavioral Activation System (BIS/BAS) Scale, and Barratt Impulsivity Scale-11-Short Form (BIS-11-SF) were filled out.

In the second stage, participants underwent psychiatric examination and diagnostic evaluation based on DSM-5 at the Istanbul University Cerrahpaşa Faculty of Medicine Child and Adolescent Psychiatry Outpatient Clinic, and the Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime (K-SADS-PL) Turkish version was applied to young participants and their parents. Subsequently, neuropsychological evaluation was performed with the Stroop Test-TBAG form and the Wisconsin Card Sorting Test.

In the final stage, consenting participants underwent 15-20 minutes of structural and functional MR imaging with 3.0 Tesla MR technology. The MR images in our study underwent preprocessing. Then, seed-based correlation analysis (SCA) method was used for functional connectivity analysis.

Categorical variables in the statistical analysis were analyzed using the Pearson chi-square and Fisher's exact tests. For comparing the means of the two groups, Student's t-test was utilized for normally distributed data, while the Mann-Whitney U test was used for non-normally distributed data. Correlation coefficients and statistical significances were calculated using the Spearman test for variables with at least one non-normally distributed or ordinal variable. A significance level of 0.05 was considered for all analyses.

**Results:** Our sample, comprising BED and comparison groups, showed no significant differences in age, gender, or BMI. BED group constituted 48.9% (N=22) of the sample, with 77.3% (N=17) females and 22.7% (N=5) males, while the comparison group comprised 51.1% (N=23) of the sample, with 73.9% (N=17) females and 26.1% (N=6) males. The average age for BED participants was $15.57 \pm 1.69$ years and $15.37 \pm 1.90$ years for the comparison group. Psychiatric comorbidities were found in 27.3% (N=6) of BED adolescents, including ADHD, major depressive disorder, social anxiety disorder, separation anxiety disorder, and specific phobia.

EDE-Q total score was significantly higher in the BED group compared to the comparison group ($p < 0.001$). Significant differences were also observed in the restraint, shape concern, and weight concern subscales. No significant difference was found in MEQ scores between groups ($p = 0.114$), except for the Emotional Eating factor ($p = 0.030$). RCADS depression median score differed significantly ($p < 0.002$) between groups, while total and anxiety scores did not.

Significant differences were found in the Barratt Impulsiveness Scale – 11-Short Form scores for motor impulsivity ($p = 0.005$) and total score ($p = 0.008$). No significant differences were observed in the BIS/BAS Scale subscales or total

score. Wisconsin Card Sorting Test showed no significant differences in total errors or perseverative responses. Stroop Test - TBAG form scores did not significantly differ between groups.

Whole brain volume analysis based on T1-weighted MRI showed no significant differences between groups. Upon examining all brain regions of interest (ROIs) listed in the atlases, we identified distinct functional connectivity patterns in the BED group compared to the comparison group. Functional MRI revealed heightened connectivity between the left cerebellum 10th lobule and the left supramarginal gyrus in the BED group compared to the comparison group (p-FDR<0.01993). Conversely, the BED group exhibited significantly reduced connectivity between the nucleus accumbens and the amygdala (p-FDR<0.001253) and hippocampus (p-FDR<0.037834), as well as between the subcallosal cortex and the juxtapositional lobule (supplementary motor area) (p-FDR<0,020852), the rostral prefrontal cortex and the posterior bundles of the temporal fusiform cortex (p-FDR<0,0423), and the right parahippocampal gyrus and the intracalcarine cortex (p-FDR<0,01684) compared to the comparison group. Moreover, decreased connectivity was observed in the BED group between the left inferior frontal gyrus within the language network and the contralateral inferior frontal gyrus (p-FDR<0.025007), frontoparietal PFK (p-FDR<0.025007), and the cerebellar vermis (p-FDR<0.016623) relative to the comparison group.

**Discussion:** Our sample mirrored the gender distribution of BED in clinical and community samples. Comorbidities observed in approximately one-fourth of our patients, such as ADHD, depressive disorder, and anxiety disorders, align with existing literature. Notably, a considerable portion of individuals with BED are overweight or obese. The comparison group's mean BMI indicates overweight status, whereas the patient group's mean BMI falls within the obesity range.

Our study found that the subscale scores of the EDE-Q assessing concerns about body shape and weight were higher in the BED group. These findings are consistent with literature suggesting that overweight adolescents with higher weight concerns may be at greater risk for the development of BED and the severity of the evolving pathology.

As indicated in the "dietary restraint theory", adolescents who engage in stricter and more intense restriction efforts are at a higher risk of binge eating behavior. In our study, the BED group obtained significantly higher scores in the "restraint" subscale of the EDE-Q, which evaluates dieting attempts and food intake restriction behaviors, emphasizing the relationship between restriction and BED.In the literature, it has been shown that BED is often accompanied by internalizing symptoms and that negative emotions increase sensitivity to eating behavior. Similarly, in our study, depressive symptoms were reported more intensely in individuals with BED compared to the comparison group.

The subscales of the BIS/BAS Scale, which assesses the Behavioral Activation System, were used in our study. The majority of individuals in our comparison group may not have shown differences in BIS/BAS scale scores between groups, as they exhibited possible disordered eating behavior despite not meeting the diagnostic criteria for BED in the DSM-5 diagnostic system.

Meta-analysis studies emphasize that tasks like the Wisconsin Card Sorting Test (WCST) measure associated cognitive processes to some extent. An explanation for the absence of differences between groups in functions such as task switching and inhibitory control could be that the tests we used did not include disorder-specific stimuli.

In resting state fMRI findings, decreased connectivity within the inferior frontal gyrus (IFG) and between the lateral prefrontal cortex (lPFC) and the frontoparietal network was noted in the BED group. The IFG and dorsolateral prefrontal cortex (PFC) are involved in response inhibition or resolving conflicting situations, with impairments observed in binge eating behavior. This suggests a failure in engaging these regions, crucial for self-regulation, in resolving food decision-making conflicts.

Previous research links the cerebellum to the sense of control loss, while the supramarginal gyrus (SMG) is associated with sensory processing. Increased connectivity between them may indicate SMG's significant involvement in cerebellum activity related to appetite regulation, potentially leading adolescents to perceive food as more rewarding.

The hippocampus is known for internal perception of hunger, inhibitory control, memory processes, and eating regulation, while the amygdala influences eating through emotional processing, and the nucleus accumbens is critical for reward processing. Our findings suggest coordination defects in these regions, impacting inhibitory control, internal awareness, reward sensitivity, and negative affect.

The subcallosal cortex, along with the ventromedial prefrontal cortex, integrates sensory and emotional information, linked to sensitivity to criticism and ruminative thoughts. Reduced connectivity in the supplementary motor area implies a lack of neural activation to prevent eating behavior when negative emotions arise. Our results indicate that disruptions in various brain regions and connections, even during resting state, in adolescents with BED contribute to difficulties in managing negative emotions, inhibitory control problems, and irregular eating behaviors. Exploring the relationship

between resting state fMRI findings and clinical parameters and neuropsychological measurements will provide insights into BED development. Longitudinal studies from adolescence to adulthood will further elucidate this relationship.

**References:**

1) Kessler RM, Hutson PH, Herman BK, Potenza MN. The neurobiological basis of binge-eating disorder. Neurosci Biobehav Rev. 2016;63:223–238.
2) Bohon C. Binge Eating Disorder in Children and Adolescents. Child Adolesc Psychiatr Clin N Am. 2019;28(4):549.
3)Wu M, Giel KE, Skunde M, Schag K, Rudofsky G, De Zwaan M, et al. Inhibitory control and decision making under risk in bulimia nervosa and binge-eating disorder. Int J Eat Disord. 2013;46(7):721–728.
4) Frank GKW, Shott ME, DeGuzman MC. The Neurobiology of Eating Disorders. Child Adolesc Psychiatr Clin N Am. 2019;28(4):629–640.
5) Stopyra MA, Simon JJ, Skunde M, Walther S, Bendszus M, Herzog W, et al. Altered functional connectivity in binge eating disorder and bulimia nervosa: A resting-state fMRI study. Brain Behav. 2019;9(2). doi:10.1002/brb3.1207.

## 0095 - Exploring the Relationship Between Limiting Beliefs in Romantic Partner Selection and Attachment Styles

1.   Betül Çınar[1], Ayşe Şeker[1], Berna Karataş[1], Kevser Kocaağa[1], Merve Güçlü Aydoğan[1], Ebru Morgül[1]

¹Department of Psychology, Ibn Haldun University, Istanbul, Türkiye

**Objective:** Romantic relationships and marriages are crucial decisions in a person's life that influence their well-being and mental health. The way individuals form attachments in their romantic relationships and the beliefs they hold about choosing a partner play essential roles in these decisions. Often, people may not be fully aware of their attachment styles or the beliefs that guide their choices, which can lead to dysfunctional relationships caused by the selection of incompatible partners. Moreover, it's important to examine how one's attachment style interacts with their propensity to accept limiting beliefs about relationships. Attachment styles define how people engage in close relationships, significantly affecting their sense of self-esteem and confidence in interpersonal interactions. On the other hand, limiting beliefs are the inaccurate assumptions individuals hold about relationships that can lead to poor choices in partners and dissatisfaction in relationships.

This research aims to explore the connection between attachment styles and the endorsement of limiting beliefs in choosing a romantic partner. The main hypothesis of the research is that there is a direct positive relationship between having an insecure attachment style and the likelihood of accepting limiting beliefs in the context of selecting a romantic partner.

**Methods**

**Participants:** A total of 208 unmarried youth aged 18-30 participated in this study. The participants were selected using the convenience sampling method.

**Measures:**

**1. Experiences in Close Relationships-Revised Scale (ECR-R):** The 36-item ECR-R scale which was adapted to Turkish by Selçuk et al.[1] administered to capture participants' anxious and avoidant attachment levels in their intimate relationships. 18 items of the scale measure avoidant attachment dimensions, and the remaining 18 items measure anxious attachment dimensions. Participants responded to items on a 7-point Likert scale, ranging from 1 (not agree at all) to 7 (totally agree).

**2. Attitudes about Romance and Mate Selection Scale (ARMSS):** The ARMSS scale which consists of 32 items and 7 sub-dimensions adapted by Güngör et al.[2] administered to measure participants' irrational beliefs regarding romance and partner selection. Participants rated a 5-point Likert scale from 1 (not agree at all) to 5 (totally agree).

3. **Sociodemographic Scale:** Participants' demographic information was collected using a sociodemographic scale, providing details about their age, gender, marital status, and current romantic relationship status and relationship experience.

**Procedure:** The study utilized an online survey methodology for data collection. Participants were selected by using the convenience sampling method. All participants who have voluntarily participated in the study are informed regarding the nature of the study and their right to withdraw from participation at any moment. Informed consent was obtained from all participants, and the study received ethical approval from the Ibn Haldun University Social Sciences and Humanities Scientific Research and Publication Ethics Board and Presidency (29/12/2023; E-71395021-050.06.04-35001), ensuring the protection of participants throughout the research.

**Data Analysis:** Descriptive statistics, including means and standard deviations, were computed for participant demographics and survey responses. Pearson correlation analysis explored the relationships between attachment styles and irrational beliefs about romance and mate selection. Linear regression analyses were employed to assess the associations between attachment styles and irrational beliefs about romance and mate selection.

**Results:** The average age of the participants was 20.97, (SD = 2.483). The majority, 83.2% (n = 173), were female, and 16.8% (n = 35) were male. A significant portion, 76.4%, reported being single, whereas 23.6% were in a relationship.

The Pearson correlation analysis indicated a significant positive correlation between an anxious attachment style and the endorsement of limiting beliefs in choosing a partner. In contrast, the avoidant attachment style did not show a significant correlation with limiting beliefs. The analysis also revealed a significant negative correlation between participants' age and limiting beliefs. Results from linear regression analysis highlighted a significant positive relationship between anxious attachment style and limiting beliefs, while no significant relationship was found with the avoidant attachment style.

**Discussion: One** of the most important findings of the research is the relationship between age and attachment styles. The collected data suggests that as age increases, rates of anxiety tend to decrease, subsequently leading to a decline in accepting limiting beliefs. This propounds a maturation effect where older individuals are less likely to hold onto limiting beliefs that can hinder their choices in romantic partners. The decrease in anxiety could be attributed to various factors, including increased emotional regulation, life experience, and changes in priorities and values as people age[3]. Eventually, individuals may develop a more secure sense of self and a more realistic and flexible approach to relationships and potential partners along with decreasing anxiety. In addition to this, individuals often gain more relationship experience with age, which can lead to a more nuanced understanding of romantic relationships. Although our research did not find a significant relationship between the number of relationship experiences and attachment styles, there are studies in the literature supporting that individuals who have experienced multiple break-ups tend to have fewer myths regarding romance and partner selection. A study suggests that individuals who experienced more relationships are less likely to hold beliefs such as "there is only one person I can be with", "me and my partner should be perfect", and "love is enough." [4].

The second important finding of our study is that individuals with anxious attachment exhibit higher levels of accepting limiting beliefs. This could be interpreted through the cognitive-behavioral model, where the anxious attachment style influences one's thoughts, which in turn affects relationship choices and behaviors. This finding corresponds with the existing literature, as it was reported before that higher anxiety was associated with more endorsement of irrational beliefs [5], [6]. Therefore, our study found no significant results for those with avoidant attachment. This may contradict the fact that higher levels of avoidant attachment were associated with accepting irrational beliefs more in the literature. [5] However, it is important to keep in mind that attachment styles and adherence to irrational beliefs may vary depending on studies conducted in different cultural backgrounds. Nevertheless, this finding partially validates our initial hypothesis, indicating that individuals with insecure attachment styles will embrace limiting beliefs regarding romantic partner selection.

According to our results, avoidantly attached individuals tend to accept the belief that opposites attract. As attachment theory suggests, avoidantly attached individuals value their independence and may need to avoid the closeness they find uncomfortable. Likewise, they might view relationships through a lens that stresses independence and differences, rather than closeness and similarity. By subscribing to the idea that opposites attract, avoidantly attached individuals might steer clear of partners who could potentially challenge their need for distance. In a similar vein, they may feel less at risk of cohesiveness and losing their sense of self and they choose partners who are perceived as opposite. Nonetheless, future research could conduct a deeper exploration of why avoidantly attached people might tend to hold this belief.

All in all, our study contributed to the literature by demonstrating that as anxious attachment increases, individuals' levels of accepting limiting beliefs in partner selection also increase, and contributed to our understanding of the relationship between relationship status and anxious/avoidant levels. Our study also supplied the literature by filling the gap on this subject, which is little studied in both Turkish and world literature.

A notable limitation in our research is the insufficient number of male participants, preventing a comprehensive analysis of gender-related correlations. Future research should aim for a more balanced participant demographic to enhance the generalizability of findings.

**Keywords:** Irrational beliefs, romantic partners, attachment styles, intimate relationships

**References:**

**[1]** Selçuk, E., Günaydın, G., Sümer, N., & Uysal, A. (2005). Yetişkin bağlanma boyutları için yeni bir ölçüm: yakın ilişkilerde yaşantılar envanteri-II'nin Türk örnekleminde psikometrik açıdan değerlendirilmesi. Türk Psikoloji Yazıları, 8(16), 1-11.

**[2]** Güngör, H. C., Yılmaz, M. & Çelik, S. B. (2011). Romantizm ve eş seçimi tutum ölçeğinin uyarlanması: geçerlik ve güvenirlik çalışması. Türk Psikolojik Danışma ve Rehberlik Dergisi, 4(36), 180-190. https://doi.org/10.17066/pdrd.66714

**[3]** Charles, S. T., &Carstensen, L. L. (2010). Social and emotional aging. Annu Rev Psychol. 61:383-409.

**[4]** Priest, J., Burnett M., Thompson R., Vogel A., & Schvaneveldt P. L. (2009). Relationship dissolution and romance and mate selection myths. Family Science Review.;14(1).

**[5]** Stackert, R. A., & Bursik K. (2003). Why am I unsatisfied? Adult attachment style, gendered irrational relationship beliefs, and young adult romantic relationship satisfaction. Personality and Individual Differences. 34(8):1419-1429.

**[6]** Kilmann P. R., Finch H., & Parnell M. M., Downer J. T. (2013). Partner attachment and interpersonal characteristics. Journal of Sex & Marital Therapy. 39(2):144-159.

## 0097 - The Effects of Risperidone and Quetiapine Use on Craving in Patients with Substance Use Disorder: A Preliminary Study

Özgün Türe Tekin [1], Gökçe Yağmur Efendi [2], Zeynep Demirtaş[3], Mustafa Dinçer[4]

[1] M.D., Mehmet Akif Inan Training and Research Hospital, Sanlıurfa, Turkey,
[2] M.D., Kocaeli University Hospital, Kocaeli, Turkey
[3] M.D., Bahçelievler District Health Directorate, İstanbul, Turkey
[4] M.D., Adnan Menderes University Hospital, Aydın, Turkey

**1.Objective:** The first medical models of addiction described craving as an "urgent and over-powering desire'' and craving has been placed at the center of several addiction models. Craving has been added as a diagnostic criterion for Substance Use Disorders (SUD); this represents one of the most relevant revisions to the substance-related and addictive disorders section in the fifth edition of the DSM (American Psychiatric Association, 2013). This change has been empirically supported by several behavioral, imaging, pharmacological, and genetic studies showing how craving plays a role in the core psychopathological features of SUD. Craving is also considered one of the main targets for the treatment of SUD, and it is widely accepted that there is a functional relationship between craving and relapse in addictive behaviors. Therefore, several pharmacological treatments approved by the Food and Drug Administration (FDA) for treating various forms of SUD are used to reduce craving (1). In the study conducted by Javdan et al., it was found that quetiapine reduced craving and withdrawal symptoms in patients with methamphetamine abuse under Methadone Maintenance Treatment (MMT) compared to the control group (2). The study conducted by Smelson et al. confirmed that cocaine-dependent schizophrenia patients experiencing withdrawal who received risperidone had significantly less cue-elicited craving on the intensity and depression items compared with the individuals who received the typical neuroleptics (3). In this study, we aimed to retrospectively examine the files of patients who had received treatment for substance abuse at our center within the last year and evaluate the effects of risperidone and quetiapine use on craving in patients with SUD.

**2.Methods: 2.1.Participants :**After receiving approval from the Ethics Committee, a retrospective analysis was performed on the medical records of children and adolescents aged 12 to 18 who applied to Sanlıurfa Child and Adolescent Substance Abuse Treatment Center and underwent psychiatric evaluations between January 2023 and January 2024. The patients treated with a diagnosis of Substance Use Disorder, who used risperidone or quetiapine and continued their four-week outpatient clinical follow-up and completed the Drug Use Disorders Identification Test (DUDIT) and the Substance Craving Scale (SCS) were included in the study (4,5). Another inclusion criterion was that the patients' file information had to be complete. Incomplete file information, lack of follow-up after treatment, presence of psychotic symptoms, combined use of risperidone and quetiapine, lack of use of either risperidone and quetiapine, and incomplete completion of the scales were determined as exclusion criteria.

**2.2. Data Acquisition :Drug Use Disorders Identification Test (DUDIT):** It is an 11-item scale that evaluates the frequency of substance use in the last year, substance-related problems and substance addiction symptoms (4).

**Substance Craving Scale (SCS):** SCS is a valid and reliable measuring tool that can be used to assess the craving on non-alcoholic substance use disorder (5).

**2.3. Statistical Analysis :** Statistical analyses were performed on IBM Statistical Package for the Social Sciences Statistics version 24.0 software (IBM SPSS Corp., Armonk, NY, USA). Descriptive statistics (number, ratio, median, min, max) were employed during the analysis. For continuous clinical variables, Friedman test and Mann-Whitney U test were used according to distribution characteristics within the group comparisons. Fisher's exact test was used for the categorical variables. P values $<0.05$ were regarded as statistically significant.

**3.Results:** In our study, the data of 13 participants was examined. 7 of these participants were in the quetiapine group and 6 in the risperidone group. The comparison of patients' sociodemographic characteristics is shown in **Table 1**. Upon analyzing the sociodemographic data, it was found that 15.3% of the participants were female, and the average age was 16 years old. Preliminary results suggest no significant difference between the Quetiapine and the Risperidone groups regarding age, sex, education, presence of substance use in the family, type of preferred substance, substance use duration and comorbid diseases. Preliminary results also suggest no significant difference between the Quetiapine and the Risperidone groups regarding the scores obtained from DUDİT and SCS.

After performing the Friedman test to evaluate the change in scores obtained from the SCS scale over a 4-week period, significant results were found for both the Risperidone group (p:0.003) and the Quetiapine group (p<0.001) **(Figure 1).**

**4.Discussion:**In our study, we observed the effects of quetiapine or risperidone intake on craving symptoms in patients with substance use disorder over a four-week period. Our report showed that use of risperidone or quetiapine reduced

substance craving symptoms over a 4-week period, but there was no significant difference between risperidone and quetiapine in this regard. Consistent with our research, Sattar et al. revealed that the use of quetiapine at an average dose of 153 mg/day for 4 weeks had positive effects on the craving scale in subjects with substance abuse disorders (2). Also as a result of their detailed study of 10 articles, Hassan et al. showed that risperidone was effective in reducing drug craving in methamphetamine use disorder (6).

We did not evaluate the effects of quetiapine and risperidone doses on craving. Our study's limitations include a limited sample size and lack of a substance-specific evaluation. Another limitation arises from the methodology of the study. Our results do not indicate a casual relationship because the study design is retrospective. Therefore, it seems that future studies need to be conducted with larger sample sizes and longer follow-up periods.

In conclusion, quetiapine and risperidone may help reduce cravings in Substance Use Disorders. Future research should include more rigorous double-blind placebo-controlled studies in large samples with this class of medications.

**Table 1.**

| | | Quetiapine Group | Risperidone Group | p |
|---|---|---|---|---|
| **Age** (median (min-max)) | | 16.0(14.0-17.0) | 16.0(14.0-18.0) | 0.73[a] |
| **Sex** (n (%)*) | Girl | 1(14.3) | 1(16.7) | 0.73[b] |
| | Boy | 6 (85.7) | 5 (83.3) | |
| **Education** (n (%)*) | Continuing | 1 (14.3) | 3 (50.0) | 0.22[b] |
| | Dropped out | 6 (85.7) | 3 (50.0) | |
| **Presense of Substance Use in Family** (n (%)*) | Yes | 2 (28.6) | 2 (33.3) | 0.66[b] |
| | No | 5 (71.4) | 4 (66.7) | |
| **Preference Substance**(n (%)*) | Methamphetamine(Meth) | 6 (85.7) | 5 (83.3) | 0.73[b] |
| | Meth +Marihuana | 1 (14.3) | 1 (16.7) | |
| **Substance Use Duration (year)** (median (min-max)) | | 2.0(1.0-3.0) | 2.0(1.0-3.0) | 0.94[a] |
| **Comorbid Disease** (n (%)*) | Yes | 1 (14.3) | 1 (16.7) | 0.73[b] |
| | No | 6 (85.7) | 5 (83.3) | |
| **DUDIT** (median (min-max)) | | 26.0(9.0-36.0) | 15.0(4.0-24.0) | 0.29[a] |
| **SCS week 1** (median (min-max)) | | 15.0 (5.0-24.0) | 15.0 (0.0-17.0) | 0.62[a] |
| **SCS week 2** (median (min-max)) | | 14.0(5.0-21.0) | 12.0(1.0-15.0) | 0.73[a] |
| **SCS week 3** (median (min-max)) | | 11.0(2.0-19.0) | 10.0(0.0-15.0) | 0.73[a] |
| **SCS week 4** (median (min-max)) | | 10.0(0.0-13.0) | 7.0(0.0-10.0) | 0.53[a] |

*: Percentage of Column

[a]: Mann Whitney U test

[b]:Fisher's exact test

Drug Use Disorders Identification Test (DUDIT), Substance Craving Scale (SCS)
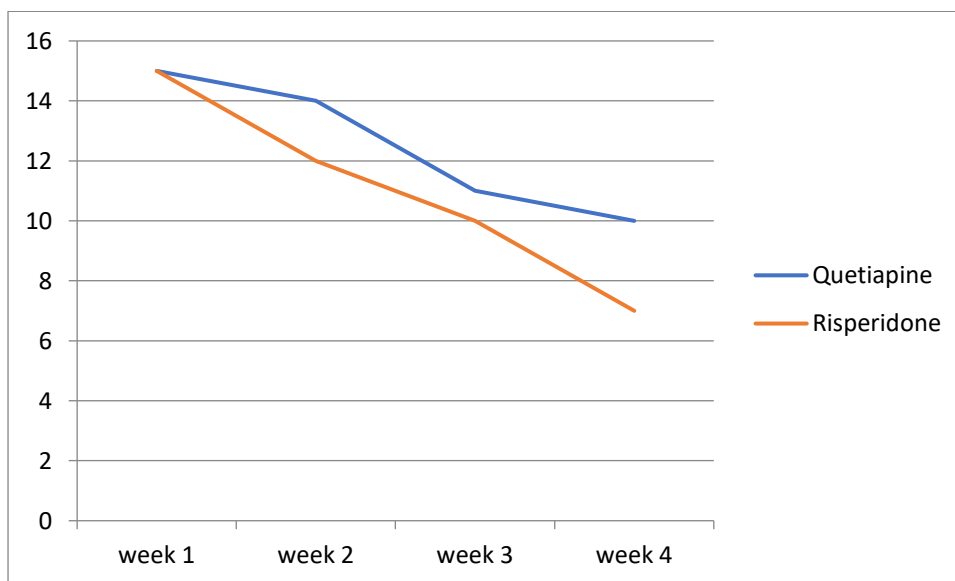


**Figure 1.** Distribution of SCS score medians by weeks

**Keywords:** craving, desire, addiction, substance use disorder, risperidone, quetiapine

**References**

1. Cavicchioli, M., Vassena, G., Movalli, M., & Maffei, C. (2020). Is craving a risk factor for substance use among treatment-seeking individuals with alcohol and other drugs use disorders.A meta-analytic review. Drug and alcohol dependence, 212, 108002.

2. Javdan, N. S., Ghaderi, A., & Banafshe, H. R. (2020). The effects of quetiapine on craving and withdrawal symptoms in methamphetamine abuse: A randomized, double-blind, placebo-controlled trial. International Journal of Medical Toxicology and Forensic Medicine, 10(4), 29374-29374.

3. Smelson, D. A., Losonczy, M. F., Davis, C. W., Kaune, M., Williams, J., & Ziedonis, D. (2002). Risperidone decreases craving and relapses in individuals with schizophrenia and cocaine dependence. The Canadian Journal of Psychiatry, 47(7), 671-675.

4. Evren, C., Umut, G., Bozkurt, M., Evren, B., & Yilmaz, H. (2017). Psychometric properties of the Turkish version of Drug Use Disorders Identification Test–Extended (Turkish DUDIT-E) in substance-dependent adults under probation. Psychiatry and Clinical Psychopharmacology, 27(1), 70-75.

5. Kılıç, S., Tan, M. N., & Mevsim, V. (2021). Validity and reliability of Turkish version of the craving experience questionnaire in the assessment of cigarette smoking. Journal of Substance Use, 26(5), 475-482.

6. Hassan, N., Nazir, S., & Sharif, U. (2022). Effect of risperidone on the cravings of patients with methamphetamine use disorder. European Psychiatry, 65(S1), S367-S367.

**0112 - Investigation of the Concept of Self-As-Context and Fear-of-Self in Autogenous and Reactive Subtypes of Obsessive Compulsive Disorder**

Merve Er, Mehmet Emrah Karadere

Department of Psychiatry, Istanbul Medeniyet University Goztepe Prof Dr Suleyman Yalcin City Hospital, Istanbul, Turkey

**Objective:** In their studies, Lee and Kwon proposed a new model including the concepts of "autogenous obsession" and "reactive obsession", considering that Obsessive Compulsive Disorder (OCD) has a heterogeneous structure and needs to be divided into more homogeneous subtypes [1]. It was found that fear of self, defined as the inability to trust one's self and worrying about the emergence of the negative aspects of the self that one fears to be, is especially associated with religious, sexual and aggression-themed obsessions [2]. It is thought to lead to a series of social and psychological problems in the lack of concept of self-as-context, which emphasizes observing this definition behavior and taking perspective on what one experiences while defining one's behaviors, thoughts, emotions or physical symptoms [3] [4]. We aimed to investigate the correlation between OCD severity and self-as-context and fear of self, and to compare self-as-context, fear of self and quality of life characteristics in autogenous and reactive subtypes.

**Methods**: The research sample consisted of patients with autogenous and reactive subtypes of OCD who applied to the OCD Outpatient Clinic of the Psychiatry Department of Goztepe Prof Dr Suleyman Yalcin City Hospital between July and December 2023, all patients who met the inclusion criteria until the predetermined number of patients was reached, and healthy controls (HC) consisting of hospital employees and medical faculty students working in the hospital who did not have any psychiatric disorder and matched with the patient group in terms of age, gender and educational status. A power analysis was performed for the study, and the number of participants for each of the three groups was determined as 30.

Participants agreed to participate in the study were interviewed after signing the informed consent form. Participants were first administered the Structured Clinical Interview for DSM-5 (SCID-5). The interview was continued with those who met the inclusion and exclusion criteria. According to the clinical interview and the Vancouver Obsessive Compulsive Inventory (VOCI) completed by the participants, the patients divided into the reactive group (RG) and the autogenous group (AG). Patients whose primary obsession could not be determined were not included in the study. A sociodemographic data form, VOCI, Dimensional Obsession Compulsion Scale (DOCS), Fear of Self Questionnaire-Short Form (FSQ-8), Self-as-Context Scale (SACS) and World Health Organization Quality of Life Scale-Short Form (WHOQOL-BREF) were completed by the participants.

For the patient group, patients between the ages of 18-65 with a diagnosis of OCD and at least literate education were included. For the HC group, individuals between the ages of 18-65, with at least literate education, without psychotropic drug use for the last 6 months and without known psychiatric disorder were included. Individuals with comorbid diagnoses other than OCD during SCID-5 administration in the patient group and individuals with any active psychiatric diagnosis during SCID-5 administration in the HC group were excluded from the study. For all groups, individuals who were thought to be at an intelligence level that would prevent them from completing the scales were not included in the study.

Ethics Committee Approval for the study was obtained.

Demographic and clinical characteristics of the cases evaluated in the study were analyzed by descriptive statistical analysis. Chi-Square Test was used to compare the rates of clinical features between the groups. One-way ANOVA analysis was used to compare the mean scores of SACS, FSQ-8, WHOQOL-BREF, DOCS and VOCI between the groups and Tukey Test was used for pairwise group comparisons. The relationship between age, duration of illness and FSQ-8, SACS, DOCS, VOCI and WHOQOL-BREF scores were analyzed using Pearson Correlation Analysis for normally distributed data and Spearman Correlation Analysis for non-normally distributed data. Variables that were effective in increasing the risk of OCD diagnosis were analyzed by Multivariate Binary Logistic Regression Analysis. The effectiveness of WHOQOL-BREF, SACS and FSQ-8 in explaining the total scores of DOCS were analyzed by Hierarchical Regression Analysis. The significance level was set as $p < 0.05$ for all analyses. IBM SPSS 26.0 program was used.

**Results**: The mean age of the AG, RG and HC group was $28.20 \pm 11.68$, $30.90 \pm 11.60$, and $31.33 \pm 10.03$, respectively. According to One-Way ANOVA Analysis, it was found that there was no statistically significant difference in mean age between the groups (p=0.500). In terms of gender, 63.3% of the AG, 80% of the RG and 73.3% of the HC group were female. According to the Chi-Square Test, it was found that the rate of employment status (X2=33.88, p=0.001) was statistically significantly different between AG, RG and HC group. According to the Independent Groups t-test, it

was found that the mean age of onset of the disease in AG cases was significantly lower than the mean age of individuals in RG (p=0.012). According to the result of Tukey Test, it was determined that the mean scores of the HC group cases were statistically significantly higher than the AG and RG cases (p<0.005); it was found that AG cases had statistically significantly (p<0,005) higher mean FSQ-8 scores than RG cases and RG cases had statistically significantly (p<0,005) higher mean FSQ-8 scores than HC group cases; it was found that HC group cases had statistically significantly higher mean WHOQOL-BREF total score (p<0,005) than AG and RG cases. In the whole OCD group, it was found that there was a statistically significant negative correlation between SACS scores and DOCS total scores (p=0,031), and a statistically significant positive correlation between FSQ-8 scores and DOCS total scores (p=0,002). According to the Multivariate Binary Logistic Regression Analysis between all groups, it was found that the increase in FSQ-8 scores increased the risk of OCD diagnosis by 1,113 times (p=0.002), and the increase in SACS scores decreased the risk of OCD diagnosis by 0.935 times (p=0.033). According to the Hierarchical Regression Analysis, only FSQ-8 (p=0,031) scores were found to be statistically significantly effective in explaining the total scores of DOCS in the AG, and only SACS (p=0,042) scores were found to be statistically significantly effective in explaining the total scores of DOCS in the RG.

**Discussion**: As a result of the analysis, it was found that OCD severity, self-as-context, fear of self and quality of life scale scores showed statistically significant differences between AG, RG and HC groups.

In our study, OCD severity was assessed with the DOCS and no significant difference was found between AG and RG in terms of OCD severity. In the related literature, although there are studies that did not find a significant difference between AG and RG in terms of disease severity, there are also studies that found that OCD severity was higher in the AG than in the RG. It was thought that the different results in the literature may be due to methodological differences related to the scales used.

When the OCD groups were analyzed separately, it was found that the positive correlation of the DOCS total score with fear of self was explained by the statistically significant relationship in fear of self in AG, and the negative correlation of the DOCS total score with self-as-context was explained by the statistically significant relationship in self-as-context in RG. Our finding that high fear of self is associated with AG severity seems to be consistent with the data in the literature. In a study examining psychological flexibility and inflexibility in obsessive-compulsive symptom dimensions, it was found that attachment to conceptualised self was associated with the severity of unacceptable thoughts [5].

In our study, self-as-context was found to be higher in HC participants compared to AG and RG patients. In a study examining the direct and indirect associations between autism spectrum disorder and OCD and alexithymia, it was found that there was a negative correlation between the OCD severity and self-as-context, a positive relationship between the OCD severity and psychological inflexibility, and an indirect relationship between OCD and self-as-context through psychological inflexibility[6]. In our study, no significant difference was found between OCD subtypes in terms of self-as-context.

Fear of self was found to be higher in the AG than in the RG and in the RG than in the HC group. In the literature, it has been shown that fear of self is particularly associated with the AG including unacceptable thoughts, but has weaker and non-significant associations with other symptom dimensions of OCD such as control and contamination [7].

When quality of life was evaluated, it was found to be statistically significantly higher in the HC group compared to both OCD subtypes, while there was no significant difference between the AG and RG. The quality of life of OCD patients was lower than that of the HC group may be interpreted as being related to the fact that OCD is a chronic mental disorder that affects both the patient and his/her close environment and causes disability.

Our study suggests that interventions to address fear of self in the treatment process in AG and to increase psychological flexibility in RG may be effective, but further experimental studies are needed.

**Keywords: autogenous, fear of self, ocd, reactive, self-as-context**

**References**

[1] Lee H, Kwon S. Two different types of obsession: autogenous obsessions and reactive obsessions  Behaviour Research and Therapy (2003) 41(1) 11-29
[2] Aardema F, Moulding R, Radomsky A, Doron G, Allamby J, Souki E Fear of self and obsessionality: Development and validation of the Fear of Self Questionnaire Journal of Obsessive-Compulsive and Related Disorders (2013) 2(3) 306-315

[3] McHugh L. A Contextual Behavioural Science approach to the self and perspective taking  Current Opinion in Psychology (2015) 2 6-10

[4] Yavuz F.Kabul ve Kararlılık Terapisi (ACT): Genel Bir Bakış  Turkiye Klinikleri J Psychiatry-Special Topics (2015) 8(2) 21-27

[5] Thompson E, Brierley M, Destrée L, Albertella L, Fontenelle L Psychological flexibility and inflexibility in obsessive-compulsive symptom dimensions, disability, and quality of life: An online longitudinal study. Journal of Contextual Behavioral Science (2022) 23 38-47

[6] Edwards D. Going beyond the DSM in predicting, diagnosing, and treating autism spectrum disorder with covarying alexithymia and OCD: A structural equation model and process-based predictive coding account. Frontiers in Psychology (2022) 13

[7] Melli G, Aardema F, Moulding R. Fear of Self and Unacceptable Thoughts in Obsessive-Compulsive Disorder. Clin Psychol Psychother. 2016 May;23(3):226-35. doi: 10.1002/cpp.1950. Epub 2015 Mar 16. PMID: 25772861.

## 0116 - Comparison of Plasma Oxytocin Levels of Adolescents with Post-Traumatic Stress Disorder with Healthy Adolescents and The Relationship of Oxytocin Levels with Psychiatric Symptoms

Fevzi Burak Kahraman[1], Nagihan Cevher Binici[1], Pınar Akan[2], Nevin Deniz Kırca[3], Ali Evren Tufan[4]

[1]Department of Child and Adolescent Psychiatry, S.B.U. İzmir Dr. Behcet Uz Pediatric Diseases and Surgery Training and Research Hospital, Izmir, Turkey
[2]Department of Medical Biochemistry, Dokuz Eylül University Faculty of Medicine, Izmir, Turkey
[3]Department of Basic Neurosciences, Dokuz Eylül University Institute of Health Sciences, Izmir, Turkey
[4]Department of Child and Adolescent Psychiatry, Bolu Abant Izzet Baysal University Faculty f Medicine, Bolu, Turkey

**Objective:** Post-Traumatic Stress Disorder (PTSD) has underlying complex neurobiological mechanisms [1]. Recent studies have suggested that oxytocin may have an impact in the neurobiology of PTSD. Oxytocin has been found to contribute to alleviating anxiety, regulating Hypothalamic Pituitary Adrenal (HPA) axis hormones and reducing increased fear behavior response seen in patients diagnosed with PTSD [2]. Therefore, it has been suggested that oxytocin levels may change in these patients as the hypothesis of this study. While there are adult studies evaluating the relationship between oxytocin levels and PTSD, there are no adolescent studies. It is aimed to compare plasma oxytocin levels of adolescents diagnosed with PTSD with healthy controls and to evaluate its relationship with psychiatric symptoms.

**Methods:** The study included the adolescents between the ages of 13-18 years who were admitted to the outpatient unit of Child and Adolescent Psychiatry Department of S.B.U. Izmir Dr.Behcet Uz Pediatric Diseases and Surgery Training and Research Hospital in Izmir, Turkey between 27 February 2023 and 27 November 2023. Ninety-seven adolescents with a history of traumatic events and eighty-seven healthy adolescents without active complaints were included. Diagnostic evaluation including PTSD-subgroups was completed according to the Diagnostic and Statistical Manual for Mental Disorders, fifth edition (DSM-5). Each participant was evaluated using scales that Clinician Administered PTSD Scale (CAPS-5), PTSD Checklist for DSM-5 (PCL-5), Adolescent Dissociative Experiences Scale (ADES), The Revised Child Anxiety And Depression Scale – Child and Parent Version, Clinical Global Impression (CGI) and clinical interviews. All participants were required to have no eating disorder, no severe personality disorder symptoms, no severe physical disability, no usage of active alcohol and substance, no active psychotic disorder, no active suicidal homicidal risk, have regular menstrual cycle for female adolescents and be drug-naïve and no history of therapy. Thirty-five adolescents who experienced traumatic events and twenty-five adolescents without active complaints were excluded from the study because they did not meet the criterias.

The best method to achieve oxytocin values is to measure oxytocin values centrally from cerebrospinal fluid (CSF) samples however it was found that there were positive significant correlations between oxytocin levels obtained from CSF samples and plasma samples after cold centrifugation [3]. Accordingly, taking plasma samples was chosen as clinically practical method to obtain oxytocin values. Oxytocin secretion can be affected by consuming cigarette, fasting state, diurnal rhythm, age, gender, menstrual cycle phase, interaction with clinician, using drugs and taking therapy. Thus, sample collection was standardized for each adolescent and participants receiving treatment were excluded. Venous blood samples were collected after 12 hours fasting state, without cigarette consuming at 08.00-10.00 a.m. by a responsible officer other than clinicians who conduct the interview and the samples were taken at early follicular phase from female participitants.

Eight cc of venous blood was drawn from each participitant in cooled vacutainers containing EDTA (anticoagulant), transported on ice, centrifuged at $1{,}000 \times g$ for 15 min at 4 °C , the ensuing plasma was collected and kept at −80°C until analysis. Plasma samples were passed through Solid Phase Extraction (SPE) columns (C-18) for sample preparation. SPE columns were activated by passing 2 mL of methanol and then 5 mL of pure water. 1 mL plasma samples were passed through the columns after activation. Following this, 3 mL of 3% acetone was passed through the columns, which were washed with 6-10 mL of pure water. The columns were left to dry for 10-15 minutes. To withdraw oxytocin from the columns, 1 mL of 98% acetone was passed through the columns twice and after this process, the liquid passing through the column was collected in 2 mL Eppendorf tubes. Oxytocin concentrations in plasma samples were determined using Cayman brand (Cat no: 500440, USA) competitive ELISA.

The plasma oxytocin values couldn't be obtained as a result of laboratory analysis from two adolescents from case group then they were excluded. 60 adolescents (47 female; 13 male) diagnosed with PTSD formed case group and 62 healthy adolescents (48 female; 14 male) constituted control group (above minimum sample size according to effect size=0,6 power=%90, p=0,05). The groups were almost equal in terms of age and gender variables (case ; control respectively mean age±sd 15,05±1,52 ; 15,02±1,51).

The intergroup differences of plasma oxytocin values and scale scores were assessed by Mann-Whitney U test or t test. Kruskal Wallis test and Mann-Whitney U test were used to compare plasma oxytocin values according to trauma related variables. The correlations between oxytocin values and scale scores were explored using Spearman's method. Statistical analyses were carried out using SPSS, Version 25.0 (SPSS Inc., 2022). A two-tailed p-value of 0.05 was considered to be statistically significant.

**Results:** Plasma oxytocin levels of the case group were found to be statistically significant higher than the control group (**p=0,041, r=0,18**). While plasma oxytocin values of the subgroup with PTSD-dissociation (n=27) were found to be statistically significant higher than the control group (**p=0,025**), no difference was found between the subgroup PTSD-without dissociation (n=33) and the control group. The plasma oxytocin values are shown in **Figure 1** in details.

There was no statistically significant difference was found in male gender between two groups but the plasma oxytocin values of case group were found to be higher in girls (**p=0.043**).

Comparison analyzes revealed a statistically significant difference between two groups in all scale and sub-scale scores (**p<0.000).** However it was determined that there was no correlation between the plasma oxytocin values of the case group and psychiatric symptoms (depression, anxiety, dissociation related).

Trauma-related variables were determined as type of exposure to trauma (witness/experienced), trauma history before index trauma (Have/None), death in trauma (Have/None), type of trauma (traffic accident/physical violence, war, burn/sexual harassment, sexual abuse/ sudden death of someone, suicide/earthquake) and time passed since index trauma (less than three months/ between three months and one year/ more than one year). There was no significant difference between trauma-related variables in terms of plasma oxytocin values of the case group.

**Discussion:** This is the first study to compare plasma oxytocin levels of adolescents who diagnosed with PTSD with healthy adolescents and investigate the relationship between oxytocin levels and psychiatric symptoms, trauma-related variables. In addition, this study has the largest sample size compared to adult studies with a control group.

The findings of the present study show that higher plasma oxytocin levels in adolescents being linked to PTSD however contradictory results have been obtained in adult studies. While in one study, plasma oxytocin levels of the PTSD group were found to be lower [4], in another study, no significant difference was found between two groups [5]. There is only one adult study to evaluate oxytocin levels of PTSD-subgroups. In this study, the plasma oxytocin level of PTSD-dissosication subgroup was found to be higher than the control group as similar results were obtained in the adult study [5]. Considering the gender variable, while there was no difference between two groups for boys, the plasma oxytocin values of case group were found to be higher in girls. On the contrary, in an adult study, saliva oxytocin level of case group was found to be lower in males, while no significant difference was found among females [6]. No correlation was found between oxytocin levels and psychiatric symptoms, which supports the results of adult studies [4]. There is no study evaluating trauma-related factors and oxytocin values together. Although no comparison with other studies could be made, no significant difference was found between trauma-related factors in terms of oxytocin values. Oxytocin values may have changed in relation to clinical manifestations or compensatory mechanisms. Further follow-up studies assess together with other hormones, factors that may affect neurobiology are needed to determine the role of oxytocin in the neurobiology of PTSD in adolescents, including PTSD subgroups.

**Ethics Statement and Conflict of Interest :**This study was reviewed and approved by Ethics Committee of Izmir Dr.Behcet Uz Pediatric Diseases and Surgery Training and Research Hospital with project and protocol number:800, 2022/03-13.

All patients/participants provided their written informed consent to participate in this study.

The authors whose names are listed in this study certify that they have no affiliations with or involvement in any organization or entity with any financial or non-financial interest in this manuscript. The budget of this study was covered by the researchers.

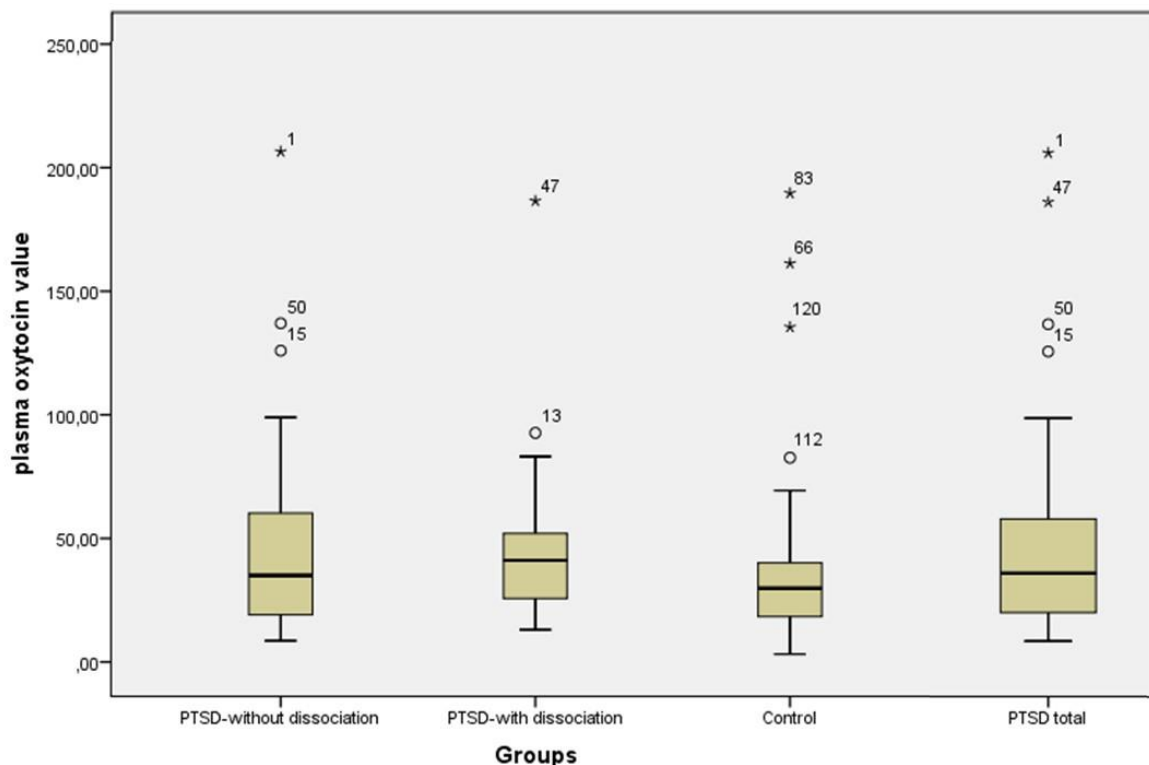**Keywords:** Adolescent, Oxytocin, Post-traumatic stress disorder



**Figure 1.** Plasma oxytocin levels of case and control group

**REFERENCES:**

[1]     Hiscox LV, Sharp TH, Olff M, Seedat S, Halligan SL. Sex-Based Contributors to and Consequences of Post-traumatic Stress Disorder. Curr Psychiatry Rep. 2023 May;25(5):233-245. doi: 10.1007/s11920-023-01421-z. Epub 2023 May 10. PMID: 37162661; PMCID: PMC10188381.

[2]     Zhang S, Zhang YD, Shi DD, Wang Z. Therapeutic uses of oxytocin in stress-related neuropsychiatric disorders. Cell Biosci. 2023 Nov 28;13(1):216. doi: 10.1186/s13578-023-01173-6. PMID: 38017588; PMCID: PMC10683256.

[3]     Carson DS, Berquist SW, Trujillo TH, Garner JP, Hannah SL, Hyde SA, Sumiyoshi RD, Jackson LP, Moss JK, Strehlow MC, Cheshier SH, Partap S, Hardan AY, Parker KJ. Cerebrospinal fluid and plasma oxytocin concentrations are positively correlated and negatively predict anxiety in children. Mol Psychiatry. 2015 Sep;20(9):1085-90. doi: 10.1038/mp.2014.132. Epub 2014 Nov 4. PMID: 25349162.

[4]     Carmassi C, Marazziti D, Mucci F, Della Vecchia A, Barberi FM, Baroni S, Giannaccini G, Palego L, Massimetti G, Dell'Osso L. Decreased Plasma Oxytocin Levels in Patients With PTSD. Front Psychol. 2021 Jul 1;12:612338. doi: 10.3389/fpsyg.2021.612338. PMID: 34276462; PMCID: PMC8280334.

[5]     Li Y, Hassett AL, Seng JS. Exploring the mutual regulation between oxytocin and cortisol as a marker of resilience. Arch Psychiatr Nurs. 2019 Apr;33(2):164-173. doi: 10.1016/j.apnu.2018.11.008. Epub 2018 Nov 20. PMID: 30927986; PMCID: PMC6442937.

[6]     Frijling JL, van Zuiden M, Nawijn L, Koch SB, Neumann ID, Veltman DJ, Olff M. Salivary Oxytocin and Vasopressin Levels in Police Officers With and Without Post-Traumatic Stress Disorder. J Neuroendocrinol. 2015 Oct;27(10):743-51. doi: 10.1111/jne.12300. PMID: 26184739.

## 0117- Exploring The Link: Maternal Childhood Trauma, Adult Attachment Styles and Autism Spectrum Disorders in Early Childhood

Derin, S.[1], Yapici, N.[1] & <u>Selman, S. B.</u>[2]

[1] Department of Child and Adolescent Psychiatry,
Bezmialem Vakıf University, Istanbul, Turkey
[2] Department of Human Development & Family Studies,
Universiy of Wisconsin-Madison, Wisconsin, USA.

**Introduction: Autism** Spectrum Disorder (ASD) is a neurodevelopmental disorder characterized by social and communication challenges, repetitive behaviors, and restricted interests [1], affects 1 in 100 children globally [2], influenced by both genetic and environmental factors [3]. Contemporary research places a growing emphasis on the examination of particular maternal experiences that tend to be more commonly observed in mothers of children diagnosed with ASD [4]. The impact of Adverse Childhood Experiences (ACEs), including emotional, physical, and sexual abuse, neglect, and family dysfunction, significantly affects mental and physical health and is linked to negative health outcomes in offspring [5,6]. Yet, the link between maternal ACEs and ASD in the developmental stage of 0-5 years is underexplored [7].

Furthermore, Bowlby's attachment theory emphasizes early emotional experiences' impact on future relationships and coping mechanisms [8]. Studies show maternal attachment, influenced by ACEs, affects parent-child relationships [6,9]. A meta-analysis showed that clinical samples have a significantly higher prevalence of insecure attachment styles compared to nonclinical groups [10]. When applied to the context of ASD, poor attachment styles in mothers may lead to suboptimal parenting, limiting opportunities for early intervention and support to address problematic behaviors, thereby influencing the child's developmental trajectory. Yet, there is a notable lack of understanding regarding the complex dynamics between maternal ACEs, adult attachment styles, and ASD occurrence in early childhood. This study aims to bridge the gap and examine the association among maternal ACEs, adult attachment styles, and ASD incidence during the crucial 0-5 year developmental period. By comparing children with ASD and controls, we aim to inform targeted strategies for families.

**Methods: Participants**
The study involved children aged 0-5 years diagnosed with Autism Spectrum Disorder (ASD) at Bezmialem University in Istanbul, Turkey, adhering to DSM-5 criteria. The primary investigator, a child psychiatrist, interviewed consenting patients to confirm ASD diagnosis using a DSM-5 checklist. Exclusion criteria included intellectual disability, psychosis, bipolar disorder, illiteracy, and non-consenting mothers. Healthy controls, matched by sex and age, were recruited from the same facility through fliers. Controls comprised mothers of children without ASD.

In the study, the case group (N=32), predominantly male (88%), had a significantly younger average age (2.6 years, SD=1.0) compared to the control group (N=30, 97% male) with an average age of 3.5 years (SD=1.4, p=0.004). Vaginal births were less common in the case group (19%) versus the control group (40%, p=0.118), and a higher incidence of incubator use was observed in the case group (28%, p=0.060). The case group had a lower average birth weight (2920g, SD=735) compared to the control group (3280g, SD=425, p=0.024). Parental ages were comparable across both groups, with mothers and fathers averaging 35 and 38 years, respectively. Significant differences were noted in educational levels and employment statuses, especially with a higher number of lower-educated and unemployed parents in the case group. Socioeconomic status significantly lower in the case group, indicated by a larger portion of families with incomes below 12,000₺ (p<0.001).

**Measures**
Maternal adverse childhood experiences were evaluated using the validated Childhood Trauma Questionnaire (CTQ), measuring emotional, physical, and sexual abuse, as well as emotional and physical neglect, with the Turkish version confirmed for psychometric integrity. Attachment styles in adults were assessed through the Relationship Scales Questionnaire (RSQ), which categorizes responses into secure, fearful, preoccupied, or dismissing patterns, validated for the Turkish population. Additionally, childhood autism symptomatology was evaluated using the Childhood Autism Rating Scale (CARS), validated in Turkish samples. The case group exhibited a mean CARS scale score of 39.9 (SD=5.90), indicative of higher levels of autism symptomatology. Additionally, demographic data such as child age, gender, and parental education, employment, and income were collected via parent reports.

**Analysis Plan**

Analysis included t-tests and Chi-square tests for demographic, maternal ACEs and attachment style comparisons, Pearson's correlations for ACEs-attachment associations, and logistic regression for evaluating ASD occurrence related to maternal ACEs and attachment styles.

## Results: Bivariate Correlations

Maternal ACEs correlated with adult attachment styles: dismissing (r = .29, p < .05), preoccupied (r = .39, p < .05), and negatively with secure (r = -.28, p < .05), suggesting a trend where higher ACEs is associated with less secure and more preoccupied/dismissive styles. Emotional abuse and neglect were particularly linked to preoccupied attachment (r = .33, r = .42; p < .01), while physical abuse correlated with dismissing (r = .26, p < .05) and less with secure attachment (r = -.31, p < .05). No significant links were found between physical neglect, sexual abuse, and attachment styles.

## Group Comparisons

In comparing ACEs and attachment styles, the case group had a higher average ACE score (M = 35.6, SD = 9.77) than the control group (N = 30, M = 32.2, SD = 7.87), although not statistically significant (p = 0.13). Emotional abuse scores were higher in the case group (M = 7.72, SD = 4.27) compared to controls (M = 6.13, SD = 2.10), but also not significant (p = 0.06). No significant differences were found in physical neglect, emotional neglect, or physical abuse scores between the groups. In addition, mothers of children with autism showed significantly higher dismissing (M = 4.86, SD = 1.15; p = 0.019) and preoccupied attachment scores (M = 4.05, SD = 0.946; p < 0.001), and lower secure attachment scores (M = 3.45, SD = 0.862; p = 0.007) compared to controls. No significant difference was found in fearful attachment (p = 0.301).

## Binary Logistic Regression

Binary Logistic Regression Analysis was conducted to assess the occurrence of ASD, with two models: the first examined attachment styles controlling for maternal ACEs, and the second added controls for child age, birth weight, and socioeconomic status (SES) composite score based on parents' education, employment, and income. In analysis, preoccupied maternal attachment significantly predicted ASD in children (B = 1.41, p = .002), after controlling for maternal ACEs, and remained significant, even after accounting for SES, child age, and birth weight. Each unit increase in maternal preoccupied attachment multiplies the odds of an ASD diagnosis in children by 6.48 (OR = 6.48, 95% CI: 1.66–4.54). This suggests a strong link between preoccupied attachment and ASD occurrence, explaining approximately 13% of variance in ASD diagnosis, while other attachment styles and maternal ACEs showed no significant association.

**Discussion:** This study investigated the association between maternal ACEs, adult attachment styles, and children's ASD, comparing clinical and control groups to identify specific attachment styles linked to ASD, considering maternal ACEs. Initially, we compared ACEs between mothers of children with ASD and a control group; we noted a slight, but non-significant, increase in total ACE scores, particularly in emotional abuse among mothers of children with ASD, yet observed no significant differences in physical or emotional neglect, or physical abuse, contrary to findings in the literature [4,7].

Next, we compared attachment styles between mothers of children with ASD and a control group. Mothers of children with ASD were more likely to exhibit less secure and more preoccupied or dismissive attachment styles, confirming previous findings on the prevalence of insecure attachment in clinical samples [10]. Interestingly, no significant difference in fearful attachment suggests that fear or avoidance in relationships may not be predominant characteristics among mothers of children with ASD.

In addition, our study revealed significant correlations between maternal ACEs and insecure adult attachment styles, consistent with prior research [6]. Higher ACEs were associated with increased tendencies towards dismissing and preoccupied attachment styles, while diminishing secure attachment. Specifically, emotional abuse and neglect were strongly linked with preoccupied attachment, while physical abuse was more associated with a dismissing attachment style. This underscores the varied impact of different ACE types on adult attachment patterns. Although maternal ACE levels did not significantly differ between mothers of children with and without ASD, ACEs were significantly related to adult attachment styles.

Lastly, in our examination, controlling for maternal ACEs, SES, child age and birth weight, we identified a significant link between maternal preoccupied attachment style—characterized by heightened anxiety and need for closeness—and the likelihood of having a child with ASD. This finding underscores a strong association between maternal attachment styles and child outcomes in developmental disorders, echoing similar results reported in research on ADHD [11]. This persistent association may exacerbate maternal stress and anxiety, impairing their capacity to cater to the demands of parenting a child with ASD and negatively influencing the child's development and symptom management. Moreover, this could hinder the provision of a structured environment, crucial for children with ASD, thus potentially intensifying symptoms and complicating their management. This scenario fosters a feedback loop where the child's ASD-related behaviors escalate maternal anxiety and over-involvement, undermining the child's autonomy and hindering social and

emotional growth. Consequently, our findings underscore the necessity for clinicians to consider maternal attachment patterns when addressing ASD, advocating for a holistic approach. Recognizing these dynamics can lead to more personalized and effective interventions, emphasizing early intervention strategies and enhancing maternal sensitivity to foster a supportive environment for the child's development.

**Keywords:** Maternal childhood traumas, Adult attachment styles, Autism spectrum disorder

**Table 1.** Logistic regression analysis predicting ASD occurrence.

| | Model 1 | | | Model 2 | | |
|---|---|---|---|---|---|---|
| | B (SE) | p | OR (2.5%, 97.5%) | B (SE) | p | OR (2.5%, 97.5%) |
| CTQ Total | -0.038 (0.043) | 0.384 | 0.96 (0.88, 1.05) | -0.024 (0.062) | 0.702 | 0.98 (0.86, 1.11) |
| Fearful | 0.270 (0.387) | 0.485 | 1.31 (0.62, 2.90) | 0.449 (0.576) | 0.435 | 1.57 (0.52, 5.40) |
| Dismissive | 0.314 (0.361) | 0.384 | 1.37 (0.68, 2.85) | -0.107 (0.520) | 0.837 | 0.90 (0.31, 2.52) |
| Secure | -0.779 (0.410) | 0.058 | 0.46 (0.19, 0.99) | -0.447 (0.570) | 0.433 | 0.64 (0.19, 1.94) |
| Preoccupied | 1.408 (0.464) | **0.002** | 4.09 (1.82, 11.63) | 1.870 (0.820) | **0.023** | 6.49 (1.67, 45.49) |
| Child Age | - | - | | -0.965 (0.418) | 0.021 | 0.38 (0.15, 0.81) |
| Birth Weight | - | - | | -0.002 (0.001) | 0.085 | 0.99 (0.99, 1.00) |
| SES Score | - | - | | -3.315 (1.062) | 0.002 | 0.03 (0.002, 0.20) |

Note: B = Unstandardized Coefficient, SE = Standard Error, p = p-value. A dash (-) indicates the variable was not included in the model. CTQ = Childhood Trauma Questionnaire; RSQ = Relationship Scales Questionnaire; ASD = autism spectrum disorder.

**Keywords:** Maternal childhood traumas, Adult attachment styles, Autism spectrum disorder

**References**

[1] American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 5th ed. Arlington: American Psychiatric Publishing; 2013.

[2] Zeidan J, Fombonne E, Scorah J, Ibrahim A, Durkin MS, Saxena S, et al. Global prevalence of autism: A systematic review update. Autism Res. 2022;15(5):778-790.

[3] Hodges H, Fealko C, Soares N. Autism spectrum disorder: definition, epidemiology, causes, and clinical evaluation. Translational pediatrics. 2020;9(1):55-65.

[4] Roberts AL, Lyall K, Rich-Edwards JW, Ascherio A, Weisskopf MG. Association of maternal exposure to childhood abuse with elevated risk for autism in offspring. JAMA Psychiatry. 2013;70(5):508-515.

[5] Felitti VJ, Anda RF, Nordenberg D, Williamson DF, Spitz AM, Edwards V, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. Am J Prev Med. 1998;14(4):245-258.

[6] Cooke JE, Racine N, Plamondon A, Tough S, Madigan S. Maternal adverse childhood experiences, attachment style, and mental health: Pathways of transmission to child behavior problems. Child Abuse Negl. 2019;93:27-37.

[7] Feng GUO, Xiaoyan WANG, Gangzhu YIN, Yu SUN. Relationships between maternal adverse childhood experiences and autistic behaviors in preschool children. Chin School Health. 2022;43(8):1143-1147.

[8] Ainsworth MS, Bowlby J. An ethological approach to personality development. American Psychologist. 1991;46(4):333.

[9] Cassidy J, Jones JD, Shaver PR. Contributions of attachment theory and research: A framework for future research, translation, and policy. Dev Psychopathol. 2013;25(4pt2):1415-1434.

[10] van IJzendoorn MH, Bakermans-Kranenburg MJ. Attachment representations in mothers, fathers, adolescents, and clinical groups: a meta-analytic search for normative data. J Consult and Clin Psychol. 1996;64(1):8-21.

[11] Kissgen R, Krischer M, Kummetat V, Spiess R, Schleiffer R, Sevecke K. Attachment representation in mothers of children with attention deficit hyperactivity disorder. Psychopathology. 2009;42(3):201-208.

## 0142 - The Assessment of the Serum Nogo-A Levels of the Patients with Schizophrenia in the Acute Psychotic Exacerbation Before and After Antipsychotic Medication

Merve Eltemiz Yıldırım[1], Hasan Kaya[2], Andac Uzdoğan[3], Ezgi Cellat[4], Erol Göka[2]

[1]Department of Psychiatry, Pursaklar State Hospital, Ankara, Turkey
[2]Department of Psychiatry, Ankara Bilkent City Hospital, Ankara, Turkey
[3]Department of Biochemistry, Ankara Bilkent City Hospital, Ankara, Turkey
[4]Department of Psychiatry, Corum Erol Olcak Education and Research Hospital, Corum, Turkey

**Introduction and Aims**: Schizophrenia is a lifelong and disabling psychiatric disorder affecting 1% of the world's population and its etiology remains heterogeneous and complicated. Neurodevelopmental factors come to the fore in explaining its pathophysiology. It has been suggested that schizophrenia may begin long before symptoms appear as a result of deficiencies or inadequacies in the developmental period. (1). The involvement of Nogo-A in neuromodulation in the etiology of schizophrenia has been investigated. The Nogo molecule is encoded by the RTN4 gene and has three isoforms, A, B and C. Nogo-A, which has the largest isoform, is a potent inhibitor of neurite outgrowth in the central nervous system and is a protein with multiple functions including cell migration, axonal fasciculation, dendritic branching, oligodentricyte differentiation, myelinization and neuroplasticity. Nogo-A, which has been shown to be involved in the developmental process of the central nervous system, has been linked to diseases such as trauma stroke, neurodegenerative diseases, multiple sclerosis and schizophrenia in relation to neurobiological aspects (2).

Nogo-A may help elucidate the etiopathogenesis of schizophrenia with its genetic relationship with schizophrenia, negative neuromodulatory functions in the CNS, and its roles in the developmental period. The similarity of the pathophysiological pathways thought to cause schizophrenia and the pathways that Nogo-A affects in the central nervous system suggested that this molecule may be important in the development of schizophrenia. This study aims to determine the differences in serum levels of NogoA in the groups of patients with schizophrenia and healthy volunteers, the impact of medical treatment on the serum levels of Nogo-A, the relation between the level of Nogo-A, and the severity of schizophrenia and the usage as a biomarker in the diagnosis and follow up of schizophrenia.

**Methods**: A total of 62 patients who hospitalised to the Psychiatry Department of Ankara City Hospital and were diagnosed with schizophrenia based on DMS-5 criteria were included in the study, along with 62 healthy control participants matched. In terms of applied admission forms, a sociodemographic information form was given to all participants and Positive and Negative Symptoms Rating Scale (PANSS) and Clinical Global Impression- Severity of Illness (CGI-SI) were applied to the schizophrenia group. All participants also were taken blood samples and serum Nogo-A values were measured in the first admission. Furthermore, 45 patients with schizophrenia were reached for follow-up 30 days later and PANSS was re-applied to them. The serum Nogo-A values of these patients also were remeasured by ELISA. Ethics committee approval of the study was obtained from SBÜ Ankara City Hospital Clinical Research Ethics Committee (Ethics Committee Decision No: E2-22-1705). All clinical tests were performed in accordance with the principles of Good Clinical Practice Guidelines. The volunteers participating in the study were informed about the study and their written informed consent was obtained with an informed consent form.

**Results**: When the Nogo-A values of the schizophrenia group and the control group were compared, it was found that the Nogo-A values in the schizophrenia group were statistically significant (p<0.001). **Table 1** shows the comparison of Nogo-A values between schizophrenia and control groups. **Table 1**. Comparison of Nogo-A values of schizophrenia and control groups

| | Schizophrenia (n:62) | Healthy Controls (n:62) | Statistical Analysis | P |
|---|---|---|---|---|
| Nogo-A (ng/ml) | 8,0±0,9 | 6,2±0,6 | T:12,066 | 0,001* |

Note: T-test was used. *p<0,050

When Nogo-A levels during hospitalization and after treatment (later 30 days) were compared in the schizophrenia group, a statistically significant decrease in Nogo-A levels was found with treatment (p<0.004). **Table 2** shows the comparison of Nogo-A values between schizophrenia and post-treatment schizophrenia groups.

**Table 2**. Comparison of Nogo-A values between schizophrenia and post-treatment schizophrenia groups

| | Schizophrenia | Schizophrenia | Statistical | P |
|---|---|---|---|---|

| | Pre-treatment (n:45) | Post-treatment (n:45) | Analysis | |
|---|---|---|---|---|
| Nogo-A (ng/ml) | 8,2±0,9 | 7,6±0,8 | T:2,996 | 0,004* |

Note: Paired T-test was used. *p<0,050

When Nogo-A levels of drug-naive and drug-free groups in schizophrenia group were compared, no statistically significant difference was found between the groups. **Table 3** shows the comparison of Nogo-A values between drug-naive and drug-free schizophrenia groups.

**Table 3.** Comparison of Nogo-A values between drug-naive and drug-free schizophrenia groups.

| | Drug-naive Schizophrenia (n:29) | Drug-free Schizophrenia (n:33) | Statistical Analysis | P |
|---|---|---|---|---|
| Nogo-A (ng/ml) | 7,9±0,8 | 8,0±0,9 | T:0,316 | 0,753 |

Note: T-test was used. *p<0,050

When the correlations between Nogo-A levels and clinical data of the schizophrenia group were analyzed, no statistically significant correlation was found between clinical data and Nogo-A levels. When hospitalization and control PANSS scores and Nogo-A levels were analyzed in the schizophrenia group, a statistically significant positive correlation was found between PANSS total score and General psychopathology scores and Nogo-A levels at the time of hospitalization.

**Table 4** shows the PANSS and CGI-SI scores and Nogo-A levels in the schizophrenia group during hospitalization and in the control group.

**Table 4.** The PANSS and CGI-SI scores and Nogo-A levels in the schizophrenia   group during hospitalization and in the control group

| | Nogo-A (ng/ml) | |
|---|---|---|
| | R | P |
| Pre-treatment PANSS  (n:62) | 0,253 | 0,047* |
| Pre-treatment Positive Scores (n:62) | 0,071 | 0,582 |
| Pre-treatment Negative Scores (n:62) | 0,246 | 0,054 |
| Pre-treatment General Psychopathology | 0,318 | 0,013* |
| Post-treatment PANSS  (n:45) | 0,066 | 0,668 |
| Post-treatment Positive Scores (n:45) | 0,009 | 0,952 |
| Post-treatment Negative Scores (n:45) | 0,230 | 0,125 |
| Post-treatment  General  Psychopathology (n:45) | 0,073 | 0,643 |
| Pre-treatment CGI-SI Scores(n:62) | 0,022 | 0,855 |
| Post-treatment CGI-SI Scores(n:45) | 0,109 | 0,401 |

Note: Pearson correlation analysis was used.*p<0.050

**Discussions**: The etiology of schizophrenia has not yet been clarified and recent studies have focused on abnormal brain development. Negative events occurring in the developmental period how it affects schizophrenia has not yet been clarified. In our study, we have been tried to elucidate the relationship of Nogo-A, which is involved in many areas with its roles in myelinization, neuroplasticity and neuroinflammation, with schizophrenia.

Serum Nogo-A levels of schizophrenia patients during the psychotic exacerbation period were significantly higher than the serum Nogo-A levels of the same patients after treatment. In addition, serum Nogo-A levels of patients in the psychotic exacerbation period were found to be significantly higher than the healthy control group. In a study conducted in the literature in postmortem schizophrenia patients, it was shown that Nogo-A mRNA expression was increased, which is consistent with the data of our study (3). On the other hand, it can be suggested that NgR1 mutation seen in schizophrenia may lead to dysfunction in these receptors and increase Nogo-A expression through compensatory mechanisms (4). Optic nerve and cerebellar regions of Nogo-A deletion mice were examined and delayed oligodendrocyte differentiation, myelin sheath formation and axonal growth were observed. Considering that Nogo-A deficiency during the developmental period negatively affects the myelinization process, the high level of Nogo-A in the patients in our study cannot be explained in this way.

Genetic Nogo-A deletion has led to schizophrenia-like behaviors. The fact that subsequent loss of Nogo-A function did not have the expected effect supported the hypothesis that neurodevelopmental abnormalities may occur due to early Nogo-A deficiency.  The absence of gliosis, a marker of neurodegeneration, also contributed to the neurodevelopmental aspect of Nogo-A (5). It may be considered that the evaluation of Nogo-A levels starting from the early period in individuals at high risk for psychosis may explain the increased Nogo-A level in our study. According to this hypothesis, the observation of low Nogo-A levels in individuals at high risk of schizophrenia may predict that increased Nogo-A levels in patients develop secondary to psychotic symptoms.

Decreased dendritic branching has been shown in postmortem schizophrenia patients. Nogo-A is known to decrease dendritic spine density and branching (6). Based on these findings, the high Nogo-A level in our study may contribute to the pathophysiology of the synaptic pruning hypothesis in schizophrenia by causing dentritic and indirectly synaptic elimination.

In a study in which serum Nogo-A level was evaluated in schizophrenia patients, while a negative correlation was expected between Nogo-A level and PANSS scores, on the contrary, a positive correlation was found between PANSS negative subscale score and Nogo-A level. It was thought that NgR1 dysfunction may be responsible for this contradiction. NgR1 dysfunction was predicted to cause a dysfunctional increase in Nogo-A through compensatory pathways (7). On the other hand, the fact that the high Nogo-A level in patients decreased with treatment may suggest that a mechanism other than NgR1 dysfunction is involved, as mentioned previously.

There are studies linking the PANSS scale with cognitive symptoms in schizophrenia. In a study in which functional blockade of Nogo-A was performed, it was observed that it increased LTP and made positive changes in cognitive

processes such as learning and memory. The positive correlation of increased Nogo-A levels with PANSS scores suggests that Nogo-A may be responsible for cognitive impairment in schizophrenia.

**Conclusions**: This is the first and only study in the literature in which serum Nogo-A levels were evaluated in schizophrenia patients and during follow-up. Increased serum Nogo-A level during psychotic exacerbation has been tried to be explained by different hypotheses. Considering the literature the fact that the mechanisms of action of Nogo-A are not clear is of great importance in the different results. Nogo-A continues to be an important factor in the pathophysiology of schizophrenia, with its functions both in the developmental process and in adulthood.

**Keywords**: Nogo-A, neurodevelopment, schizophrenia, neuromodulation, cognitive, biomarker

**References:**

1.Takahashi N, Sakurai T, Davis KL, Buxbaum JD. Linking oligodendrocyte and myelin dysfunction to neurocircuitry abnormalities in schizophrenia. Prog Neurobiol [Internet]. 2011 Jan [cited 2022 Nov 10];93(1):13. Available from: /pmc/articles/PMC3622281/

2.Schmandke A, Schmandke A, Schwab ME. Nogo-A: Multiple Roles in CNS Development, Maintenance, and Disease. Neuroscientist [Internet]. 2014 [cited 2022 Sep 1];20(4):372–86. Available from: https://pubmed.ncbi.nlm.nih.gov/24402613/

3.Novak G, Kim D, Seeman P, Tallerico T. Schizophrenia and Nogo: elevated mRNA in cortex, and high prevalence of a homozygous CAA insert. Molecular Brain Research. 2002 Nov 15;107(2):183–9.

4.Thomas RA, Ambalavanan A, Rouleau GA, Barker PA, Philip Barker CA. Identification of genetic variants of LGI1 and RTN4R (NgR1) linked to schizophrenia that are defective in NgR1–LGI1 signaling. Mol Genet Genomic Med [Internet]. 2016 Jul 1 [cited 2022 Nov 4];4(4):447–56. Available from: https://onlinelibrary.wiley.com/doi/full/10.1002/mgg3.215

5.Willi R, Weinmann O, Winter C, Klein J, Sohr R, Schnell L, et al. Behavioral/Systems/Cognitive Constitutive Genetic Deletion of the Growth Regulator Nogo-A Induces Schizophrenia-Related Endophenotypes. 2010; Available from: www.jneurosci.org

6.Zemmar A, Chen CC, Weinmann O, Kast B, Vajda F, Bozeman J, et al. Oligodendrocyte-and Neuron-Specific Nogo-A Restrict Dendritic Branching and Spine Density in the Adult Mouse Motor Cortex. Cerebral Cortex [Internet]. 2018;28:2109–17. Available from: https://academic.oup.com/cercor/article/28/6/2109/3827059

7.Demirel ÖF, Cetin İ, Turan Ş, Sağlam T, Yıldız N, Duran A. Decreased Expression of α-Synuclein, Nogo-A and UCH-L1 in Patients with Schizophrenia: A Preliminary Serum Study. Psychiatry Investig [Internet]. 2017 [cited 2022 Oct 21];14(3):344. Available from: /pmc/articles/PMC5440437/

## 0145 - The Assessment of The Relationship Between Cognitive Flexibility and Both Daily Life Activities and Psychiatric Symptoms in Elderly Individuals

Ezgi Cellat[1], Hasan Kaya[2], Kazım Cihan Can[3], Kamile Sılay[4], Merve Eltemiz[5], Erol Göka[2]

[1]Department of psychiatry, Corum Erol Olcok Education and Research Hospital, Corum, Turkey
[2]Department of psychiatry, Ankara City Hospital, Ankara, Turkey
[3]Department of psychiatry, Ankara University Faculty of Medicine, Ankara, Turkey
[4]Department of geriatrics, Ankara City Hospital, Ankara, Turkey
[5]Department of psychiatry, Pursaklar State Hospital, Ankara, Turkey

**Introduction and Aim**: Cognitive flexibility refers to a person's awareness, understanding and ability of adapting the situation with related options and alternatives, plus ultimate self efficiency in decision-making (1). It is a process that lots of cognitive domains take part in such as salience detection, attention, working memory, inhibition and switching (2). The deterioration in these cognitive areas with ageing causes mental and physical problems by reducing the quality of life of elderly individuals (3).

Our study aims to assess the cognitive flexibility status in elderly individuals, to reveal the relationship between cognitive flexibility and psychiatric symptoms, to elaborate psychiatric symptoms (anxiety, depression, etc.), to evaluate the effect of cognitive flexibility and psychiatric symptoms on basic and instrumental daily living activities, to determine the relationship of cognitive flexibility with intermediate variables such as age, gender, educational status, chronic diseases, etc.

**Materials and Methods:** Our study is a descriptive and observational study. The study has 131 participants who are over 65, scored at least 25 in Mini-Mental State Examination (MMSE), no described neurologic and psychiatric illness and no alcohol-drug use disorder in past/current selected from the Ankara City Hospital Geriatry outpatient clinics from August 2022 to November 2022. The case report forms comprising the questions about sociodemographic and clinic properties of participants were filled. The Cognitive Flexibility Inventory (CFI), The Wisconsin Card Sorting Test (WCST), The Trail Making Test (TMT) and The Stroop Color and Word Test (SCWT) were applied to evaluate cognitive flexibility. The Symptom Checklist-90-Revised (SCL-90-R), The Geriatric Depression Scale (GDS) and The State-Trait Anxiety Inventory (STAI) were used to measure psychiatric symptoms and disorders. The assessment of daily living activities were made by The Katz Activities of Daily Living Index (for basic activities of daily living (BADL)) and and The Lawton Instrumental Activities of Daily Living Scale (for instrumental activities of daily living (IADL)). As a result of the analysis of the data, the significance value was accepted as $p < 0.05$.

**Results:** From neuropsychological test subscores, WCST total number of perseverative errors, the difference in score between B and A (B-A) on TMT, and the completion time of Stroop 5 were used to predict cognitive flexibility. It has been determined that each of these parameters is affected by the education year independently of other factors (age, sex, diabetes, hypertension, the level of anxiety and depression) and are shown in **Table 1**.

*Table 1.* *Analysing the effects of all possible factors thought to be effective on scales and tests evaluating cognitive flexibility*

| Spesifications | Regression coefficient | %95 Confidence Interval | | t | p† | R² |
|---|---|---|---|---|---|---|
| | | Lower limit | Upper limit | | | |
| **WCST total number of perseverative errors** | | | | | | 0,103 |
| Age (years) | 0,002 | -0,020 | 0,023 | 0,155 | 0,877 | |
| Male gender | -0,041 | -0,242 | 0,160 | -0,406 | 0,686 | |
| Education year | -0,041 | -0,063 | -0,019 | -3,672 | **<0,001** | |
| Diabetes mellitus | 0,078 | -0,133 | 0,290 | -0,735 | 0,464 | |
| Hypertension | 0,181 | -0,020 | 0,382 | -1,786 | 0,077 | |
| GDS | -0,005 | -0,030 | 0,020 | -0,372 | 0,711 | |
| STAI-II | 0,002 | -0,015 | 0,019 | 0,219 | 0,827 | |
| **TMT B-A (sec)** | | | | | | 0,389 |
| Age (years) | 0,049 | 0,027 | 0,070 | 4,488 | **<0,001** | |
| Male gender | 0,022 | -0,180 | 0,223 | 0,212 | 0,832 | |
| Education year | -0,085 | -0,107 | -0,063 | -7,561 | **<0,001** | |
| Diabetes mellitus | 0,213 | 0,001 | 0,425 | -1,993 | **0,048** | |
| Hypertension | -0,059 | -0,261 | 0,142 | 0,583 | 0,561 | |
| GDS | 0,008 | -0,017 | 0,033 | 0,636 | 0,526 | |
| STAI-II | 0,007 | -0,010 | 0,024 | 0,860 | 0,391 | |
| **Stroop 5 (sec)** | | | | | | 0,134 |
| Age | 0,019 | 0,008 | 0,030 | 3,389 | **<0,001** | |
| Male gender | 0,013 | -0,092 | 0,117 | 0,240 | 0,811 | |
| Education year | -0,019 | -0,031 | -0,008 | -3,271 | **<0,001** | |
| Diabetes mellitus | 0,076 | -0,034 | 0,186 | -1,372 | 0,172 | |
| Hypertension | -0,070 | -0,174 | 0,035 | 1,318 | 0,190 | |
| GDS | 0,006 | -0,007 | 0,019 | 0,866 | 0,388 | |
| STAI-II | 0,001 | -0,008 | 0,009 | 0,155 | 0,877 | |

Multivariate linear regression analyses.

It was revealed that there is no relation between the count of perseverative errors on the WCST and both psychiatric symptoms and daily living activities. It was found that the low performance of the participants in the TMT, which evaluates executive functions, and the Stroop Test, which measures the ability to shift attention and inhibition, were associated with their depressive tendencies. These are shown in **Table 2**.

*Table 2. Correlation of participants' GDS, STAI-I, STAI-II scores and cognitive flexibility scores*

| Cognitive flexibility | Psychiatric Symptoms | | | | | |
| | GDS | | STAI-I | | STAI-II | |
| | r | p† | r | p† | r | p† |
|---|---|---|---|---|---|---|
| **WCST total number of perseverative errors** | 0,044 | 0,615 | -0,072 | 0,412 | 0,050 | 0,568 |
| **TMT A (sec)** | 0,166 | 0,058 | -0,023 | 0,798 | 0,042 | 0,635 |
| **TMT B (sec)** | 0,193 | **0,027** | -0,090 | 0,306 | 0,136 | 0,122 |
| **TMT B-A (sec)** | 0,189 | **0,030** | -0,099 | 0,260 | 0,140 | 0,111 |
| **Stroop 5 (sec)** | 0,191 | **0,029** | -0,120 | 0,171 | 0,090 | 0,308 |

† Spearman's rank correlation test.

As shown in **Table 3**, it was determined that participants who performed better in the tests evaluating cognitive flexibility had better BADL and IADL.

*Table 3. Correlation of participants' cognitive flexibility scores and activities of daily living scores*

| Cognitive flexibility | BADL | | IADL | |
| | r | p† | r | p† |
|---|---|---|---|---|
| **WCST total number of perseverative errors** | -0,010 | 0,909 | -0,027 | 0,762 |
| **TMT A (sec)** | -0,171 | 0,051 | -0,187 | **0,032** |
| **TMT B (sec)** | -0,186 | **0,034** | -0,212 | **0,015** |
| **TMT B-A (sec)** | -0,189 | **0,031** | -0,218 | **0,012** |
| **Stroop 5 (sec)** | -0,222 | **0,011** | -0,230 | **0,008** |

† Spearman's rank correlation test.

It was confirmed that hypertension and diabetes, which are common in our study group, affect cognitive functions. In addition, it has been found that diabetes negatively affects basic activities of daily living, independent of other factors (age, sex, the year of education, the cognitive scales' scores, the level of anxiety and depression). These are shown in **Table 4**.

*Table 4. Analysing the combined effects of all possible factors thought to be effective on BADL and IADL*

| Spesifications | Regression coefficient | %95 Confidence Interval | | t | p† | R² |
| | | Lower limit | Upper limit | | | |
|---|---|---|---|---|---|---|
| **BADL** | | | | | | 0,131 |
| Age | -0,002 | -0,005 | 0,001 | -1,073 | 0,285 | |
| Male gender | 0,010 | -0,017 | 0,037 | 0,736 | 0,463 | |
| Education year | -0,002 | -0,005 | 0,002 | -0,939 | 0,350 | |
| Diabetes mellitus | 0,032 | 0,004 | 0,061 | 2,221 | **0,028** | |
| TMT B-A* (sec) | -0,004 | -0,020 | 0,013 | -0,437 | 0,663 | |
| Stroop 5 (sec) | -0,001 | -0,002 | 0,000 | -1,817 | 0,072 | |
| GDS | -0,002 | -0,006 | 0,001 | -1,344 | 0,181 | |
| STAI-II | -0,001 | -0,004 | 0,001 | -1,161 | 0,248 | |
| **IADL** | | | | | | 0,165 |
| Age | -0,004 | -0,007 | -0,001 | -2,518 | **0,013** | |
| Male gender | -0,005 | -0,031 | 0,022 | -0,335 | 0,738 | |
| Education year | -0,003 | -0,006 | 0,001 | -1,472 | 0,144 | |
| Diabetes mellitus | -0,022 | -0,051 | 0,007 | 1,493 | 0,138 | |
| TMT B-A* (sec) | -0,019 | -0,035 | -0,002 | -2,276 | **0,025** | |
| Stroop 5 (sec) | -0,001 | -0,002 | 0,001 | -0,883 | 0,379 | |

* The effect of each 100-second increase on the dependent variables. Multivariate linear regression analysis.

**Discussion:** Executive functions are sensitive to the aging process, but not all executive function processes are affected by age in the same way and amount (4). Cognitive flexibility is a process in which more than one cognitive domain contributes (2). Therefore, considering that each of the tests evaluating executive functions focuses on different cognitive domains, the results of the tests used may vary as in our study.

In our study, when the relationship between cognitive flexibility and psychiatric symptoms was examined, depressive tendency was associated with a decrease in cognitive flexibility, while there was a weak relationship between anxiety tendency and cognitive flexibility. Snyder, in a meta-analysis including 113 studies evaluating at least one area of executive functions with depression and healthy control groups, reported that individuals diagnosed with depression were more unsuccessful in the WCST and had longer TMT A, TMT B and Stroop Test completion times compared to the healthy control group (5). In a study conducted by Yochim et al. in elderly individuals, it was revealed that anxiety and depression symptoms negatively affected memory and executive functions and caused prolonged TMT B completion time (6).

However, some neuroimaging studies provide suggestive evidence. Holmes and Pizzagalli found that the duration of interference was longer and activation of the dorsal ACC and left dlPFC was significantly reduced in individuals with depression compared to healthy controls; however, Wagner again found more activation in the left dlPFC in individuals with depression, although there was no difference in interference between the groups (7,8). Although these two studies are seemingly contradictory, they suggest that those with depression require more left dlPFC activation than healthy controls to achieve the same level of performance. Longitudinal studies that provide evidence at neuropsychological, neurobiological, neuroimaging and behavioural levels are needed to more clearly demonstrate the effect of depression and anxiety on cognitive functions.

It was found that the participants' scores on the BADL scale ranged between 5-6 and all of those who scored 5 lost points from the incontinence parameter on the scale in our study. Large observational studies show that diabetes is associated with a 30% to 70% increased risk of lower urinary tract symptoms. Urodynamically, 39% to 61% of people with diabetes have an overactive bladder (9). The reason for the low BADL in our study may be that individuals with diabetes described incontinence. However, considering that diabetes predicts BADL independently of other factors, the presence of chronic diseases and the diversity of chronic diseases that individuals have may have affected our results.

Vaughan and Giovanello showed that IADL was associated with inhibition, task switching and working memory in elderly individuals with MMSE >27 points (10). Bell-McGinty et al. concluded that TMT B and then WCST total number of perseverative errors are important in predicting IADL in elderly individuals with or without dementia (11). In our study, it is seen that IADL is mainly related to cognitive flexibility. In addition, Johnson et al. stated that impairment in TMT B predicted future deterioration in BADL and IADL in elderly individuals who were followed up for 6 years after assessment with TMT B (12). This is clear evidence that cognitive flexibility predicts future activities of daily living.

**Conclusions**: Our study shows that cognitive flexibility is associated with depressive tendency and activities of daily living in elderly individuals. In addition, the importance of intervening variables, years of education and chronic disease, should not be ignored. We think that using genetic, neurobiological and neuroimaging methods is more appropriate to develop more comprehensive models of how cognitive flexibility is affected, and thus, the relevant parameters would be optimally evaluated.

**Keywords:** Elderly, cognitive flexibility, psychiatric symptoms, daily living activities

**References**

1) Martin MM, Rubin RB. A New Measure of Cognitive Flexibility. Psychol Rep. 1995 Apr 31;76(2):623–6.

2) Dajani DR, Uddin LQ. Demystifying cognitive flexibility: Implications for clinical and developmental neuroscience. Trends Neurosci. 2015 Sep;38(9):571–8.

3) Han F, Luo C, Lv D, Tian L, Qu C. Risk Factors Affecting Cognitive Impairment of the Elderly Aged 65 and Over: A Cross-Sectional Study. Front Aging Neurosci. 2022 Jun 16;14.

4) Dorbath L, Hasselhorn M, Titz C. Aging and Executive Functioning: A Training Study on Focus-Switching. Front Psychol. 2011;2.

5) Snyder HR. Major depressive disorder is associated with broad impairments on neuropsychological measures of executive function: A meta-analysis and review. Psychol Bull. 2013;139(1):81–132.

6) Yochim BP, Mueller AE, Segal DL. Late life anxiety is associated with decreased memory and executive functioning in community dwelling older adults. J Anxiety Disord. 2013 Aug;27(6):567–75.

7) Holmes AJ, Pizzagalli DA. Task feedback effects on conflict monitoring and executive control: Relationship to subclinical measures of depression. Emotion. 2007;7(1):68–76.

8) Wagner G, Koch K, Reichenbach JR, Sauer H, Schlösser RGM. The special involvement of the rostrolateral prefrontal cortex in planning abilities: An event-related fMRI study with the Tower of London paradigm. Neuropsychologia. 2006 Jan;44(12):2337–47.

9) Smith DB. Urinary Incontinence and Diabetes. Journal of Wound, Ostomy and Continence Nursing. 2006 Nov;33(6):619–23.

10) Vaughan L, Giovanello K. Executive function in daily life: Age-related influences of executive processes on instrumental activities of daily living. Psychol Aging. 2010;25(2):343–55.

11) Bell-McGinty S, Podell K, Franzen M, Baird AD, Williams MJ. Standard measures of executive function in predicting instrumental activities of daily living in older adults. Int J Geriatr Psychiatry. 2002 Sep;17(9):828–34.

12) Johnson JK, Lui LY, Yaffe K. Executive Function, More Than Global Cognition, Predicts Functional Decline and Mortality in Elderly Women. J Gerontol A Biol Sci Med Sci. 2007 Oct 1;62(10):1134–41.

## 0148 - The Impact of Screen Exposure on Biological Rhythms and Sleep Quality in Adults with Attention Deficit Hyperactivity Disorder (ADHD)

Ayla Canlı İşler[1], Mihriban Dalkıran[2]

[1]Sivas Numune Hospital, Psychiatry Clinic, Sivas, Turkey
[2]Erenköy Mental and Nervous Diseases Training and Research Hospital, Psychiatry Clinic, Istanbul, Turkey

**Introduction:** The ubiquitous presence of screens in our daily lives has been linked to various mental health issues, including sleep disturbances, attention problems, anxiety, and depression (1). Studies in adults with ADHD have found that over 70% have sleep disorders. While the relationship between ADHD and sleep disorders was previously thought to be due to the side effects of ADHD medication, recent studies have shown that individuals with ADHD independently present to clinics with complaints of sleep disorders, irrespective of medication (2).

This study aims to investigate the correlation between screen exposure, biological rhythm patterns, and sleep quality in adults diagnosed with Attention Deficit Hyperactivity Disorder (ADHD).

**Methods:** Our study involved 100 adult ADHD patients aged 18-65, diagnosed according to DSM-5 criteria. These patients had either never received ADHD medication or had not undergone treatment for at least three months. We also included 100 healthy controls matched with the ADHD group based on age, gender, and education level, resulting in a total of 200 participants. . Participants were evaluated with the sociodemographic data form, Diagnostic Interview for ADHD in Adults (DIVA 2.0), Attention Deficit Hyperactivity Disorder Self-Report Scale (ASRS), Biological Rhythms Interview of Assessment in Neuropsychiatry (BRIAN), Pittsburg Sleep Quality Index (PSQI), and Screen Exposure Questionnaire. The control group received all assessments, except the Diagnostic Interview for ADHD in Adults (DIVA 2.0).

This study was approved by the Clinical Research Ethics Committee of the University of Health Sciences Şişli Hamidiye Etfal Training and Research Hospital on 16.02.2021 with the decision number 3145.

Data were analyzed using the "IBM SPSS Statistics 23" software. Frequency analysis was used to measure frequency, cross-tabulation and chi-square test to compare categorical variables, independent sample t-test to measure differences between variables with two or fewer subheadings, Mann-Whitney U test for variables with more than two subheadings, and clustering tests to identify intersecting sets. Spearman correlation analysis was used for correlation analyses. A significance level of "$p<0.05$" was accepted for the variables within the scope of the study.

**Results:** Total daily screen exposure and daily computer time were significantly higher in the ADHD group compared to the control group ($p<0.001$). No significant difference was found between the daily phone, tablet and TV exposure durations of ADHD and control groups ($p>0.05$) (Table 1).

A significant difference was found between the use of the screen for "doing work/ homework", "doing research and getting information", "playing games" and "social media" in ADHD and control groups ($p<0.05$). When comparing the ADHD and control groups in terms of exposure to screens before sleep/in the dark, sleeplessness due to screen exposure, bedtime, and watching violent content, significant differences were found ($p<0.001$). No significant difference was observed between the two groups in terms of screen use for "movies/cartoons" and "other" purposes ($p>0.05$) (Table 2).

A statistically significant positive correlation was found between total daily screen exposure and BRIAN, BRIAN Sleep section and PDQI scores between ADHD and control groups ($p<0.05$). While a significant difference was found between the ASRS score and total daily screen exposure ($p=0.015$) and screen exposure in the dark ($p=0.03$) in the ADHD group, no difference was found in the control group ($p>0.05$) (Table 3).

**Discussion:** In this study, the relationship between screen exposure, biological rhythm, sleep quality, and symptom severity was investigated in a patient and control group matched for age, gender and educational level.

The rapid development of technology, coupled with the increasing prevalence of ADHD, has heightened interest in exploring the relationship between them. It has been reported that increased screen exposure can lead to difficulties in maintaining and sustaining attention (1). In our study, the total daily screen exposure duration of the ADHD group was found to be significantly higher compared to the control group.

In the ADHD group, it is hypothesized that due to hyperactivity, focusing, and organizational issues, tasks such as completing work/homework or conducting research take longer, leading to prolonged use of screens for these purposes. It is also thought that in ADHD, engaging in pleasurable activities like gaming is easier, and the changing stimuli in games may contribute to sustaining attention. In the literature, exposure to video games and television has been found to be a cause of impaired attention in later years and it has been shown that it is difficult to pay attention to less

entertaining tasks (e.g. school, work) due to the entertaining content on television (3). In both groups, it was found that the most frequently exposed tool was the telephone. Screen exposure before/during the dark and sleep deprivation due to screen exposure were significantly higher in the ADHD group. The control group went to bed much earlier than the ADHD group. It has been found that repetitive exposure to violent broadcasts may cause overstimulation, desensitize over time, and then lead to ADHD symptoms in less stimulating environments (4). In our study, viewing of violent broadcasts was found more frequently in the ADHD group.

Studies have reported that when screen time is reduced, there is a decrease in ADHD-related behaviors, and that bright light from screens negatively affects melatonin secretion, causing disruptions in circadian rhythm.(5). Screen exposure has been shown to delay bedtime.In our study, it was concluded that as the total daily screen exposure time increased, the ASRS score also increased, that is, ADHD symptoms were exacerbated. It was observed that as the total daily screen exposure time increased in the ADHD and control groups, both the BRIAN sleep section score and the BRIAN total score increased, that is, biological rhythm disorder increased.

In most of the publications examining the relationship between sleep and screen exposure, there is an association between screen use and delayed bedtime and/or decreased total sleep time. The increased time spent in front of screens, resulting in reduced time available for sleep, the negative impact of social interaction and media content on psychophysiological arousal, which affects both falling asleep and sleep maintenance, and the suppression of melatonin due to screen light, causing phase shifts in the biological clock, are all thought to contribute to the deterioration of sleep quality due to screen exposure (5). Another aspect of how electronic media can disrupt sleep relates to physical discomforts such as muscle pain and headaches, which can arise from prolonged media use (e.g., computer gaming). Similarly, in our study, it was observed that as the total daily screen exposure increased in the ADHD and control groups, the PSQI score also increased, that is, sleep quality worsened.

It is evident that most studies related to ADHD are primarily focused on children and adolescents. Our study, being the first to investigate the relationship between screen exposure, biological rhythm, and sleep quality in adults with ADHD, will make a significant contribution to the literature. The young age of most of the participants may not reflect the general population. However, in adult ADHD, complaints increase in young adulthood when academic and vocational developmental stages are more important. The relationship between screen exposure, biological rhythm pattern and sleep quality in ADHD patients needs to be supported by studies with larger samples.

**Keywords:** Adhd, Sleep Disorders, Screen Exposure

**References**

1. Radesky JS, Christakis DA. Increased Screen Time: Implications for Early Childhood Development and Behavior. Pediatric Clinics of North America. 2016;63:827–39.

2. Schredl M, Alm B, Sobanski E. Sleep quality in adult patients with attention deficit hyperactivity disorder (ADHD). European Archives of Psychiatry and Clinical Neuroscience. 2007;257(3):164–8.

3.Swing EL, Gentile DA, Anderson CA, Walsh DA. Television and video game exposure and the development of attention problems. Pediatrics. 2010;126(2):214–21.

4.Ballard ME, Hamby RH, Panee CD, Nivens EE. Repeated Exposure to Video Game Play Results in Decreased Blood Pressure Responding. Media Psychology. 2009;8(4):323–41.

5.Gooley JJ, Chamberlain K, Smith KA, Khalsa SBS, Rajaratnam SMW, van Reen E, et al. Exposure to room light before bedtime suppresses melatonin onset and shortens melatonin duration in humans. Journal of Clinical Endocrinology and Metabolism. 2011;96(3).

**Table 1. Assessment of Daily Screen Exposure Duration in the Sample**

|  | ADHD | Control | p |
|---|---|---|---|
|  | Avg. | Avg. |  |
| **Total screen time (hours)** | 10,12 | 6,71 | **<0,001** |
| **Computer time (hours)** | 5,22 | 2,29 | **<0,001** |

| | | | |
|---|---|---|---|
| **Phone time (hours)** | 3,95 | 3,41 | 0,083 |
| **Tablet time (hours)** | 0,25 | 0,06 | 0,062 |
| **TV time (hours)** | 0,69 | 1 | 0,068 |

**Table 2. Assessment of other screen exposure data of the sample**

| | | ADHD | | Control | | p |
|---|---|---|---|---|---|---|
| | | n | % | n | % | |
| **Intended use of the screen** | Work/Homework | 77 | 77 | 48 | 48 | **<0,001** |
| | Research | 72 | 72 | 57 | 57 | **0,010** |
| | Social Media | 74 | 74 | 87 | 87 | **0,012** |
| | Game | 42 | 42 | 17 | 17 | **0,015** |
| | Movie | 40 | 40 | 41 | 41 | 0,507 |
| | Other | 12 | 12 | 6 | 6 | 0,103 |
| **Screen exposure before sleep/in the dark** | No | 8 | 8 | 14 | 14 | **<0,001** |
| | Phone | 64 | 64 | 72 | 72 | |
| | Computer | 20 | 20 | 5 | 5 | |
| | Tablet | 3 | 3 | 0 | 0 | |
| | TV | 5 | 5 | 9 | 9 | |
| **Insomnia due to screen exposure** | No | 47 | 47 | 85 | 85 | **<0,001** |
| | Not sleeping | 13 | 13 | 3 | 3 | |
| | Can't fall asleep even if he wants to | 40 | 40 | 12 | 12 | |
| **Bedtime** | 23.00-01.00 | 37 | 37 | 76 | 76 | **<0,001** |
| | 01.00-03.00 | 43 | 43 | 22 | 22 | |
| | 03.00-05.00 | 18 | 18 | 2 | 2 | |
| | After 05.00 | 2 | 2 | 0 | 0 | |
| **Watching violent broadcasts** | No | 53 | 53 | 84 | 84 | **<0,001** |
| | Yes | 47 | 47 | 16 | 16 | |

**Table 3. Correlation of Total Daily Screen Exposure of the Sample with Other Variables**

| | ADHD | | Control | |
|---|---|---|---|---|
| | rho | p | rho | p |
| **ASRS** | 0,243 | **0,015** | 0,164 | 0,102 |
| **BRIAN** | 0,225 | **0,025** | 0,229 | **0,022** |
| **BRIAN Sleep** | 0,249 | **0,013** | 0,217 | **0,030** |
| **PSQI** | 0,221 | **0,027** | 0,248 | **0,013** |

rho Spearman's Correlation Coefficient

## 0149 - Investigation of Self-Care Behaviours in a Rat Model of Acute Liver Injury Induced by Paracetamol

Hasan Çalışkan

Department of Physiology, Balıkesir University Medicine Faculty, Balıkesir, Turkey

**Introduction**: Acute liver failure is a clinical picture with high morbidity and mortality that occurs with sudden onset in individuals without any known liver disease. Viral causes, drug poisoning, and vascular and metabolic causes play a role in its etiology. Presented study, self-care, aversion to pleasure, and anxiety-like behaviors will be examined in a paracetamol-induced acute liver injury model.

**Methods**: Adult male Wistar Albino rats were used in the study. The groups were divided into 2 groups control (n=6) and acute liver injury animals (n=6). The control group received 1 ml/kg physiological saline (i.p) and the acute liver injury group received Paracetamol 750 mg/kg (i.p), single dose. Open field test and splash test were examined to test the behavior 23 hours after the application. In the open field test, being taken out of the cage, new surroundings, and open space cause anxiety-like behaviors. With the increase in anxiety-like behavior, subjects turn to the wall of the open field apparatus. This behavior is called tigmotaxis. Rearing, which is the behavior of exploring the environment, decreases due to anxiety. Apart from these, vertical and horizontal locomotor activity is examined in general. Time spent in the central zone, number of entries into the central zone, unsupported rearing number, urination, fecal boli number, and total distance traveled were analyzed in the open field test.10% (g/w) sucrose solution is sprayed on the dorsal part of the animals to trigger self-grooming behavior in the splash test. In this test, animals with increased depression-like behaviors are expected to have less self-cleaning behavior than control animals. The dorsal fur of the rat will be sprayed with 1 ml of 10% sucrose solution at a time. This procedure will be performed under red light (15 W) and video recorded for 5 minutes. The onset, duration, and frequency of scratching behavior will be analyzed. Unlike the other two tests, the sucrose preference test was measured by the amount of liquid consumed by drinkers containing tap water and 2% sucrose solution placed in the cage for 24 hours. The subjects were sacrificed under 50 mg/kg ketamine + 10 mg/xylazine anesthesia. Serum ALT-AST enzyme levels were examined to confirm the acute liver injury model. All procedures were performed under the approval of the Balıkesir University Experimental Animals Ethics Committee, and the approval reference number is 2023/11-2.

Results: AST and ALT were elevated in the acute liver injury group vs control group (p<0.05). Grooming time and frequency, which were examined as self-care behaviors, were significantly decreased in the acute liver injury group vs control (p < 0.001). Grooming latency was significantly prolonged compared to the control group (p < 0.001). In the open field test, the total distance traveled decreased and the speed slowed down in subjects with liver damage (p < 0.05). Time spent in the center zone/number of entries and the number of unsupported rearing number decreased in the acute liver injury group vs control (p < 0.05). No difference was found between the groups in terms of fecal boli number and urination (p >0.05). The sucrose solution consumption decreased below 65% in the acute lung group and decreased significantly compared to the control group (p < 0.001).

**Discussion**: This is an important preclinical study of brain function and liver association. This study is also important because acute liver injury due to paracetamol toxicity is also seen in clinical services. In the acute liver injury model, both anxiety-like behaviors increased and locomotor activity was negatively affected. Subjects were negatively affected in terms of duration and frequency of self-care behaviors. Experimental studies have shown an increase in anxiety and depression-like behaviors after liver injury [1,2]. In these studies, the forced swimming test and tail suspension test are preferred as depression models. Both test setups model the hopelessness that occurs in depression in rodents. A rat or mouse taken from a cage swims in the water at a certain height, and when it realizes that it cannot escape from the environment, it remains immobilized in the water like a log of wood. This behavior corresponds to the hopelessness of depression. Similarly, rats hung by their tail give a similar reaction by remaining immobile in the experimental setup [3]. A severe state of anhedonia was observed in the subjects. Metabolic wastes are generated as a result of the liver's failure to function cross the blood-brain barrier [4]. In case the liver fails to fulfill its functions, metabolic wastes may have crossed the blood-brain barrier and caused this negative picture. Growth factors such as BDNF, neurotransmitters, and neuromodulatory systems may have been affected. The present study has several limitations. This study examined anxiety-like behaviors, self-care, anhedonia, and locomotor activity. The extent to which different brain regions are affected by acute liver injury can be examined through different molecular pathways.

Conclusions: Self-care behavior patterns were negatively affected in terms of both duration and frequency in the acute liver injury model. Similarly, locomotor activity and exploratory behaviors were negatively affected, and anxiety-like behaviors increased in the open field test. Anhedonia was also observed in the sucrose preference test. The observation of paracetamol-induced liver damage in the clinic increases the importance of the present study. Further studies are needed to examine the negativities seen in behaviors.

**Keywords:** Acute Liver Injury, Open Field Test, Paracetamol, Splash Test

**References**

1. Yan T, Li F, Xiong W, et al. Nootkatone improves anxiety and depression-like behavior by targeting hyperammonemia-induced oxidative stress in D-galactosamine model of liver injury. Environmental Toxicology, 2021: 36(4): 694-706.

2. Mahmoud MS, El-Kott AF, AlGwaiz HI, Fathy SM. Protective effect of Moringa oleifera Lam. leaf extract against oxidative stress, inflammation, depression, and apoptosis in a mouse model of hepatic encephalopathy. Environmental Science and Pollution Research, 2022: 29(55): 83783-83796.

3. Çalışkan H, Koçak S. The state of depression-like behaviors in animals with metabolic syndrome. In: Duran N, Aydın F, eds. Recent Advances in Medicine and Health Sciences Concepts, Researches and Practice. Lyon: Livre de Lyon; 2023:217-225.

4. Butterworth RF. Pathogenesis of hepatic encephalopathy and brain edema in acute liver failure. Journal of clinical and experimental hepatology. 2015; 5: 96-103.

## 0152 - Evaluation of the Treatment of Patients with Autism Spectrum Disorder Presenting to Child Psychiatry Outpatient Clinic with Irritability Symptoms

Şeyma İlhan

Department of child and adolescent psychiatry, Kartal Dr. Lutfi Kirdar City Hospital, İstanbul, Turkey

**Objective**: Autism Spectrum Disorder (ASD) is a neuropsychiatric disorder characterized by inadequacy in social interaction skills, limited interests, and obsessive-stereotyped behavior patterns (American Psychiatric Association, 2013)). In addition to these difficulties, individuals with ASD often display aggression, tantrums, irritability, and self-injurious or self-destructive behaviors, which can be challenging for both the individuals with ASD and those around them.

In individuals with ASD, both behavioral interventions and psychopharmacological treatments are used to reduce the accompanying symptoms of tantrums and irritability. Among psychopharmacological treatments, antipsychotics are frequently used. The first studies on antipsychotics in children with autism showing conduct disorder symptoms such as irritability were conducted with the molecule haloperidol, and it was reported that the use of haloperidol improved irritability, conduct disorder, steorotypies and withdrawal symptoms in most children and adolescents with ASD, but its use was limited due to side effects such as sedation, dystonia and withdrawal dyskinesia. Atypical antipsychotics show a lower rate of dyskinesia side effects than typical antipsychotics and have been the most widely studied agents for the treatment of irritability symptoms in autism among all drug categories (1). The majority of randomized controlled trials in this field have involved the FDA-approved molecules risperidone and aripiprazole for the treatment of autism-related irritability and aggression. Risperidone is the first psychotropic drug approved by the FDA for the treatment of conduct disorder symptoms in children and adolescents with ASD (2). Although atypical antipsychotics are widely used in the treatment of irritability symptoms in individuals with ASD, they have side effects such as sedation and extrapyramidal system side effects, weight gain that may increase the likelihood of diabetes and cardiovascular disease, and some of the patients do not respond to antipsychotic treatment. In addition to antipsychotics, the use of mood stabilizers, psychotimulants and alpha2 agonists is also supported in the treatment of irritability in children and adolescents with ASD (2). Valproic acid, one of the mood stabilizers, has been found to be effective in irritability symptoms in adults and as a result of controlled studies, it has been observed to provide a decrease in irritability in cluster B personality disorders (3,4). In the literature, there are few studies evaluating treatment response and clinical observation using antipsychotic treatments and mood stabilizers together. In this study, our aim was to evaluate the treatment response of common symptoms in daily life such as irritability and conduct disorder in children and adolescents with ASD by comparing antipsychotic treatments and combined (antipsychotic + mood stabilizers) treatments.

**Methods:** Between April 2022 and January 2024, the data of 78 patients aged 7-18 years with ASD diagnosed according to DSM-V criteria who were admitted to the child psychiatry outpatient clinic of our hospital between April 2022 and January 2024 were retrospectively reviewed. Children who were followed up regularly for 8 weeks and received treatment were included in the study. Sociodemographic characteristics, diagnosis and treatment were evaluated. The severity of the disease and the level of improvement were calculated using the Clinical Global Assessment Scale (CGI). The CGI is a scale that assesses three domains to enable the clinician to record the clinician's impression of the patient's functioning before and following the initiation of treatment. The first part of the scale assesses the severity of the disease, the second part assesses the level of improvement, and the third part assesses the severity of drug side effects. Clinical Global Impression Scale (CGI) severity score was evaluated in patients who started treatment and CGI improvement scores were evaluated at the last evaluation. Considering that the number of patients would not be sufficient for statistical analysis, patients with CGI improvement scores of 1 (much improved) and 2 (quite improved) were grouped together as one group and patients with CGI improvement scores of 3 (slightly improved) and 4 (no change) were grouped together as a second group, thus two different patient groups were formed. SPSS 22 was used for statistical analysis (p less than 0.05).

**Results:** The mean age of 78 patients was 10.77 +/- 2.56 years. Sixty percent of the evaluated patients were male. According to the severity score of the CASI scale; 3.8% of the patients were mild, 20.5% moderate, 30.8% marked, 28.2% severe, 16.7% very severe. During the 8-week period, 56 of 78 patients were treated with single antipsychotics (risperidone, aripiprazole, haloperidol, olanzapine, paliperidone, zuclopenthixol). 13 of them were dual antipsychotics (olanzapine+zucopenthixol, aripiprazole+olanzapine, paliperidone+ketiapine, paliperidone+amilsulpride, risperidone+olanzapine, paliperidone+olanzapine, paliperidone+aripiprazole, aripiprazole+ketiapine, risperidone+zuclopenthixol) 9 of them used a mood stabilizer (paliperidone+valproate, aripiprazole+valproate, quetiapine+valproate) in addition to antipsychotic treatment. In 36 of 56 patients who received antipsychotic

monotherapy, in 6 of 13 patients who received dual antipsychotic treatment, and in 2 of 9 patients who received antipsychotic treatment combined with a mood stabilizer, the QOL improvement scores were very much improved and fairly improved. There was no statistically significant difference in clinical improvement in 69 patients receiving antipsychotic monotherapy and dual antipsychotic treatment (p=0.228). When the rate of clinical improvement was compared between the group receiving antipsychotic treatment and 9 patients using a combination of antipsychotic treatment and mood stabilizers, a significant difference was found in clinical improvement in those using antipsychotics and mood stabilizers (p=0.044).

**Discussion:** Many psychotropic drugs are used for different indications in children and adolescents with ASD. When these conduct disorder symptoms accompanying ASD symptoms are detected, psychopharmacological treatment is frequently used in cases where psychosocial interventions do not yield results, and atypical antipsychotics are frequently used for this purpose. When the targeted improvement in symptoms cannot be achieved, combination therapies are frequently used (5). In our study, we aimed to investigate the effect of adding valproate, a mood stabilizer, to antipsychotic medication in addition to various combinations in the treatment of irritability symptoms in children and adolescents with ASD on irritability and conduct disorder symptoms. A review of the literature in this field revealed that although valproate is frequently used in clinical practice for irritability symptoms in children and adolescents diagnosed with ASD, there are few studies in this field. In our study, it was found that the combination of antipsychotic and mood stabilizer medication provided a significant difference in clinical improvement in the rate of CGI improvement in irritability and conduct disorder symptoms in children diagnosed with ASD receiving regular treatment compared to children using only antipsychotics. This supports that the addition of mood stabilizers in ASD patients with irritability and conduct disorder symptoms who do not respond to treatment with antipsychotics may result in positive clinical responses.

In an open-label study by Hollender et al. valproate was found to reduce irritability and aggression in individuals with ASD aged between 5 and 40 years (6). In evaluations using the Clinical Global Monitoring scale, 71% of the patients showed very or much improvement, while alopecia, behavioral activation, elevation in liver enzymes, sedation and weight gain were reported as side effects. In the following years, Hollander et al. conducted a 12-week study in 27 children and adolescents with ASD aged 4.8-14.9 years, maintaining serum valproate levels above 350 μmol/L, and assessed treatment response by Aberrant Behavior Checlist-I scores. They found a statistically significant decrease in ABC-I scores in patients receiving sodium valproate (-7.5) compared with patients receiving placebo (-4.6) (8).

The therapeutic effects of valproate on irritability in individuals with ASD are thought to be mediated through the gamma amino butyric acid (GABA) system, an inhibitory neurotransmitter in the central nervous system. In addition, valproate's inhibition of kindling may explain its efficacy in the treatment of mood lability. In addition, treatment of underlying epileptiform abnormalities may contribute to behavioral response (8)

Since the data in our study were retrospectively reviewed, the irritability assessment of the patients was calculated only according to the CGI-severity scale and CGI-adjustment scores. In addition, the lack of sufficient sample size is among the limitations of our study. Prospective studies with larger samples and longer follow-up periods are needed to obtain definitive results about psychopharmacologic treatments in children and adolescents with ASD.

**Keywords:** autism spectrum disorder, antipsychotics, behavioral problems, irritability, treatment

## References

1.Erickson CA. Posey DJ. Stigler KA. McDougle CJ. Pharmacologic treatment of autism and related disorders. Pediatrics Ann. 2007

2. Aman MG (2004). Management of hyperactivity and other externalizing problems in patients with ASD spectrum disorders. Semin Pediatr Neurol 11: 225-228.

3. Hollander E, Tracy KA, Swann AC, Coccaro EF, McElroy SL, Wozniak P et al (2003). Divalproex in the treatment of impulsive aggression: Efficacy in cluster B personality disorders. Neuro-psychopharmacology 28: 1186-1197.

4. Hollander E, Swann AC, Coccaro EF, Jiang P, Smith TB (2005). The impact of trait impulsivity and situational aggression on the response to divalproex and placebo in borderline personality disorder. Am J Psychiatry 162: 621-624.

5. Spencer D, Marshall J, Post B, Kulakodlu M, Newschaffer C, Dennen T, et al. Psychotropic drug use and polypharmacy in children with autism spectrum disorders. Pediatrics. 2013;132(5):833-40.

6.Hollander E, Dolgoff-Kaspar R, Cartwright C, et al. 2001. An open trial of Divalproex so- dium in autism spectrum disorders. J Clin Psychiatry 62:530-534.

7. Hellings JA, Weckbaugh M, Nickel EJ, et al. 2005. A double-blind, placebo-controlled study of valproate for aggression in youth with pervasive developmental disorder. J Child Adolesc Psychpharmacol 15:682-692.

8. Hollander E, Chaplin W, Soorya L, Wasserman S, Novotny S, Rusoff J, Anagnostou E. Placebo versus Divalproex Sodium for the Treatment of Irritability in Children and Adolescents with Autism Spectrum Disorder. Neuropsychopharmacology. 2010;35(4):990-998.

## 0153 - Triglyceride-Glucose Index as A Cardiovascular Disease Risk Indicator in Patients with Schizophrenia

Yusuf Çokünlü[1], Fadime Şimşek[1]

Konya Numune Hospital, Clinic of Psychiatry, Konya

**Background and Aim:** Schizophrenia is a chronic psychiatric disease that affects approximately 1% of the world population and causes severe disability in the life of the individual (1,2). It is known that the life expectancy of individuals diagnosed with schizophrenia is approximately 15-20 years shorter than the general population. Cardiovascular diseases are thought to be the main reason for the increased risk of premature death in schizophrenia patients (3,4). Compared to the general population, it has been observed that cardiovascular events such as coronary artery disease and sudden cardiac death are approximately three times more common in patients with schizophrenia (5). Similarly, high blood pressure and abnormal electrocardiographic findings are also common (1-3).

Studies have associated schizophrenia with systemic changes including high cortisol levels, autonomic nervous system dysfunction, inflammation, abnormal lipid profile, increased oxidative stress and platelet reactivity. All these systemic changes in schizophrenia are thought to play a role in the emergence and progression of cardiovascular disease (4-5). In addition, the prevalence of cardiovascular disease risk factors such as diabetes, dyslipidemia and metabolic syndrome has been shown to be higher in patients with schizophrenia (5). It is also known that smoking, poor diet and lack of physical activity, which are common in patients with schizophrenia, increase the risk of cardiovascular disease (2-3). Understanding the etiology and mechanism of increased CVD risk will help us to effectively manage CVD in schizophrenia.

The Triglyceride-Glucose (TyG) index is a recently emerged parameter recognized for its use to assess insulin resistance. It is calculated using triglyceride (TG) and fasting blood glucose (6). Recent studies have associated a high TyG index with an increased risk of cardiovascular events (7-8). There are also studies suggesting that the TyG index plays a predictive role for cardiovascular events such as atherosclerosis, myocardial infarction and coronary artery disease in individuals without diabetes and dyslipidemia (9-10). These findings suggest that the TyG index is a parameter independent of known risk factors for cardiovascular diseases and can be used to predict cardiovascular events (10).

Blood lipid panel and glucose values are among the parameters we look at in schizophrenia patients in connection with the medications they use during their clinical follow-up. However, it may be difficult to predict the risk of these parameters for the person before any disease develops. TyG index is a parameter that is easy to use in practice and predicts CVD risk.

As far as we know, there is no study on TyG index in schizophrenia patients in the literature. In this study, we aimed to evaluate the cardiovascular disease risk of schizophrenia patients with TyG index.

**Method**: This retrospective study was conducted by examining the file records of 40 schizophrenia patients who were followed up and treated in the psychiatry outpatient clinic of Konya Numune Hospital. Patients whose anamnesis records were kept regularly (year of illness, number of hospitalizations, medications used, presence of comorbidity) were selected. Patients with comorbidities were excluded from the study. Clinical and sociodemographic characteristics, fasting plasma glucose and lipid panel were evaluated. Triglyceride-Glucose index was calculated using fasting plasma glucose and triglyceride values. Forty healthy individuals with similar age and gender distribution to the patient group were included as the control group. Sociodemographic data, fasting plasma glucose, lipid panel, triglyceride-glucose index values of the patient group and the control group were statistically compared.

**Results**: In the patient group, 12 were female and 28 were male. In the control group, these numbers were 19 females and 21 males. There was no statistically significant difference in gender distribution (p=0.108). The mean age of the patient group was 42.95±9.3 years. The mean age of the control group was 44.78±7.85 years, respectively. There was no significant difference between the two groups in terms of age (p=0.349). The mean disease year of the schizophrenia patient group was 17.55±6.96. The mean number of hospitalizations was 1.96±2.60. The total cholesterol value of the patient population was 183.20±47.35 and 171.80±39.58 in the healthy control group and no statistically significant difference was found (p=0.246). LDL value of the patient

population was 110.58±37, 107.48±30.75 in the healthy control group and no statistically significant difference was found (p=0.679). HDL value of the patient population was 47.73±14.53 and 45.30±12.56 in the healthy control group and no statistically significant difference was found (p=0.623). Triglyceride value of the patient population was 146.23±54.33, 107.48±30.75 in the healthy control group and a statistically significant difference was found (p<0.001). Glucose value of the patient population was 88.80±8.34 and 88.13±9.95 in the healthy control group and no statistically significant difference was found (p=0.743). The TyG index value of the patient population was 8.71±0.36 and 8.42±0.32 in the healthy control group, and the TyG index was significantly higher in schizophrenia patients than in controls (p<0.001). There was a significant positive correlation between duration of illness and TyG index in the patient group (r=0.361, p=0.022).

**Discussion**: TyG index was found to be statistically significantly higher in patients with schizophrenia compared to the control population. This elevation is consistent with the increased cardiovascular risk of schizophrenia patients in the literature (5). This parameter is very important in terms of easy calculation, requiring only two laboratory tests and predicting the risk of cardiovascular disease without any comorbidity. In addition, this elevation was positively correlated with disease duration. This result is consistent with the data in the literature (10). Because as the duration of the disease increases, the number of attacks increases. The risk of being exposed to metabolic side effects of the medications used during the disease process increases. In addition, they become more risky in terms of cardiovascular diseases due to decreased attention to their own health status due to disease-induced destruction. These results support the studies reporting a high risk of CVD in schizophrenia(2-4). In our study, we aimed to use an easily calculable parameter that is a good predictor of CVD risk in schizophrenia patients. In our study, TyG index was found to be statistically significantly higher than the control group. High TyG index in schizophrenia patients may be an early indicator of the risk of future CVD development and may contribute to the prevention of CVD in these patients.

**Keywords**: Schizophrenia, triglyceride-glucose index, cardiovascular disease

**References**

1. Insel, T. R. Rethinking schizophrenia. Nature, 468(7321). 2010; 187-193.

2. Azad, M. C., Shoesmith, W. D., Al Mamun, M., Abdullah, A. F., Naing, D. K. S., Phanindranath, M., & Turin, T. C. Cardiovascular diseases among patients with schizophrenia. Asian journal of psychiatry. 2016; 19, 28-36.

3. Hjorthøj, C., Stürup, A. E., McGrath, J. J., & Nordentoft, M. Years of potential life lost and life expectancy in schizophrenia: a systematic review and meta-analysis. The Lancet Psychiatry. 2017;4(4), 295-301.

4. Ringen, P. A., Engh, J. A., Birkenaes, A. B., Dieset, I., & Andreassen, O. A. Increased mortality in schizophrenia due to cardiovascular disease–a non-systematic review of epidemiology, possible causes, and interventions. Frontiers in psychiatry.2014; 5, 137.

5. Kritharides, L., Chow, V., & Lambert, T. J. (2017). Cardiovascular disease in patients with schizophrenia. The Medical journal of Australia, 2017; (4), 179.

6. VK, R. N., Satheesh, P., Shenoy, M. T., & Kalra, S. Triglyceride Glucose (TyG) Index: A surrogate biomarker of insulin resistance. JPMA. The Journal of the Pakistan Medical Association.2022; 72(5), 986-988.

7. Tian, X., Zuo, Y., Chen, S., Liu, Q., Tao, B., Wu, S., & Wang, A. Triglyceride–glucose index is associated with the risk of myocardial infarction: an 11-year prospective study in the Kailuan cohort. Cardiovascular diabetology. 2021; 20(1), 1-10.

8. Wang, A., Wang, G., Liu, Q., Zuo, Y., Chen, S., Tao, B., ... & Wang, Y. Triglyceride-glucose index and the risk of stroke and its subtypes in the general population: an 11-year follow-up. Cardiovascular diabetology. 2021; 20(1), 1-9.

9. Gao, J. W., Hao, Q. Y., Gao, M., Zhang, K., Li, X. Z., Wang, J. F., ... & Liu, P. M. Triglyceride-glucose index in the development of peripheral artery disease: findings from the Atherosclerosis Risk in Communities (ARIC) Study. Cardiovascular Diabetology.2021; 20(1), 1-11.

10. Barzegar, N., Tohidi, M., Hasheminia, M., Azizi, F., & Hadaegh, F. The impact of triglyceride-glucose index on incident cardiovascular events during 16 years of follow-up: Tehran Lipid and Glucose Study. Cardiovascular diabetology. 2020; 19, 1-12.

## 0186 - Relationship Between Proinflammatory Cytokines and Behavior in Corner Turning Test in Lipopolysaccharide-İnduced Neuroinflammation Model

Hasan Çalışkan

Department of Physiology, Balıkesir University Medicine Faculty, Balıkesir, Turkey

**Abstract:** Introduction: Neuroinflammation is described as an inflammatory response within the nervous system. The main aim of the study was to investigate the behavior of rats in the corner turning test and the distribution of inflammation between the right/left hemispheres in the neuroinflammation model induced by lipopolysaccharide. In addition, locomotor activity, anxiety-like behaviors, and stress-related hard gland secretion were also examined.

**Methods**: Adult male Wistar Albino rats were used in the study. The groups were divided into 2 groups control (n=6) and neuroinflammation animals (n=6) The neuroinflammation group received a single dose of 2 mg/kg i.p. LPS and 1 ml/kg physiological saline were administered to the control group. 6 hours after LPS administration, open field test was performed for 5 minutes and recorded with a camera for later analysis. The corner rotation test protocol was performed twice both 6 hours and 24 hours after LPS administration (20 times in total in each protocol with thirty-second intervals). Subjects were sacrificed 24 hours after LPS administration. TNF-alpha and IL-1beta protein levels were analyzed in tissues and serum by the Elisa method. Since there were 2 independent groups, the t-test or Mann-Whitney U test was performed according to whether the distribution was parametric or not. Shapiro-Wilk test was used to determine whether the groups conformed to normal distribution. All procedures were performed under the approval of Balıkesir University Experimental Animals Ethics Committee, and the approval reference number is 2023/10-5.

**Results**: Locomotor activity decreased in the open field test, while anxiety-like behaviors increased. Harderian gland secretion increased significantly in the neuroinflammation group with a score of 4-5. In the corner-turning test, although some animals showed a predominance of turning right in some animals and left in others, there was no difference with the control group. TNF alpha and IL-1beta were significantly increased compared to the control group.

**Discussion**: In this study, we examined both anxiety-like behaviors and the direction in which subjects use their turn preference in the corner turning test in subjects with neuroinflammation. Neuroinflammation decreased the time spent in the central zone, defined as the risk zone in the open field test, and the frequency of entering this zone. Further, It decreased research behaviors. These effects are consistent with the studies of other preclinical studies [1,2].In the corner turning test, a right or left turn was generally equal. The present study has some limitations. Subjects were not given a paw preference test to examine brain laterilization and the number of n was small.

**Conclusions**: In the neuroinflammation group, anxiety-like behaviors increased and proinflammatory cytokines increased. Stress-related spotting around the eyes and nose increased. Although lateralization was observed in some animals in the corner-turning test, no significant difference was observed. More studies are needed in neuroinflammation models with the corner-turning test, which is used to examine damage to the hemispheres in neurological experiments.

**Keywords:** Anxiety-like Beahviors, Corner Turning Test, Neuroinflammation, Open Field Test

**References**
1. Soncini R, De Souza DF, Neves AP, et al. Attenuates acute sickness response to lipopolysaccharide in mice. Neurosci Lett. 2012: 516(1): 114-118.
2. Ribeiro DE, Maiolini VM, Soncini R, et al. Inhibition of nitric oxide synthase accentuates endotoxin-induced sickness behavior in mice. Pharmacol Biochem Behav. 2013: 103(3): 535-540.

## 0194 - Covid-19 Classification with Machine Learning Algorithms Based on Psychiatric Features

Azad Asaf[1], Hakan Balıbey[2], Derya Avci[3], Esra Pamukcu[4]

[1]Department of Child and Adolescent Psychiatry, Hitit University Çorum Erol Olçok Research and Education Hospital; Department of Statistics, Firat University
[2]Private Elazig Medilines Hospital
[3]Department of Computer Technologies, Firat University
[4]Department of Statistics, Firat University

**Introduction:** It has been known since ancient times that biological disorders cause psychiatric problems. It is known that medical or neurological disorders cause psychiatric symptoms, and similarly, psychiatric disorders sometimes cause physical symptoms. The fact that stress triggers some neuroregulatory mechanisms, making the person vulnerable to possible disorders or negatively affecting the existing disease process, still maintains its importance in terms of psychosomatic medicine. Generally, more than 50% of hospitalized patients have problems that require psychiatric treatment, and this is important for the integrity of physical and mental health.[1]

COVID-19 is an infectious disease that caused a worldwide pandemic and has negatively affected mental health due to the problems it caused, as well as the pandemic process brought on by social isolation and economic difficulties. Studies have found that anxiety disorders, depression, sleep disorders, post-traumatic stress disorder, and suicidal thoughts increased during the pandemic.[2]

The COVID-19 infection appears to increase depression, anxiety, delirium, and psychosis by causing neuroepithelial damage, creating a cytokine storm, causing neurovascular damage, and negatively affecting immunomodulatory systems.[3]

Although some psychiatric symptoms have differential diagnostic value in some medical and neurological disorders, this condition is mostly nonspecific. All artificial intelligence techniques, especially machine learning techniques, can use these non-obvious, non-specific findings as indicators. It is seen in studies in the literature that non-specific findings that are not obvious by using artificial intelligence in other medical fields can have differential diagnostic value.

When we look at the literature, we see that there are many studies on diagnostic classification using artificial intelligence based on other non-obvious medical findings. However, as far as we can see, there are no studies on the classification of medical diseases based on psychiatric findings. In this respect, this study offers a slightly strange, but brand new, and pioneering perspective in the psychiatric literature by trying to predict COVID-19 disease through machine learning using psychiatric features.[4]

**Method:**

a.      Dataset

The dataset consists of data from 401 individuals obtained during the COVID-19 period. 61 of these are COVID-positive, 21 are COVID-suspicious (PCR-negative, clinically), and 319 are COVID-negative individuals. In addition to the individuals' age, gender, and marital status information, the dataset includes 90-question SCL 90 symptom screening test data and 7-question insomnia severity index data.

| **Table 1:** Dataset | |
|---|---|
| **Sociodemographic Information** | Age |
| | Sex |
| | Marital status |
| **SCL 90** | 1……90 |
| **Insomnia Severity Index** | 1……..7 |
| **Covid 19 situation** | Negative, Positive and Covid Suspicious |

b.       Data preprocessing process

The data collected from the patients were first adapted to the SPSS statistical program. Then, analysis was performed for missing data using SPPS. Missing data were filled appropriately based on the mean distribution of the groups. After missing data analysis was completed, individuals' SCL 90 subscales and Insomnia severity index information were calculated with SPSS and added to the relevant dataset. Finally, it was converted back to csv format and transferred to the weka program. After the dataset pre-processing process is completed, the distribution of the groups is as follows.

**Table 2:** SCL 90 subscale and Insomnia Severity Index characteristics of individuals in the data set according to groups.

| | | Covid Negative | Covid Suspicious | Covid Positive |
|---|---|---|---|---|
| **Age** | | 33.69 ±9.854 (N:319) | 35.05 ± 11.664 (N:21) | 35.41 ±8.027 (N:61) |
| **Sex** | Erkek | 114 | 10 | 21 |
| | Kadın | 205 | 11 | 40 |
| **Marital Status** | Evli | 191 | 12 | 39 |
| | Bekar | 121 | 9 | 20 |
| | Diğer | 7 | 0 | 2 |
| **Somatization** | Mean | 0.6865 | 1.2738 | 1.4167 |
| | Std. D | ± 0.68829 | ± 1.00005 | ± 0.94783 |
| **OCD** | Mean | 0.8755 | 1.3000 | 1.0328 |
| | Std. D. | ± 0.75066 | ± 1.13181 | ± 0.74133 |
| **Interpersonal** | Mean | 0.6614 | 0.9630 | 0.8452 |
| | Std. D | ± 0.66726 | ± 1.05604 | ± 0.76559 |
| **Depression** | Mean | 0.8705 | 1.2161 | 1.1753 |
| | Std. D. | ± 0.79217 | ± 1.03393 | ± 0.73180 |
| **Anxiety** | Mean | 0.5918 | 1.1238 | 0.9770 |
| | Std. D | ± 0.67888 | ± 1.11216 | ± 0.82773 |
| **Hostility** | Mean | 0.5658 | 1,2143 | 0,6284 |
| | Std. D. | ± 0.67914 | ± 1,29973 | ± 0,75608 |
| **Phobia** | Mean | 0,7461 | 1,1293 | 0,7354 |
| | Std. D | ± 0,73323 | ± 1,30298 | ± 0,81934 |
| **Paranoid** | Mean | 0,6729 | 0,69825 | 0,6858 |
| | Std. D. | ± 0,69825 | ± 1,00915 | ± 0,74542 |
| **Psychotic** | Mean | 0,4119 | 0,7429 | 0,4246 |
| | Std. D | ± 0,53534 | ± 0,84651 | ± 0,52525 |
| **Additional** | Mean | 0,7644 | 1,1429 | 1,0515 |
| | Std. D. | ± 0,70537 | ± 0,93569 | ± 0,75098 |
| **Insomnia** | Mean | 1,2279 | 1,3741 | 1,2881 |
| | Std. D | ± 0,82139 | ± 1,02268 | ± 0,85932 |
| | | | | |
| **Clinically insignificant insomnia** | | 153 | 11 | 31 |
| **Subthreshold insomnia** | | 118 | 4 | 18 |
| **Moderate insomnia** | | 35 | 4 | 9 |
| **Severe Insomnia** | | 13 | 2 | 3 |

## c. Separation of data and machine learning process

The data transferred to the Weka program was separated into a training set (80%) and a test set (20%) after determining the class set to be parsed. After the data sets were separated, the training set was first introduced to the system, and the system was trained using machine learning techniques such as support vector machines, naive bayes, the K nearest neighbor algorithm, decision trees, random forests, adaboost, logistic regression, and artificial neural networks. Then, the test set was given back to the system, and the performance of the system was tried to be measured.
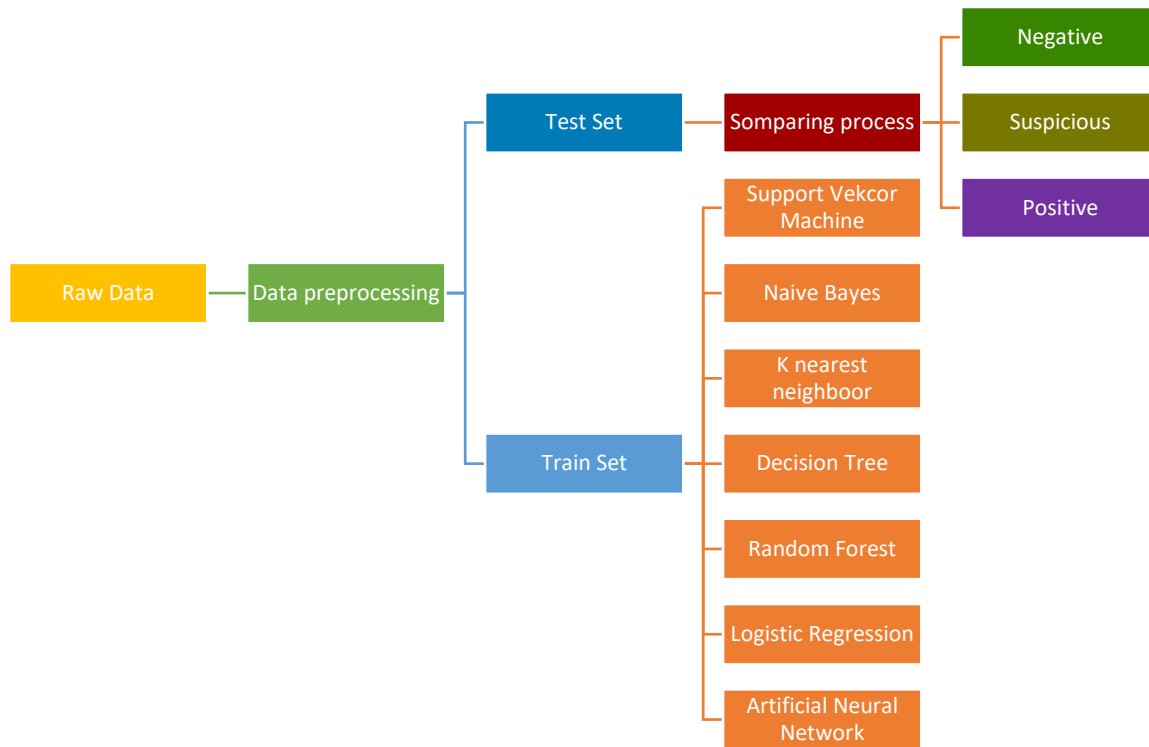


*Picture 1: Machine learning process*

## d. Evaluating performances

Generally, measuring classifier success in classification models is calculated by comparing the class values labeled by the classifier with the true class values.

**Table 3:** Evaluating Performances

| Data classified by the system | True Valiables | | |
| --- | --- | --- | --- |
| | **Negative** | **Suspicious** | **Positive** |
| **Negative** | TN | FN1 | FN2 |
| **Suspicious** | FS1 | TS | FS2 |
| **Positive** | FP1 | FP2 | TP |

**TN**: True Negative, **FN1**: False Negatif 1, **FN2**: False Negative 2,
**TS**: True Suspicious, **FS1**: False Suspicious 1, **FS2**: False Suspicious 2
**TP**: True Positive, **FP1**: False Pozitif 1, **FP2**: False Positive 2

Labeling a data with a positive true class value as positive is called TP (true positive), labeling it as negative is called false negative (FN), labeling a data with a negative true class value as negative is called true negative (TN), and labeling it as positive is called FP (false positive). It is said. Since a 3x3 complexity matrix is used here, it is: true negative (TN), false negative 1 (FN1), false negative 2 (FN2), true suspicious (TS), false suspicious 1 (FS1), false suspicious 2 (FS2), and true positive (DP). Performance evaluation criteria were calculated using false positive 1 (FP1) and false positive 2 (YP2) values. The system's performance criteria—accuracy, precision, recall, and F1 score values—were calculated using the formulas below.

$$\text{Accuracy} = \frac{\text{TP} + \text{TS} + \text{TN}}{\text{TP} + \text{TS} + \text{TN} + \text{FP1} + \text{TP2} + \text{FS1} + \text{FS2}} \times 100$$

$$\text{Precision} = \frac{\text{TP}}{\text{TP} + \text{FP1} + \text{FP2}}$$

$$\text{Recall} = \frac{\text{TP}}{\text{TP} + \text{FS2} + \text{FN2}}$$

$$\text{F1 Score} = 2 \times \frac{\text{Precision} \times \text{Recall}}{\text{Precision} + \text{Recall}}$$

**Results** Confusion Matrices

Support Vector Machine, Naive Bayes, K nearest neighbor algorithm, Decision Trees, Random Forest, Adaboost, Logistic Regression, and Artificial Neural Networks were classified using the attributes obtained from the data. As a result of the classification, the test performance is as shown in the confusion matrix below.
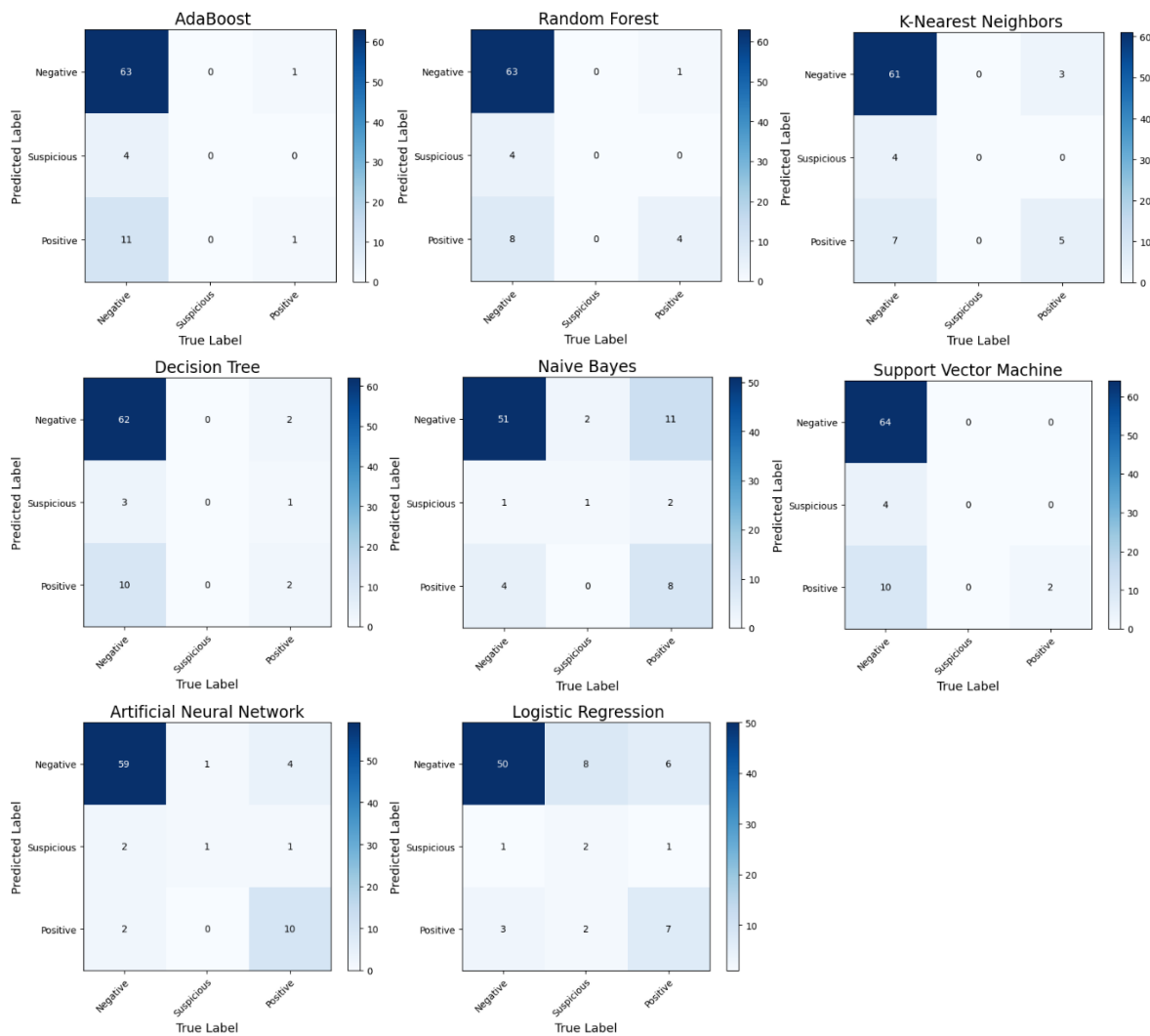


*Picture 2: Confusion matrices of machine learning algorithms*

e.        Performance comparison of Machine Learning techniques

In the research, the accuracy rates are respectively Logistic Regression 73.75%, Naive Bayes 75%, AdaBoost 80%, Decision Trees 80%, Support Vector Machine 82.5%, K nearest neighbor algorithm 82.5%, Random Forest 83.75%, and Artificial Neural Networks algorithm 87%, as shown in the table below.

| Method | Accuracy | Precision | Recall | F1-Score |
|---|---|---|---|---|
| Logistic Regression | %73,75 | 0.926 | 0.781 | 0.847 |
| Naive Bayes | %75 | 0.911 | 0.797 | 0.850 |
| Ada Boost | %80 | 0.808 | 0.984 | 0.887 |
| Decision Tree | %80 | 0.827 | 0.969 | 0.892 |
| Support Vector Machine | %82,5 | 0.821 | 1.000 | 0.901 |
| K nearest neighboor | %82,5 | 0.847 | 0.953 | 0.897 |
| Random Forest | %83,75 | 0.840 | 0.984 | 0.906 |
| Artificial Neural Network | %87.5 | 0.937 | 0.922 | 0.929 |

**Discussion:** Although the accuracy rates vary when many different machine learning algorithms are used in the study, it seems that the machine can produce meaningful results each time. Symptoms that appear in specific disease outcomes, such as delirium, fear of death, and olfactory hallucinations, are frequently used by physicians in diagnosis. Although most biological disorders lead to psychiatric disorders, most of them are nonspecific symptoms that do not have differential diagnostic value. In this study, using machine learning techniques, it seems that these nonspecific symptoms, most of which are not obvious, have differential diagnostic value. When we look at the literature, we see that many different clinical decision support systems were tried to be developed during the epidemic period. However, an attempt was made to reach results using mostly biological parameters. This study is meaningful in terms of distinguishing Covid-19 based on psychological parameters.[5]

It shows that the current method can be improved and used in the diagnosis of diseases that are difficult to diagnose medically, including possible epidemic periods.

Conversely, machine learning appears to be an important tool that offers new opportunities in psychiatric diagnosis and treatment, has groundbreaking potential, and needs to be planned and studied meticulously. It is understood that psychometric parameters through machine learning can serve as psychological markers in the future to fill the gap in laboratory and biological markers, which is the most important deficiency in the field of psychiatry.

**Keywords:** Psychiatry, Covid 19, Machine Learning, Clinical Desicion Support System,

**Literature**

1. Lexne E, Brudin L, Marteinsdottir I, Strain JJ, Nylander PO. Psychiatric symptoms among patients with acute abdominal pain : Patients with organic dyspepsia report more psychiatric symptoms and rate poorer general health compared to patients with other specific abdominal diagnoses and non-specific abdominal pain at an emergency ward. Scand J Gastroenterol. 2020;55(7):769-776. doi:10.1080/00365521.2020.1782464
2. Tizenberg BN, Brenner LA, Lowry CA, et al. Biological and Psychological Factors Determining Neuropsychiatric Outcomes in COVID-19. Current Psychiatry Reports 2021 23:10. 2021;23(10):1-25. doi:10.1007/S11920-021-01275-3
3. Butler M, Cross B, Hafeez D, et al. Emerging Knowledge of the Neurobiology of COVID-19. Psychiatric Clinics of North America. 2022;45(1):29-43. doi:10.1016/j.psc.2021.11.001
4. Siddiqui SY, Abbas S, Khan MA, et al. Intelligent Decision Support System for COVID-19 Empowered with Deep Learning. doi:10.32604/cmc.2020.012585
5. Xi J, Liu X, Wang J, Yao L, Zhou C. A Systematic Review of COVID-19 Geographical Research: Machine Learning and Bibliometric Approach. Ann Am Assoc Geogr. 2023;113(3):581-598. doi:10.1080/24694452.2022.2130143

## 0229 - Turkish Reliability and Validity Study of Pediatric Quality of Life Inventory Stem Cell Transplant (PedsQL- SCT) Module

Ümran Gül Ayvalık Baydur[1], Esra Çöp[2], Dilek Gürlek Gökçebay[3], Namık Yaşar Özbek[3]

[1]Sincan Training and Research Hospital, Department of Child and Adolescent Psychiatry, Ankara,Turkey
[2]Ankara Bilkent City Hospital, Department of Child and Adolescent Psychiatry, Ankara, Turkey
[3]Ankara Bilkent City Hospital, Department of Pediatric Hematology and Oncology, Ankara, Turkey

**Objective:** Hematopoetic stem cell transplantataion (HSCT) influences all aspects of a child's life including emotional, social and cognitive ones. Similarly, challenging transplantation process may have long term impact on general quality of life for the child. Therefore, evaluation of quality of life in these children in pre and post transplantation period, determination of those with high risk factors, and early intervention may contribute to the improvement of quality of life .In our country, there is still no quality of life scale administered to the children undergoing HSCT, which indicates the unmet need in this area. The aim of the present study is to carry out Turkish validity and reliability study of PedsQL-SCT module.

**Methods:** Sample of the study comprised 188 children and adolescents between the ages of 1-21 undergoing transplantation in Stem Cell Tansplantation (SCT) unit of our hospital between 2010-2022. Participants filled sociodemographic data form, Pediatric Quality of Life Inventory Stem Cell Transplant (PedsQL- SCT) module and Pediatric Quality of Life Inventory (PedsQL) child, adolescent and parent forms and clinicians filled physician data form. In order to evaluate the validity of scale, exploratory and confirmatory factor analysis (EFA and CFA) and concurrent reliability; internal consistency, test-retest and correlation between child-parent answers were assessed.

Descriptive statistics such as median (minimum-maximum) are given for numerical variables, and frequency and percentage are given for categorical variables. Bland-Altman plots were drawn using the Bland Altman Leh and ggplot2 packages available in the R software. Statistical significance level was accepted as p <0.05.

**Results:** Of the 188 participants included in the study, 40.4% (n = 76) were girls and 59.6% (n = 112) were boys. While 56.7% of the participants (n=112) were attending school, none of the participants between the ages of 2-4 were attending school (n=39). It was observed that 50.5% (n=95) of the participants underwent transplantation due to malignancy. The most common cause of malignancy was leukemia with a frequency of 39.9% (n = 75).

9.5% (n=18) of all participants were autologous, 48.4% (n=91) were matched sibling donor (MSD) , 10.1% (n=19) were matched related donor (MRD), 28.7% (n= 54) had matched unrelated donor (MUD) and 3.2% (n=6) had haploidentical transplantation. The HLA (Human leukocyte antigen) compatibility of 72.9% (n=124) of the participants was 10/10. 53.2% (n=100) of the transplants were made from bone marrow. It was determined that acute GVHD (Graft versus host disease ) developed in 30 children (16%) and chronic GVHD developed in 29 children (15.4%) after transplantation.

When patients aged 2-7 were grouped according to HLA compatibility and acute GVHD, a statistically significant difference was observed in terms of total quality of life scores (p=0.010; p=0.004, respectively). According to the self-report forms of patients between the ages of 8-18, the total quality of life scores of those with ongoing chronic GVHD, those with additional medical diseases, and those who did not attend school were lower (p=0.013; p=0.013; p=0.061, respectively). According to the parent forms of patients aged 8-18 years, the total quality of life scores of those who received a non-myeloablative preparation regimen, those with ongoing chronic GVHD, and those who did not attend school were lower (p=0.043; p= 0.008; p=0.012, respectively).

In order to evaluate construct validity, EFA was performed and yielded a KMO value of 0.901. Overall 7 factors were shown to explain 65.2% of total variance. After CFA, $\chi^2$/df results was found to be 2.088 and RMSEA 0.062. For concurrent validity correlation between overall PedsQL- SCT and PedsQL scores was found to vary between 0.711-0.911. For internal consistency, Cronbach's alpha coefficients were calculated to be between 0.931-0.967, indicating high reliability and ICC coefficient calculated for test-retest were between 0.650-0.864 , indicating- good-excellent reliability. ICC coefficient between parent and children answers was found to be 8-12 age (0.876) and 13-18 age (0.834), indicating that reliability between inter-raters was excellent.

**Discussion:** The KMO value is used to determine the sufficiency of the sample size for factor analysis and is expected to be at least 0.50, while values above 0.80 are interpreted as excellent. In this study, the KMO value was found to be 0.901, which indicates that we have an excellent sample size for factor analysis. Bartlett's test shows whether the correlation matrix is suitable for factor analysis. In our study, Bartlett's test was p<0.001 and was statistically significant.

In the present study, 7 factors were extracted in the explanatory factor analysis and were found to explain 65.2% of the total variance. It was shown that the scale originally had 8 factors, but in the adaptation study conducted in China, only

parent forms were included and as a result of the analysis, there were 8 factors and explained >70% of the total variance. The explained variance must be >50%. Although the variance explained in our study is sufficient, the fact that the number of factors is different from the original scale is thought to be due to intercultural differences and the inclusion of parent and child forms together in the analysis.

As a result of CFA, $\chi^2$/df value was 2.088, RMSEA value was 0.062, and GFI value was 0.852. In the literature, the PedsQL-SCT scale has been studied in two different languages, and CFA was not performed in those studies. Turkish adaptation studies on quality of life in which CFA was performed, in the 13-24 month Turkish version and the Turkish version of PedsQL-Celiac disease, these values found similar. When other studies on quality of life were examined, it was concluded that the fit indices were similar to other studies and the 7-factor structure of the scale was acceptable.

In this study, a statistically significant, positive and very high level correlation was found for the 8-12 years self-report form, and a high level correlation for the other forms. In the original study of the scale, no distinction was made according to age groups, but analysis was made with child and parent forms, and the correlation coefficients were found to be 0.89 and 0.81, respectively. Our findings seem to be compatible with the literature, although separate analyses were made according to age groups.

Cronbach's alpha coefficient was used to examine internal consistency and reliability. The alpha value found in the total scores of the scale both children's self-report and parent reports of the PedsQL-SCT module ranged between 0.931-0.967. According to the new factor structure that emerged after factor analysis, the Cronbach's alpha coefficient in the total scores of the scale was found to be 0.936. The fact that the Cronbach alpha coefficient reaches 0.70 and even exceeds 0.80 indicates that the total scale score has a high reliability and is suitable for measuring quality of life in clinical studies.

PedsQL-SCT was retested to approximately 60% of the sample approximately 2 weeks after the initial evaluation. When analyzed separately by age groups, the scale has good to excellent reliability according to ICC coefficients. When analyzed according to the new factor structure, the scale has a good level of reliability according to the ICC coefficient. In the original study of the scale, test-retest evaluation was not performed, but in the study conducted in China, self-report and parent reports were evaluated separately and both were found to have a good level of reliability. ICC coefficients for self-reports were found to be higher than those for parent reports at ages 8-12 and 13-18. The higher reliability of self-report reports supports the view that self-report scales are more valuable in assessing the child's own condition and that children should evaluate their quality of life themselves as much as possible.

In conclusion, the present study has demonstrated that Turkish form of Pediatric Quality of Life Inventory Stem Cell Transplant (PedsQL- SCT) module has high reliability and validity in the evaluation of quality of life after HSCT procedure. It is also practical in daily clinical routine and has been accepted by patients and their parents. This scale can be used for outcome measures in pediatric HSCT clinical trials and clinical practice for quality of life outcome assessment. In this context, it is thought that introduction of the PedsQL-SCT Turkish form into the literature makes a significant contribution to the field.

**Keywords:** HSCT, quality of life, validity, reliability

**References**

1. Packman W,Weber S,Wallace J,Bugescu N. Psychological effects of hematopoietic SCT on pediatric patients,siblings and parents: a review. Bone Marrow Transplantation 2010 Apr 12;45(7):1134–46.
2. Barrera M,Gee C,Andrews GS,Armstrong CA,Saunders FE. Health-related quality of life of children and adolescents prior to hematopoietic progenitor cell transplantation: Diagnosis and age effects. Pediatr Blood Cancer 2006 Sep 1; 47(3):320–6.
3. Hjermstad MJ,Knobel H,Brinch L,Fayers PM,Loge JH,Holte H,et al. A prospective study of health-related quality of life,fatigue,anxiety and depression 3-5 years after stem cell transplantation. Bone Marrow Transplant. 2004 Aug; 34(3):257–66.
4. Majhail NS,Douglas Rizzo J. Surviving the cure: long term followup of hematopoietic cell transplant recipients. Bone Marrow 2013 Jan 7;48(9):1145–51.
5. Bresters D,Van Gils ICM,Kollen WJW,Ball LM,Oostdijk W,Van Der Bom JG,et al. High burden of late effects after haematopoietic stem cell transplantation in childhood: a single-centre study. Bone Marrow Transplantation 2009 May 4;45(1):79–85.
6. Bilginer Ç,Demirci Y,Şahin K,Karadeniz S,Beyhun NE. Turkish Validity and Reliability of the PedsQL 13-24-month-old Infant Quality of Life Scale. Turkish Journal of Child and Adolescent Mental Health. 2022 Jul 26;29(2):107–15.

7. Koçak C,Sandal S,Çöl M,Kansu Tanca A,Kuloğlu Z,Tuna Kırsaçlıoğlu C. Turkish Validity-Reliability Study of the Celiac Disease-Specific Pediatric Quality of Life Scale. Turk J Gastroenterol. 2022 Mar 1;33(3):248–56.

8. Wei Y, Zhang H, Qian X, Xue Y, Rong L, Wang Y, et al. Cross-cultural adaptation and validation of the PedsQL$^{TM}$ stem cell transplant module in China: A methodological and cross-sectional study. Front Pediatr. 2023 Jan 5;10.

9. Lawitschka A, Güclü ED, Varni JW, Putz M, Wolff D, Pavletic S, et al. Health- Related Quality of Life İn Pediatric Patients After allogeneic SCT: Development of the PedsQL Stem Cell Transplant Module And Results of a Pilot Study. Bone Marrow Transplant. 2014;49(8):1093–7.

**Table 1: Confirmatory factor analysis (CFA) results.**

| Parameters | Acceptable range of fit | Value |
|---|---|---|
| $\chi^2/df$ | ≤4-5 | 2,088 |
| CFI | ≥0,95 | 0,903 |
| NFI | 0,90≤NFI<0,95 | 0,832 |
| GFI | 0,85 ≤ GFI <0,90 | 0,852 |
| IFI | 0,90 ≤ IFI <0,95 | 0,905 |
| TLI | 0,90 ≤ TLI <0,95 | 0,885 |
| RMSEA | 0,05 ≤ RMSEA ≤ 0,08 | 0,062 |
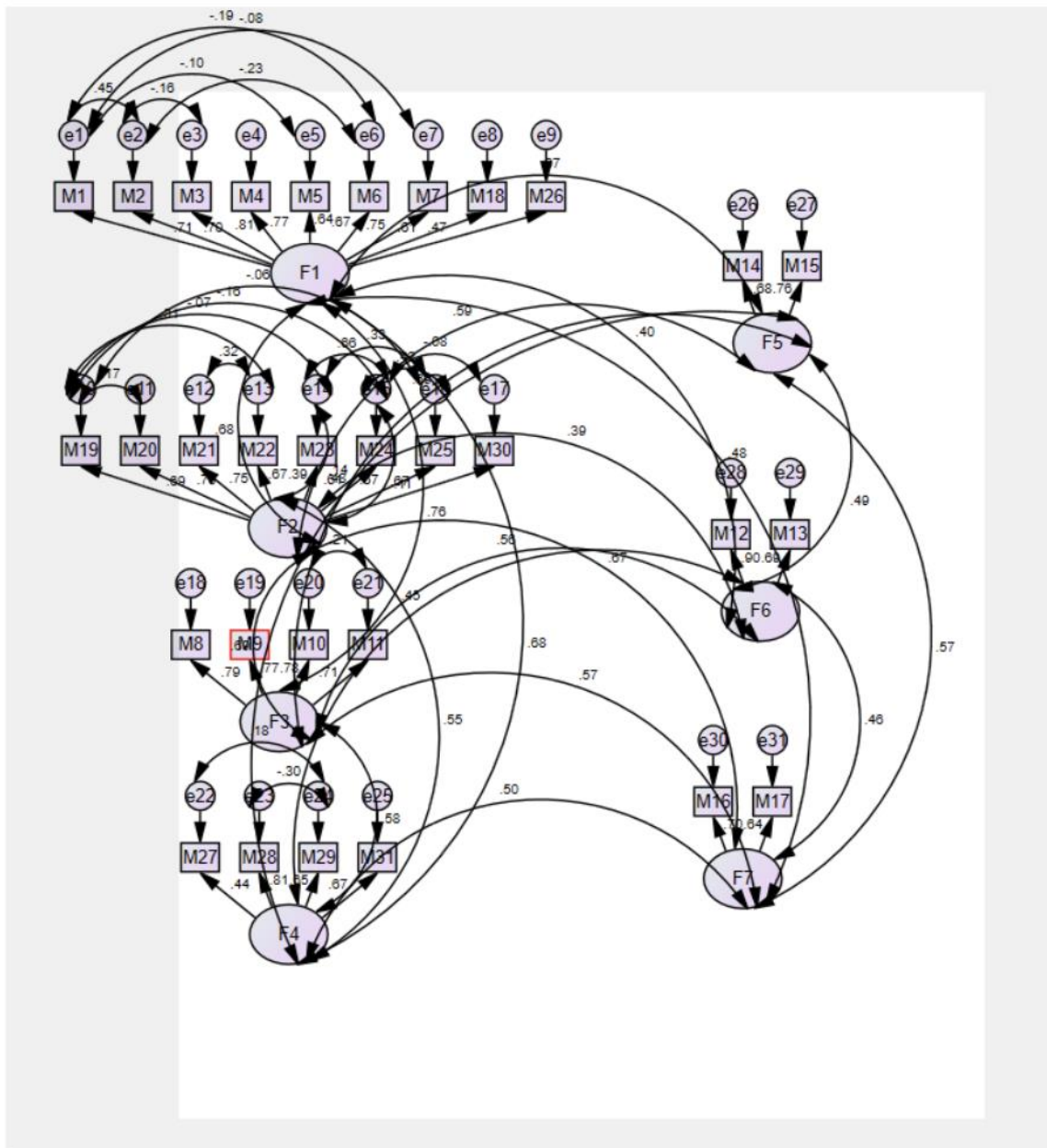


Figure 1: Path diagram of confirmatory factor analysis (CFA)

**Tablo 2: Cronbach's alpha coefficients for each subscale item in PedsQL Stem Cell Transplant Module**

|  | Ages 2-4 | Ages 5-7 | Ages 8-12 | Ages 13-18 |
|---|---|---|---|---|
| **Parent Proxy-Report** | **n=39** | **n=45** | **n=46** | **n=53** |
| Pain and hurt | 0,812 | 0,808 | 0,723 | 0,933 |
| Fatigue and sleep | 0,872 | 0,786 | 0,834 | 0,900 |
| Nausea | 0,782 | 0,787 | 0,852 | 0,890 |
| Worry | 0,608 | 0,921 | 0,924 | 0,946 |
| Nutrition | 0,699 | 0,838 | 0,683 | 0,687 |
| Thinking | 0,899 | 0,938 | 0,805 | 0,871 |
| Communication | 0,937 | 0,749 | 0,744 | 0,875 |
| Others | 0,834 | 0,747 | 0,785 | 0,750 |
| **Total score** | 0,931 | 0,955 | 0,956 | 0,967 |
| **Self-Report** |  |  | **n=46** | **n=54** |
| Pain and hurt |  |  | 0,799 | 0,882 |
| Fatigue and sleep |  |  | 0,794 | 0,887 |
| Nausea |  |  | 0,872 | 0,884 |
| Worry |  |  | 0,889 | 0,925 |
| Nutrition |  |  | 0,758 | 0,674 |
| Thinking |  |  | 0,809 | 0,804 |
| Communication |  |  | 0,864 | 0,814 |
| Others |  |  | 0,679 | 0,713 |
| **Total score** |  |  | 0,943 | 0,955 |

**Table 3: Test-retest reliability of the stem cell transplant module**

|  | Ages 2-4 | | | Ages 5-7 | | | Ages 8-12 | | | Ages 13-18 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parent Report** | **n=16** | | | **n=20** | | | **n=14** | | | **n=20** | | |
|  | r | p | ICC | r | p | ICC | r | p | ICC | r | p | ICC |
| Pain and hurt | 0,543 | 0,030 | 0,421 | 0,541 | 0,014 | 0,514 | 0,875 | <0,001 | 0,812 | 0,842 | <0,001 | 0,814 |
| Fatigue and sleep | 0,544 | 0,029 | 0,640 | 0,679 | 0,001 | 0,798 | 0,520 | 0,057 | 0,482 | 0,615 | 0,004 | 0,592 |
| Nausea | 0,607 | 0,013 | 0,743 | 0,504 | 0,023 | 0,391 | 0,673 | 0,008 | 0,684 | 0,742 | <0,001 | 0,733 |
| Worry | 0,526 | 0,036 | 0,612 | 0,843 | <0,001 | 0,847 | 0,729 | 0,003 | 0,796 | 0,626 | 0,003 | 0,701 |
| Nutrition | 0,852 | <0,001 | 0,796 | 0,540 | 0,014 | 0,650 | 0,854 | <0,001 | 0,717 | 0,561 | 0,010 | 0,551 |
| Thinking | 0,494 | 0,052 | 0,194 | 0,868 | <0,001 | 0,856 | 0,517 | 0,059 | 0,267 | 0,492 | 0,027 | 0,507 |
| Communication | 0,735 | 0,001 | 0,789 | 0,493 | 0,027 | 0,718 | 0,222 | 0,446 | 0,373 | 0,494 | 0,027 | 0,373 |
| Others | 0,785 | <0,001 | 0,515 | 0,697 | 0,001 | 0,673 | 0,331 | 0,248 | 0,316 | 0,538 | 0,014 | 0,793 |
| **Total score** | 0,839 | <0,001 | 0,771 | 0,813 | <0,001 | 0,841 | 0,599 | 0,024 | 0,650 | 0,617 | 0,004 | 0,662 |
| **Self-Report** |  |  |  |  |  |  | **n=16** | | | **n=21** | | |
|  |  |  |  |  |  |  | r | p | ICC | r | p | ICC |
| Pain and hurt |  |  |  |  |  |  | 0,663 | 0,005 | 0,704 | 0,627 | 0,002 | 0,439 |
| Fatigue and sleep |  |  |  |  |  |  | 0,718 | 0,002 | 0,628 | 0,552 | 0,009 | 0,595 |
| Nausea |  |  |  |  |  |  | 0,518 | 0,040 | 0,425 | 0,732 | <0,001 | 0,742 |
| Worry |  |  |  |  |  |  | 0,664 | 0,005 | 0,631 | 0,766 | <0,001 | 0,811 |
| Nutrition |  |  |  |  |  |  | 0,625 | 0,010 | 0,504 | 0,877 | <0,001 | 0,896 |
| Thinking |  |  |  |  |  |  | 0,727 | 0,001 | 0,733 | 0,783 | <0,001 | 0,709 |
| Communication |  |  |  |  |  |  | 0,432 | 0,095 | 0,689 | 0,893 | <0,001 | 0,857 |
| Others |  |  |  |  |  |  | 0,679 | 0,004 | 0,835 | 0,857 | <0,001 | 0,895 |
| **Total score** |  |  |  |  |  |  | 0,842 | <0,001 | 0,791 | 0,821 | <0,001 | 0,864 |

## 0246 - Psychosis Attachment Measure: Validity and Reliability Study in Turkish and The Relationship of Attachment with Social Cognition, Emotion Regulation and Insight in Schizophrenia

Nihan Büyüklüoğlu[1], Hasan Kaya[1], Erol Göka[1]

[1]University of Health Sciences Ankara Bilkent City Hospital

**Introduction:** Attachment theory (Bowlby, 1982) suggests secure early bonds are crucial for mental health, while insecure attachment links to later problems (Bowlby & Soylu, 2012). This theory is relevant to psychosis, as studies show a higher prevalence of insecure attachment in people with schizophrenia (Ainsworth et al., 2015).

The Psychosis Attachment Measure (PAM) (Berry et al., 2006), specifically assesses anxious and avoidant attachment styles, the most common patterns observed in people with psychosis. This scale, validated and reliable in multiple languages, was translated into Turkish in 2022 and found to be valid and reliable for use in the Turkish population(Burhan et al., 2022).

Given the importance of attachment, researchers have explored various factors potentially related to it, such as emotion regulation, self-awareness, and social cognition(Carr et al., 2018; Gumley, Taylor, et al., 2014; Korver-Nieberg et al., 2013; Kvrgic et al., 2012; Pos et al., 2015). Our study aims to validate the Turkish version of the PAM and investigate how attachment styles, emotion regulation, and social cognition relate to each other and symptom severity in psychosis.

**Materials and Methods:** This ethically approved case-control study (E-19-109, 11/21/2019) examined attachment styles in schizophrenia. 88 stable patients from outpatient clinics (no recent episodes, PANSS<58, CDSS<6) and 82 healthy volunteers from hospital staff and therir relatives (no mental illness history) participated. All participants were excluded for neurological disorders, intellectual disability, substance abuse, or recent psychotic episodes. Questionnaires assessed attachment styles and other parameters. Assesment tools included: Sociodemographic data, Positive and Negative Syndrome Scale (PANSS), Calgary Depression Scale for Schizophrenia (CDSS), The Three-Component Insight Scale (TCIS), Psychosis Attachment Measure (PAM), Relationships Questionnaire (RQ), Cognitive Emotion Regulation Scale (CERS), Attributional Complexity Scale (ACS), Reading the Mind in the Eyes (RMET), Structured Clinical Interview for DSM-5 (SCID-5-CV).

Descriptive statistics and Chi-square tests were used for descriptive data. Internal consistency (Cronbach's alpha) was calculated for the PAM and its subscales. Test-retest reliability were assessed using Pearson correlation analysis. Primary component analysis with varimax rotation was employed to explore the factor structure of the scale. T test was used for group comparisons and Pearson correlation test was used between attachment type and other measures. Finally, path analysis were conducted to investigate factors influencing dependent variables and the relationships among them, respectively. Statistical software included Jamovi (v.2.4.8) for confirmatory factor analysis and model fit analysis, and SPSS (v.22.0) for other analyses. A significance level of $p < 0.05$ was used throughout.

**Results**

Participants

Out of 170 recruited participants (88 schizophrenia (%51,8), 82 controls (%48,2)), 24 were excluded (12 patients declined, two patients due to comorbidities, 5 patients due to exceeding PANSS cut-off and 5 healthy controls declined). The schizophrenia group (mean age 40.0±9.4, 68,2% male) was older ($p > 0.05$) and had a higher male-to-female ratio ($p = 0.001$) compared to controls (mean age 37.7±11.0, 43.9% male). Controls had significantly higher education ($p = 0.000$), marriage rates ($p = 0.000$), and employment rates ($p = 0.000$).

Sampling Adequacy, Psychometric Properties, Validity And Reliability Analysis Of The PAM

The Kaiser-Meyer-Olkin (KMO) sampling adequacy measurement was 0,746 indicating sufficient sampling. Confirmatory factor analysis (CFA) was performed using Jamovi 2.4.8 to assess the factor loadings and model fit of the scale (results in Table 3.1). Model fit indices indicated inadequate model fit. The entire scale yielded a good alpha value ($\alpha = .783$, 95% CI [.71, .84]), with an average inter-item correlation ($\bar{r}=17$). However, the avoidant attachment subscale showed poor internal consistency ($\alpha = .542$, 95% CI [.38, .67], $\bar{r} = .12$). Conversely, the anxious attachment subscale demonstrated adequate internal consistency ($\alpha = .827$, 95% CI [.76, .87], $\bar{r} = .37$).

Exploratory factor analysis revealed a two-factor structure for the Turkish PAM (excluding items 1, 2, 4, and 9 due to low correlations). This model explained 51.22% of the variance (Factor 1: 37.98%, Factor 2: 13.24%). Detailed factor loadings are presented in Table 3.2. Factor loadings lower than 0.4 were suppressed. The factor analysis identified two issues: 1) Item 5 did not load strongly on the desired factor in the original scale. 2) Item 8 loaded significantly on both factors. Consequently, both items were removed, and the analysis was re-run. The final analysis resulted in a refined 10-item scale (Items: 2, 6, 7, 10, 12, 14, 15 - anxious; 11, 13, 16 - avoidant). This version showed good internal consistency (overall alpha: ,818, anxious: ,830). The avoidant subscale remained moderate (alpha: ,643). Reassuringly, correlations between the 10-item and original 16-item versions were high (r = ,363 to ,982, p<0,01), indicating the shortened scale retains strong measurement abilities.

To assess the scale's test-retest reliability, it was re-administered to 45 of the original 88 participants one month after the initial application. Pearson correlation analysis revealed a high degree of correlation, indicating that the scale demonstrates good temporal reliability (r= ,503 to ,844 with p<0,01).

To assess the validity of the scale in measuring attachment styles, we examined its relationship with the Relationships Questionnaire. The PAM subscales correlated significantly (p < 0.01) with fearful and preoccupied styles on the Relationships Questionnaire (r = 0.277 to 0.341). To investigate the discriminant validity, Pearson correlation analysis was applied between the PAM and RQ subscales and the TCIS, PANSS, CDSS, CERS, ACS and RMET subscales. The results are shown in Table 3.3.

Comparison of Schizophrenia and Healthy Control Groups

Schizophrenia group had higher PAM-anxious attachment (p=0.048) and catastrophizing scores (emotion regulation, p=0.013). Healthy controls had higher secure attachment (p=0.008), "putting into perspective" (emotion regulation, p=0.036), "motivation" (attribution style, p=0.048), "behavior as a function of human interaction" (attribution style, p=0.030), and "use of temporal dimension" (attribution style, p=0.012) scores. Healthy controls had better Theory of Mind (ToM) skills (p=0.000) compared to the schizophrenia group, even after accounting for education differences. Since the healthy controls had significantly more education than the schizophrenia group, univariate analysis of variance was performed to investigate whether education was a covariate. The RMET was selected as the dependent variable, the group as the fixed factor, and the education period as the covariate. The effect of the group was shown to be significantly greater than the effect of education duration [$F_{(1,167)} = 63.819$, p = 0.000, partial eta squared = .276] [$F_{(1,167)} = 13.279$, p = 0.000, partial eta squared = .074].

Path Analysis

The analysis focused solely on the Relationships Questionnaire (RQ) due to limitations of the PAM in measuring avoidant attachment. The RQ, in contrast, assesses secure attachment. The chi-square test confirmed a good model fit [$\chi^2$ (63, N=88) = 78.8, p = 0.086]. Further supporting this, fit indices revealed an RMSEA of .053 (95% CI: .000 - .088), SRMR of .08, CFI of .978, aGFI of .996, and TLI of .958. Notably, acceptable ranges for RMSEA and SRMR fall between 0.05-0.08, while CFI, aGFI, and TLI should all be greater than 0.95. These values collectively indicate a well-fitting model. In the model, duration of education, place of birth, duration of illness, and presence of medical comorbidity were taken as covariates. Path analysis results are presented in Table-3.4.

The path analysis revealed a significant indirect effect of preoccupied attachment on PANSS positive and total scores mediated by insight. For the indirect effect on PANSS positive scores, the estimated effect size was -0.119 ($\beta$ = -0.123), indicating that higher preoccupied attachment scores were associated with higher insight scores (z = -2.264, p = 0.024). This, in turn, was associated with lower PANSS positive scores. The 95% confidence interval for the indirect effect ranged from -0.223 to -0.016. For the indirect effect on PANSS total scores, the estimated effect size was -0.316 ($\beta$ = -0.096), indicating that higher preoccupied attachment scores were associated with higher insight scores (z = -2.120, p = 0.034). This, in turn, was associated with lower PANSS total scores. The 95% confidence interval for the indirect effect ranged from -0.608 to -0.024.

**Discussion** A Turkish adaptation of the PAM showed promising validity, though the avoidant attachment subscale needs further evaluation. The fact that different results were obtained with the previous Turkish translation can be attributed to the different clinical characteristics of the patient groups (Burhan et al., 2022). However, a study that re-evaluated the scale in its original language using psychometric analysis found similar results to our study (Olbert et al., 2016). Schizophrenia patients exhibited insecure attachment, poorer social cognition, simpler attribution schemas,

and maladaptive emotion regulation compared to healthy controls similar to previous literature(Carr et al., 2018; Korver-Nieberg et al., 2014; Kvrgic et al., 2012; Pos et al., 2015). Path analysis supported attachment's influence on social cognition, emotion regulation, social cognition and illness severity via insight (Gumley, Schwannauer, et al., 2014). This aligns with prior research highlighting the link between attachment styles and illness (Liu et al., 2020; Pena-Garijo & Monfort-Escrig, 2021). The study suggests tailoring treatment approaches based on attachment styles. Avoidant patients might require closer evaluation due to potentially severe hidden symptoms, while anxious patients could benefit from more focused assessments to avoid unnecessary medication. Importantly, the study emphasizes the need for routine psychosocial and psychotherapeutic interventions alongside medication to address persistent social cognition and emotion regulation deficits even in remitted patients.

## References

Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. N. (2015). Patterns of attachment: A psychological study of the strange situation. In Patterns of Attachment: A Psychological Study of the Strange Situation. https://doi.org/10.4324/9780203758045

Berry, K., Wearden, A., Barrowclough, C., & Liversidge, T. (2006). Attachment styles, interpersonal relationships and psychotic phenomena in a non-clinical student sample. Personality and Individual Differences, 41(4), 707–718. https://doi.org/10.1016/j.paid.2006.03.009

Bowlby, J. (1982). Attachment and Loss: Restrospect and Prospect. 52(October).

Bowlby, J., & Soylu, T. V. (2012). Bağlanma ve Kaybetme-1. Pinhan Yayıncılık.

Burhan, H. Ş., Şafak, Y., & Gündoğmuş, A. G. (2022). Turkish Version of the Psychosis Attachment Measure: A Reliability and Validity Analysis. Psychiatry and Clinical Psychopharmacology, 32(1), 45–53. https://doi.org/10.5152/pcp.2022.22231

Carr, S. C., Hardy, A., & Fornells-Ambrojo, M. (2018). Relationship between attachment style and symptom severity across the psychosis spectrum: A meta-analysis. Clinical Psychology Review, 59(November 2016), 145–158. https://doi.org/10.1016/j.cpr.2017.12.001

Gumley, A. I., Schwannauer, M., Macbeth, A., Fisher, R., Clark, S., Rattrie, L., Fraser, G., McCabe, R., Blair, A., Davidson, K., & Birchwood, M. (2014). Insight, duration of untreated psychosis and attachment in first-episode psychosis: Prospective study of psychiatric recovery over 12-month follow-up. British Journal of Psychiatry, 205(1), 60–67. https://doi.org/10.1192/bjp.bp.113.126722

Gumley, A. I., Taylor, H. E. F., Schwannauer, M., & MacBeth, A. (2014). A systematic review of attachment and psychosis: Measurement, construct validity and outcomes. Acta Psychiatrica Scandinavica, 129(4), 257–274. https://doi.org/10.1111/acps.12172

Korver-Nieberg, N., Berry, K., Meijer, C. J., & De Haan, L. (2014). Adult attachment and psychotic phenomenology in clinical and non-clinical samples: A systematic review. Psychology and Psychotherapy: Theory, Research and Practice, 87(2), 127–154. https://doi.org/10.1111/papt.12010

Korver-Nieberg, N., Fett, A. K. J., Meijer, C. J., Koeter, M. W. J., Shergill, S. S., De Haan, L., & Krabbendam, L. (2013). Theory of mind, insecure attachment and paranoia in adolescents with early psychosis and healthy controls. Australian and New Zealand Journal of Psychiatry, 47(8), 737–745. https://doi.org/10.1177/0004867413484370

Kvrgic, S., Beck, E. M., Cavelti, M., Kossowsky, J., Stieglitz, R. D., & Vauth, R. (2012). Focusing on the adult attachment style in schizophrenia in community mental health centres: Validation of the Psychosis Attachment Measure (PAM) in a German-speaking sample. International Journal of Social Psychiatry, 58(4), 362–373. https://doi.org/10.1177/0020764011399004

Liu, J., Subramaniam, M., Chong, S. A., & Mahendran, R. (2020). Maladaptive cognitive emotion regulation strategies and positive symptoms in schizophrenia spectrum disorders: The mediating role of global emotion dysregulation. Clinical Psychology and Psychotherapy, 27(6), 826–836. https://doi.org/10.1002/cpp.2466

Olbert, C. M., Penn, D. L., Reise, S. P., Horan, W. P., Kern, R. S., Lee, J., & Green, M. F. (2016). Assessment of attachment in psychosis: A psychometric cause for concern. Psychiatry Research, 246(2016), 77–83. https://doi.org/10.1016/j.psychres.2016.09.020

Pena-Garijo, J., & Monfort-Escrig, C. (2021). The centrality of secure attachment within an interacting network of symptoms, cognition, and attachment dimensions in persons with schizophrenia-spectrum disorders: A preliminary study. Journal of Psychiatric Research, 135(October 2020), 60–67. https://doi.org/10.1016/j.jpsychires.2021.01.002

Pos, K., Bartels-Velthuis, A. A., Simons, C. J. P., Korver-Nieberg, N., Meijer, C. J., De Haan, L., Bruggeman, R., Cahn, W., Kahn, R. S., Myin-Germeys, I., Van Os, J., & Wiersma, D. (2015). Theory of Mind and attachment styles in people with psychotic disorders, their siblings, and controls. Australian and New Zealand Journal of Psychiatry, 49(2), 171–180. https://doi.org/10.1177/0004867414546386

**Table 3.1.** Psychosis Attachment Measure Confirmatory Factor Analysis

| Factor | Item | Estimate | Standard Estimate | Z | p |
|---|---|---|---|---|---|
| Factor 1 | PAM1 | 0.1508 | 0.1215 | 1.241 | **0.215** |
| (Attachment Avoidance Subscale) | PAM2R | 0.0954 | 0.0982 | 0.972 | **0.331** |
| | PAM4R | 0.0627 | 0.1065 | 0.589 | **0.556** |
| | PAM8 | 0.6489 | 0.1159 | 5.598 | <.001 |
| | PAM9R | 0.0417 | 0.1112 | 0.375 | **0.708** |
| | PAM11 | 0.7434 | 0.1293 | 5.747 | <.001 |
| | PAM13 | 0.3702 | 0.1178 | 3.143 | 0.002 |
| | PAM16 | 0.5654 | 0.1024 | 5.519 | <.001 |
| Factor 2 | PAM3 | 0.6156 | 0.1069 | 5.761 | <.001 |
| (Attachment Anxiety Subscale) | PAM5 | 0.4977 | 0.1179 | 4.222 | <.001 |
| | PAM6 | 0.4974 | 0.1101 | 4.519 | <.001 |
| | PAM7 | 0.5591 | 0.0992 | 5.637 | <.001 |
| | PAM10 | 0.6311 | 0.1035 | 6.098 | <.001 |
| | PAM12 | 0.7467 | 0.0886 | 8.431 | <.001 |
| | PAM14 | 0.6417 | 0.0884 | 7.256 | <.001 |
| | PAM15 | 0.6503 | 0.1058 | 6.145 | <.001 |

| | | | | RMSEA 90% CI | |
|---|---|---|---|---|---|
| CFI | TLI | SRMR | RMSEA | Lower | Upper |
| 0.707 | 0.659 | 0.108 | 0.110 | 0.0887 | 0.131 |

R: reversed item. PAM: Psychosis Attachment Measure

**Table 3.2.** Factor structure resulting from Varimax rotation (excluding items 1, 2, 4 and 9)

| | Bileşen | |
|---|---|---|
| | 1 | 2 |
| 14. I worry that if I displease other people, they won't want to know me anymore. | ,733 | |
| 3. I tend to get upset, anxious or angry if other people are not there when I need them. | ,722 | |
| 7. If other people disapprove of something I do, I get very upset. | ,696 | |
| 12. I worry a lot about my relationships with other people. | ,683 | |
| 15. I worry about having to cope with problems and difficult situations on my own. | ,645 | |
| 10. I worry that if other people get to know me better, they won't like me. | ,636 | |
| 6. I ask other people to reassure me that they care about me. | ,635 | |
| 11. When I'm feeling stressed, I prefer being on my own to being in the company of other people. | | ,807 |
| 13. I try to cope with stressful situations on my own. | | ,767 |
| 5. I worry that key people in my life won't be around in the future. | | ,583 |
| 16. I feel uncomfortable when other people want to get to know me better. | | ,573 |
| 8. I find it difficult to accept help from other people when I have problems or difficulties. | ,413 | ,501 |
| KMO | | 0,816 |
| Bartlett's | | 356,902 |
| P | | ,000 |

**Tablo 3.3.** Pearson correlation analysis of subscales of PAM and RQ and other scales

| | Anxious (n=88) | Avoidant (n=88) | RQ-Secure (n=88) | RQ- Fearful (n=88) | RQ- Preoccupied (n=88) | RQ- Dismissing (n=88) |
|---|---|---|---|---|---|---|
| TCIS | ,156 | -,076 | -,108 | ,014 | ,221* | -,010 |
| PANSS-Positive | -,004 | ,136 | -,138 | -,064 | ,050 | ,231* |
| PANSS-Negative | ,128 | ,144 | -,054 | -,061 | ,050 | ,134 |
| PANSS-General Psychopathology | ,168 | ,215* | -,168 | ,235* | ,087 | ,271* |
| PANSS-Total | ,148 | ,213* | -,140 | ,011 | ,081 | ,245* |
| CDSS | ,131 | -,089 | -,227* | ,080 | -,080 | ,087 |
| CERS-Blaming Self | ,378** | ,330** | ,240* | ,185 | ,178 | ,006 |
| CERS- Acceptance | ,173 | ,217* | ,289** | ,091 | ,037 | ,064 |
| CERS- Rumination | ,513** | ,346** | ,144 | ,321** | ,340** | ,060 |
| CERS- Positive Refocus | ,059 | -,036 | ,159 | ,051 | ,076 | ,061 |
| CERS- Focus on Planning | -,204 | -,009 | ,259* | ,036 | ,011 | -,036 |
| CERS- Positive Reappraisal | -,149 | ,025 | ,333** | -,061 | ,030 | ,054 |
| CERS- Putting into Perspective | ,046 | ,084 | ,255* | ,080 | -,042 | -,125 |
| CERS- Catastrophizing | ,614** | ,398** | -,185 | ,466** | ,144 | ,162 |
| CERS- Blaming Others | ,319** | ,222* | -,025 | ,059 | ,291** | ,114 |
| ACS- Motivation | ,173 | ,032 | -,188 | -,058 | ,045 | -,238* |
| ACS- Preference for Complex Explanations | -,028 | ,087 | -,067 | -,006 | -,162 | -,314** |
| ACS- Metacognition | ,138 | ,102 | -,108 | ,019 | -,130 | ,004 |
| ACS- Behaviour as a Function of Interaction | ,493** | ,082 | -,104 | ,045 | ,031 | ,073 |
| ACS- Complex Internal Attributions | ,174 | ,026 | -,090 | -,048 | ,090 | -,042 |
| ACS- Complex Contemporary External Explanations | ,224* | ,069 | -,206 | -,045 | ,065 | -,082 |
| ACS- Use of Temporal Dimension | ,259* | ,117 | -,004 | ,071 | ,220* | ,128 |
| RMET | -,070 | ,055 | ,030 | -,119 | -,184 | -,256* |

PAM: Psychosis Attachment Measure. RQ: Reletionships Questionnaire. TCIS: Three-Component Insight Scale. PANSS: Pozitive and Negative Syndrome Scale. CDSS: Calgary Depression in Schizophrenia Scale. CERS: Cognitive Emotion Regulaton Scale. ACS: Attributional Complexity Scale. RMET: Reading the Mind in the Eyes Test. *p<0.05. **p<0.01

**Table 3.4.** Path analysis results with the Relationships Questionnaire

| Dependent Variable | Prediktör | Tahmin | Standart Hata | %95 Güven Aralığı | | B | Z | P |
|---|---|---|---|---|---|---|---|---|
| | | | | Alt Değer | Üst Değer | | | |
| Insight | Secure attachment | -0.221 | 0.15 | -0.522 | 0.078 | -0.14 | -1.445 | 0.148 |
| Insight | Fearful attachment | -0.117 | 0.14 | -0.402 | 0.168 | -0.08 | -0.804 | 0.421 |
| **Insight** | **Preoccupied attachment** | 0.353 | 0.14 | 0.075 | 0.631 | 0.25 | 2.495 | **0.013** |
| Insight | Dismissing attachment | -0.163 | 0.14 | -0.447 | 0.120 | -0.11 | -1.130 | 0.258 |
| **PANSSP** | **Secure attachment** | -0.241 | 0.09 | -0.431 | -0.051 | -0.23 | -2.491 | **0.013** |
| PANSSP | Fearful attachment | -0.118 | 0.09 | -0.305 | 0.069 | -0.11 | -1.233 | 0.217 |
| **PANSSP** | **Preoccupied attachment** | 0.190 | 0.09 | 0.010 | 0.370 | 0.19 | 2.068 | **0.039** |
| **PANSSP** | **Dismissing attachment** | 0.229 | 0.09 | 0.049 | 0.410 | 0.22 | 2.498 | **0.012** |
| **PANSSP** | **Insight** | -0.337 | 0.06 | -0.460 | -0.214 | -0.49 | -5.378 | **<.001** |
| PANSSP | ToM | 0.057 | 0.04 | -0.020 | 0.136 | 0.12 | 1.440 | 0.150 |
| PANSSP | Maladaptive Emotion Regulation | 0.025 | 0.09 | -0.159 | 0.210 | 0.02 | 0.270 | 0.787 |
| PANSSN | Secure attachment | -0.334 | 0.26 | -0.856 | 0.188 | -0.12 | -1.253 | 0.210 |
| PANSSN | Fearful attachment | -0.407 | 0.26 | -0.922 | 0.108 | -0.16 | -1.548 | 0.122 |
| PANSSN | Preoccupied attachment | 0.138 | 0.25 | -0.356 | 0.633 | 0.05 | 0.548 | 0.584 |
| PANSSN | Dismissing attachment | 0.116 | 0.25 | -0.379 | 0.612 | 0.04 | 0.460 | 0.645 |
| **PANSSN** | **Insight** | -0.473 | 0.17 | -0.811 | -0.135 | -0.27 | -2.744 | **0.006** |
| **PANSSN** | **ToM** | -0.308 | 0.11 | -0.524 | -0.092 | -0.27 | -2.802 | **0.005** |
| PANSSN | Maladaptive Emotion Regulation | 0.310 | 0.25 | -0.196 | 0.818 | 0.13 | 1.200 | 0.230 |
| PANSSG | Secure attachment | -0.190 | 0.10 | -0.403 | 0.023 | -0.17 | -1.748 | 0.080 |
| PANSSG | Fearful attachment | 0.149 | 0.10 | -0.060 | 0.360 | 0.14 | 1.395 | 0.163 |
| PANSSG | Preoccupied attachment | 0.052 | 0.10 | -0.149 | 0.254 | 0.05 | 0.506 | 0.612 |
| **PANSSG** | **Dismissing attachment** | 0.248 | 0.10 | 0.046 | 0.450 | 0.24 | 2.407 | **0.016** |
| PANSSG | Insight | -0.082 | 0.07 | -0.220 | 0.055 | -0.11 | -1.172 | 0.241 |
| PANSSG | ToM | 0.024 | 0.04 | -0.063 | 0.112 | 0.05 | 0.543 | 0.587 |
| PANSSG | Maladaptive Emotion Regulation | 0.139 | 0.10 | -0.067 | 0.346 | 0.14 | 1.323 | 0.186 |
| **PANSST** | **Secure attachment** | -0.804 | 0.34 | -1.477 | -0.132 | -0.22 | -2.344 | **0.019** |
| PANSST | Fearful attachment | -0.366 | 0.33 | -1.029 | 0.297 | -0.10 | -1.082 | 0.279 |
| PANSST | Preoccupied attachment | 0.396 | 0.32 | -0.240 | 1.033 | 0.12 | 1.219 | 0.223 |
| PANSST | Dismissing attachment | 0.585 | 0.32 | -0.052 | 1.224 | 0.17 | 1.798 | 0.072 |
| **PANSST** | **Insight** | -0.893 | 0.22 | -1.328 | -0.457 | -0.38 | -4.020 | **<.001** |
| PANSST | ToM | -0.214 | 0.14 | -0.492 | 0.064 | -0.14 | -1.508 | 0.131 |
| PANSST | Maladaptive Emotion Regulation | 0.490 | 0.33 | -0.162 | 1.143 | 0.15 | 1.471 | 0.141 |
| ToM | Secure attachment | -0.002 | 0.23 | -0.455 | 0.451 | -9.22e-4 | -0.009 | 0.993 |
| ToM | Fearful attachment | -0.027 | 0.21 | -0.457 | 0.403 | -0.01 | -0.124 | 0.901 |
| ToM | Preoccupied attachment | -0.025 | 0.21 | -0.445 | 0.393 | -0.01 | -0.121 | 0.903 |
| **ToM** | **Dismissing attachment** | -0.497 | 0.21 | -0.925 | -0.069 | -0.21 | -2.276 | **0.023** |
| **Attributional Complexity** | **ToM** | 0.042 | 0.01 | 0.011 | 0.074 | 0.27 | 2.673 | **0.008** |
| **Maladaptive Emotion Regulation** | **Secure attachment** | 0.207 | 0.09 | 0.022 | 0.391 | 0.18 | 2.199 | **0.028** |
| **Maladaptive Emotion Regulation** | **Fearful attachment** | 0.356 | 0.08 | 0.181 | 0.531 | 0.33 | 3.989 | **<.001** |
| **Maladaptive Emotion Regulation** | **Preoccupied attachment** | 0.208 | 0.08 | 0.037 | 0.379 | 0.20 | 2.392 | **0.017** |
| Maladaptive Emotion Regulation | Dismissing attachment | 0.101 | 0.09 | -0.076 | 0.280 | 0.09 | 1.118 | 0.263 |
| **Maladaptive Emotion Regulation** | **ToM** | -0.093 | 0.04 | -0.175 | -0.012 | -0.19 | -2.262 | **0.024** |
| **Maladaptive Emotion Regulation** | **Attributional Complexity** | 1.279 | 0.25 | 0.771 | 1.787 | 0.42 | 4.936 | **<.001** |

## 0254 - Evaluation of Psychological Resilience and Burnout Levels of Relatives of Patients Diagnosed with Cancer and Those Who Are or Are Not Healthcare Workers

Aybeniz Civan Kahve[1], Dünya Gözde Çapar[2], Mustafa Kaan Keleş[2], Mehmet Alper Çınar[2], Gökhan Uçar[3], Perihan Perkin[3], Erol Göka[2]

[1]Gazi University Faculty of Medicine, Departmant of Psychiatry, Ankara, Türkiye
[2]University of Health Sciences, Ankara Bilkent City Hospital, Departmant of Psychiatry, Ankara, Türkiye
[3]University of Health Sciences, Ankara Bilkent City Hospital, Departmant of Medical Oncology, Ankara, Türkiye

**Background and Aim:** Cancer is a leading cause of mortality, accounting for one in six deaths globally, with devastating physiological, psychological and social repercussions[1]. The treatment of cancer affects both the patient and caregiver in these domains[2,3]. Caregivers of cancer patients are an integral part of the whole process in every aspect that the patient needs throughout the process[4,5]. Evidence suggests that there is a symbiotic relationship between the physical and mental health of the cancer patients' and the caregivers'[6]. Therefore, when there is a deterioration in any of these two aspects of the cancer patient's or caregiver's health, the other symbiotic part may also significantly be affected[7]. It can also interfere with the treatment process of the cancer patient, negatively affecting the quality of life of the patient and caregiver and the outcome of treatment[5,8].

There are positive and negative aspects of a health worker's role as a caregiver: Having scientific knowledge free from false beliefs about the general course of the disease process or having the literacy to access this information, knowing the requirements of Hippocrates' teaching and medical ethical values, being in the same social cluster with the treatment team and being in accessible proximity, having experience about the expectations that may occur during the disease process can be mentioned as positive aspects; The negative aspects include the physical, psychological and social responsibilities that need to be fulfilled as a caregiver in addition to the already existing workload as a health worker, and possible burnout, struggling with unrealistic demands such as being expected to do things that the treatment team should normally do, and controlling the invasion of the roles of caregiver and health worker into each other[9-15].

The aim of this study is to determine the psychological burden on the relatives of patients receiving onological treatment who are healthcare professionals and to compare them with relatives who are not healthcare workers. Our study also aimed to determine the components of the psychological strain felt by healthcare professionals when their relatives receive oncological treatment.

**Methods**: Our research is a cross-sectional study. People who were followed up due to oncological treatment at Ankara City Hospital Oncology Polyclinic Chemotherapy Department and who had a relative in their family who was a healthcare worker were interviewed. Relatives of these people who were healthcare professionals and relatives who were not healthcare professionals were interviewed separately and these relatives were evaluated within the scope of the research. Participants, who were informed about the study and whose voluntary consent was obtained, were included in the study and evaluation surveys were administered. Within the scope of the study, 83 relatives of cancer patients, 46 of whom were healthcare professionals and 37 of whom were not healthcare professionals, were interviewed. The Resilience Scale for Adults, Hamilton Depression, Hamilton Anxiety, Maslach Burnout Scale were administered to both groups. Ethics committee approval was obtained for this study with the Ethics Committee decision on 30.11.2022 and with the number E1-22-3030 of the University of Health Sciences Ankara City Hospital No. 1 Clinical Research Ethics Committee.

**Results**: Gastrointestinal system malignancies were in the first place in the oncological diagnoses of the patients (n:18, 39.1%), while more than half of all patients (n:25, 54.3%) had cancer stage IV [Table1]. There was no difference between the relatives of cancer patients who were and were not healthcare workers in terms of gender, marital status, having a chronic disease, and history of previous psychiatric drug use (p:0.227, $\chi2$:1.458; p:0.132, $\chi2$:2.267; p:0.606, $\chi2$:0.267; p:0.163, $\chi2$:0.686 respectively). It was found that only 12 (14.5%) of 83 patient relatives were informed about psychological help during the oncological treatment process, and 69 people (83.1%) preferred to be informed about this issue at the beginning of the treatment process. 34 (73.9%) of 46 oncological patient relatives who were healthcare workers stated that they felt being a healthcare worker was an additional burden in this process. The burden felt was most often related to providing quick access to the treatment team (n:30, 88.2%) and organizing and carrying out in-hospital work (n:29, 87.9%) [Table 2]. There was no statistically significant difference between Resilience Scale for Adults total scores, Hamilton Depression scores, Maslach burnout sub-dimension (DP-Depersonalization, PA-Personal Achievement, EE-Emotional Exhaustion) and total dimension scores between patient relatives who were healthcare workers and those who were not (p: 0.184, p:0.462, p:0.964, p:0.278, p:0.474, p:0.903 respectively). Hamilton Anxiety scores were found to be statistically significantly lower in relatives of patients who were healthcare workers (p:0.041) [Table 3].

**Discussion**: Our study examined a momentary reflection of the psychological burden of the relatives of cancer patients who were healthcare workers compared to the psychological burden of their relatives who were not healthcare workers; it was not a follow-up study. Although there was no significant difference between healthcare professionals and non-healthcare professionals except for the Hamilton Anxiety Scale scores, these results are insufficient to draw a conclusion due to limitations related to diversity such as the fact that the sample included only patients undergoing primary or adjuvant treatment and the sample density was concentrated in Stage IV patients. In our study, the fact that most of the participants were working in the center where their relative was receiving treatment may have increased the expectation of quick access to the treatment team and the handling of in-hospital affairs. The differences in the possible special care needs of the disease that the caregivers care for, as well as possible stigmatization, suggest that there may be a need for a separate evaluation for each type of cancer. The relationship between health literacy levels of caregivers of cancer patients and caregiver well-being may explain the lower scores of healthcare workers in our study. Furthermore, the fact that healthcare workers have training and experience about what to do in case of a possible health emergency may explain the statistically significant difference in anxiety levels.

The relationship between health literacy levels of caregivers of cancer patients and caregiver well-being may explain the well-being of healthcare workers in our study. Again, the fact that healthcare workers have training and experience in what to do in case of a possible health emergency may explain the statistically significant low level of anxiety. In addition, improving the level of health literacy of caregivers may increase the quality of life, self-efficacy, preparedness and psychological well-being of cancer patients. In addition to diagnosis and treatment, the burdens of the post-cancer process also have a great impact on patients and their relatives. In addition to primary and adjuvant treatments such as surgery, chemotherapy and radiotherapy, which are also used in palliative treatment but with the aim of achieving remission or preventing recurrence, it is necessary to focus on the process of palliative treatment and the process of cancer survivors. It is not impossible to expect that the experiences of palliative care patients and their caregivers and cancer survivors and their caregivers regarding the process will differ, especially because the number of cancer survivors has increased with new treatment modalities, and the palliative process, which was previously perceived as a social norm and duty, is relatively new in the medical area, and has not found sufficient place in education compared to its importance in practice.

As a conclusion, our study is the first to evaluate cancer treatments for their relatives, both healthcare professionals and non-healthcare professionals. The comparative evaluation of two relatives of the same patient constitutes the original aspect of our study. Relatives of oncology patients, who are healthcare professionals, have difficulty in accessing treatment, especially due to their profession. We also present that our research will be a guide in terms of informing these people about the difficulties that can prove their professional identity and making recommendations specific to this group in psychological support programs. We expect our research to be a guide in conducting more scientific research based on relevant evidence and examining large samples in this region.

**Keywords;** oncology, caregivers, depression, anxiety

**REFERENCES**

1. Cancer. World Health Organisation Fact Sheets. February 3, 2022. Accessed on February 17, 2024. https://www.who.int/news-room/fact-sheets/detail/cancer
2. Li Q, Lin Y, Xu Y, Zhou H. The impact of depression and anxiety on quality of life in Chinese cancer patient-family caregiver dyads, a cross-sectional study. Health Qual Life Outcomes. 2018;16(1):230. Published 2018 Dec 13. doi:10.1186/s12955-018-1051-3
3. Geng HM, Chuang DM, Yang F, et al. Prevalence and determinants of depression in caregivers of cancer patients: A systematic review and meta-analysis. Medicine (Baltimore). 2018;97(39):e11863. doi:10.1097/MD.0000000000011863
4. Litzelman K. (2019). Caregiver Well-being and the Quality of Cancer Care. Seminars in oncology nursing, 35(4), 348–353. https://doi.org/10.1016/j.soncn.2019.06.006
5. Bevan, J. L., & Pecchioni, L. L. (2008). Understanding the impact of family caregiver cancer literacy on patient health outcomes. Patient education and counseling, 71(3), 356–364. https://doi.org/10.1016/j.pec.2008.02.022
6. Shaffer, K. M., Kim, Y., & Carver, C. S. (2016). Physical and mental health trajectories of cancer patients and caregivers across the year post-diagnosis: a dyadic investigation. Psychology & health, 31(6), 655–674. https://doi.org/10.1080/08870446.2015.1131826
7. Sun, V., Raz, D. J., & Kim, J. Y. (2019). Caring for the informal cancer caregiver. Current opinion in supportive and palliative care, 13(3), 238–242. https://doi.org/10.1097/SPC.0000000000000438
8. Given, B. A., Given, C. W., & Kozachik, S. (2001). Family support in advanced cancer. CA: a cancer journal for clinicians, 51(4), 213–231. https://doi.org/10.3322/canjclin.51.4.213

9. Wittenberg, E., Goldsmith, J., Ferrell, B., & Ragan, S. L. (2017). Promoting improved family caregiver health literacy: evaluation of caregiver communication resources. Psycho-oncology, 26(7), 935–942. https://doi.org/10.1002/pon.4117

10. Høeg, B. L., Frederiksen, M. H., Andersen, E. A. W., Saltbæk, L., Friberg, A. S., Karlsen, R. V., Johansen, C., Dalton, S. O., Horsbøl, T. A., & Bidstrup, P. E. (2021). Is the health literacy of informal caregivers associated with the psychological outcomes of breast cancer survivors?. Journal of cancer survivorship : research and practice, 15(5), 729–737. https://doi.org/10.1007/s11764-020-00964-x

11. Santerre-Theil, A., Brown, T. L., Körner, A., & Loiselle, C. G. (2022). Exploring healthcare professionals' experiences with informal family cancer caregiving. Supportive care in cancer : official journal of the Multinational Association of Supportive Care in Cancer, 30(9), 7745–7754. https://doi.org/10.1007/s00520-022-07207-y

12. Kim, Y., Baker, F., Spillers, R. L., & Wellisch, D. K. (2006). Psychological adjustment of cancer caregivers with multiple roles. Psycho-oncology, 15(9), 795–804. https://doi.org/10.1002/pon.1013

13. Wittenberg, E., Goldsmith, J., & Parnell, T. A. (2020). Development of a communication and health literacy curriculum: Optimizing the informal cancer caregiver role. Psycho-oncology, 29(4), 766–774. https://doi.org/10.1002/pon.5341

14. Hendrix, C. C., Bailey, D. E., Jr, Steinhauser, K. E., Olsen, M. K., Stechuchak, K. M., Lowman, S. G., Schwartz, A. J., Riedel, R. F., Keefe, F. J., Porter, L. S., & Tulsky, J. A. (2016). Effects of enhanced caregiver training program on cancer caregiver's self-efficacy, preparedness, and psychological well-being. Supportive care in cancer : official journal of the Multinational Association of Supportive Care in Cancer, 24(1), 327–336. https://doi.org/10.1007/s00520-015-2797-3

15. World Health Organization (2014). Strengthening of palliative care as a component of integrated treatment throughout the life course. Journal of pain & palliative care pharmacotherapy, 28(2), 130–134. https://doi.org/10.3109/15360288.2014.911801

## 0260 - Sluggish Cognitive Tempo / Cognitive Disengagement Syndrome in Social Media: An Analysis of Posts of Patients, Physicians and Other Mental Health Professionals

Sümeyye Bayrak Yüksel[1], Alperen Bıkmazer[1], Nuran Gözpınar[1], Vahdet Görmez[1]

[1]Department of Child and Adolescent Psychiatry, İstanbul Medeniyet University, Göztepe Prof. Dr. Süleyman Yalçın City Hospital, İstanbul, Turkey

**Objective**: Cognitive disengagement syndrome (CDS; formerly known as sluggish cognitive tempo (SCT)), is a set of symptoms characterized by daydreaming, staring off or spacing out, excessive drowsiness, mental confusion and fogginess, and slowed behavior or thinking. (1) The concept of CDS has been used in research, clinical practice, and many other platforms since the 1980s. Today, several problems have emerged that require replacement of this concept. (2) Considering that the word "sluggish" can be perceived as humiliating, implying laziness or low intelligence, and that slow cognitive processing or pacing are not reliable features of SCT, the terminology was changed in 2023 to Cognitive disengagement syndrome. (3)

Instagram and X (Twitter) are the most widely used social media platforms by patients, physicians, and other mental health professionals. Social media platforms are frequently used by patients to access information quickly and easily and to be informed about changes. The main ones are Instagram and X (Twitter). Hashtag shortcuts are used on both platforms to quickly access content related to the topic to be searched. In this study, the posts made on these social media platforms with both names of Cognitive Disengagement Syndrome, which was called Sluggish Cognitive Tempo until recently, were evaluated according to content, approach, and transmission methods.

**Methods**: *Search*
Two social media platforms - Instagram and X (Twitter) - were used for the analysis. The search of public posts on X (Twitter) was conducted for posts from January 2011 to January 2024 by using public application programming interface (API). The search of public posts on Instagram was conducted for posts from November 2015 to December 2023.

*Inclusion Criteria*
X(Twitter) posts, also known as tweets, and Instagram posts were included if they contained the words #sluggishcognitivetempo or #cognitivedisengagementsyndrome. These hashtags were selected because they represented the most common terms universally used on both platforms. Hashtags containing SCT and CDS, which are frequently used abbreviations of both words, were excluded, as they may also be abbreviations of different words. Multiple posts with the same content were also included. Any content is included in the link group if it contains a link to another site, even if it contains video, image or text. Even if there is link information in Instagram content, it is included in the image group due to reasons such as directing to the profile and not having direct access by clicking on the link. All languages were accepted for analysis and translated using the in-app feature.

*Analysis*
Data were collected and analyzed by two independent reviewers. Data analysis was conducted using Microsoft Excel. The primary outcome variable was the content of the posts, which was analyzed using a categorical scoring system. This system included media format (link, photograph, video, or words only), tone (positive, negative, or neutral), content (education/awareness, research, patient story-progress update, clinical practice–related, or other), perspective (patient, physician, professional organization, other mental health professionals, or other), and whether a specific mental health professional was mentioned in a post. Each post was reviewed by both raters independently; interrater variability was resolved by a review of original media and discussion to achieve agreement.

**Results:** *Instagram*

According to the inclusion criteria, a total of 102 posts related to #sluggishcognitivetempo were collected. Of these, 63 posts were randomly selected to be manually categorized for analysis. Overall, most of the posts (95.2%) were associated with an image, with only 4.8% containing a video instead. Most of the posts had a neutral (88.9%) tone. 31.7% mentioned information used in clinical practice and 30.2% disseminated education or sought to provide awareness. 36.5% of the posts were from the perspective of the professional organization. Furthermore, 29% of the posts mentioned a specific professional either themselves or another professional.

There were only 7 Instagram posts about #cognitivedisengagementsyndrome. 42.8% were associated with an image, and all of the posts had a neutral tone. 71.4% disseminated education or sought to provide awareness and 14.2% shared data on the research conducted. 28.5% of the posts were from the perspective of the physician. 85.8% of the posts mentioned a specific mental health professional.
Table 1 and 2, summarizes the results of the Instagram content.

*X(Twitter)*
A total of 110 tweets related to #sluggishcognitivetempo were collected based on the inclusion criteria. All of them in the included group were selected to be manually categorized during analysis. Overall, 48.2%, contained only words, and 33.6% contained a link and redirected to another website. Most of the tweets were either positive (40.5%) or neutral (42.2%). For specific content, 21.8% disseminated education or sought to provide awareness, 14.5% shared data on the research conducted and 4.5% described a personal story. Twitter was more likely than Instagram to use irrelevant hashtags to draw attention to content. There were only 2.7% of the posts were from the perspective of the physician which is the same percentage as the perspective of the patient.

There were only 8 tweets posts about #cognitivedisengagementsyndrome. 75% contained a link and redirected to another website. 75% disseminated education or sought to provide awareness. 62.5% of the posts were from the perspective of other mental health professionals. 62.5% of the posts mentioned a specific professional.
Table 3 and 4, summarizes the results of the Twitter content.

**Discussion:** Every month, there are approximately 1 billion active users on Instagram and approximately 330 million active users on X (formerly Twitter). When the posts made by patients, phsicians, or mental health professionals are evaluated, the posts made on both social media platforms differ significantly from each other.

Instagram content was mostly in media format with pictures or videos. Since most of the content was related to education and awareness, it is thought to be expressed in a neutral tone. The fact that psychiatrists, professional organizations, and other mental health professionals assumed the main role in content production and that there were no posts by patients indicated that talking about mental health and illnesses is still considered taboo in our country. Patient stories were only shared anonymously by psychiatric physicians.
The content created by mental health professionals, with or without a certain name, increases access to information and raises awareness.

On X, posts about education/awareness and research that contained a link to another website or text only more frequently. Posts on X often includes a link to another website or they were text only educational/awareness and research posts. In contrast to Instagram, posts on X (Twitter) contained a lot of content with a negative tone, such as the use of the term "sluggish cognitive tempo" to humiliate someone. Especially there were a few psychiatrists' posts on X (Twitter) compared to other mental health professionals. There were significantly more posts with scientific research content on X compared to posts on Instagram. In this case, it can be thought that the clickable mechanism of links on X orientates users to add links to their posts which then can guide users to the original content. The number of posts on X without mentioning a specific name was relatively higher. This discrepancy is striking and suggests that there may be selection bias in social media posts.

There are several limitations in the study. In Instagram and X, the level of interaction is as important as the content of the posts. The number of comments, likes and forwards can be used to measure the level of

## Table 1. Summary of Instagram Content of SCT

| Instagram-SCT | | Count (%) |
|---|---|---|
| **Media Format** | | |
| | Image | 60 (95.2) |
| | Video | 3 (4.8) |
| | Link | — |
| | Words only | — |
| **Tone** | | |
| | Neutral | 56 (88.9) |
| | Negative | 7 (11.1) |
| | Positive | — |
| **Content** | | |
| | Clinical practice-related | 20 (31.7) |
| | Education/awareness | 19 (30.2) |
| | Other | 15 (23.8) |
| | Patient story, progress update | 7 (11.1) |
| | Research | 2 (3.2) |
| **Perspective** | | |
| | Professional organization | 23 (36.5) |
| | Other | 20 (31.7) |
| | Physician | 11 (17.5) |
| | Other mental health professionals | 9 (14.3) |
| | Patient | — |
| **Spesific professional mentioned?** | | |
| | No | 34 (54) |
| | Yes | 29 (46) |

interaction. was not was that the on different same reaching interaction,

calculating Instagram hashtags, possible

Although of Syndrome Cognitive started to Cognitive has started in the published fact that it likely to number of Disengagement Syndrome.

In this study, the content evaluated in this respect. It observed during the study same content was reposted dates by different or the people. Although it enables more people in terms of it may cause possible miscalculations when the total rate. Some of the and X posts included both which may also cause miscalculations.

expert opinions on the use Cognitive Disengagement instead of Sluggish Tempo terminology have be reported in recent years. Disengagement Syndrome to be used more frequently literature after the study by Becker et al.(3). The is a new terminology is have contributed to the low examples of Cognitive

Although both platforms were used to share information and provide awareness, only a small percentage of posts were from physicians, indicating opportunities for psychiatrists to use social media to connect with patients.

**Keywords:** Social Media, Sluggish Cognitive Tempo, Cognitive Disengagement Syndrome

**References**
(1) Becker SP, Marshall SA, McBurnett K. Sluggish cognitive tempo in abnormal child psychology: an historical overview and introduction to the special section. Journal of Abnormal Child Psycholgy. 2014;42(1):1-6.
(2) Waschbusch DA. Editorial: a review of sluggish cognitive tempo measures that will benefit researchers and clinicians. Journal of the American Academy Child and Adolescent Psychiatry. 2021;60(6): 678-679.
(3) Becker, S. P., Willcutt, E. G., Leopold, D. R., Fredrick, J. W., Smith, Z. R., Jacobsonpınar, L. A., Burns, G. L., Mayes, S. D., Waschbusch, D. A., Froehlich, T. E., McBurnett, K., Servera, M., & Barkley, R. A. (2023). Report of a work group on sluggish cognitive tempo: Key Research Directions and a consensus change in terminology to cognitive disengagement syndrome. Journal of the American Academy of Child and Adolescent Psychiatry, 62(6), 629–645.

Table 3. Summary of X Content of SCT

| X (Twitter)-SCT | Count (%) |
|---|---|
| **Media Format** | |
| Words only | 53 (48.2) |
| Link | 37 (33.6) |
| Image | 13 (11.8) |
| Video | 7 (6.4) |
| **Tone** | |
| Neutral | 46 (42.2) |
| Positive | 45 (40.5) |
| Negative | 19 (17.3) |
| **Content** | |
| Other | 64 (58.3) |
| Education/awareness | 24 (21.8) |
| Research | 16 (14.5) |
| Patient story, progress update | 5 (4.5) |
| Clinical practice-related | 1 (0.9) |
| **Perspective** | |
| Other | 75 (68.2) |
| Professional organization | 17 (15.5) |
| Other mental health professionals | 12 (10.9) |
| Physician | 3 (2.7) |
| Patient | 3 (2.7) |
| **Spesific professional mentioned?** | |
| No | 81 (73.6) |
| Yes | 29 (26.4) |

Table 2. Summary of Instagram Content of CDS

| Instagram-CDS | Count (%) |
|---|---|
| **Media Format** | |
| Image | 3 (42.8) |
| Video | 2 (28.5) |
| Words only | 2 (28.5) |
| Link | — |
| **Tone** | |
| Neutral | 7 (100) |
| Positive | — |
| Negative | — |
| **Content** | |
| Education/awareness | 5 (71.4) |
| Research | 1 (14.2) |
| Other | 1 (14.2) |
| Patient story, progress update | — |
| Clinical practice-related | — |
| **Perspective** | |
| Other | 3 (42.8) |
| Physician | 2 (28.5) |
| Professional organization | 1 (14.2) |
| Other mental health professionals | 1 (14.2) |
| Patient | — |
| **Spesific professional mentioned?** | |
| Yes | 6 (85.8) |
| No | 1 (14.2) |

Table 4. Summary of X Content of CDS

| X (Twitter)-CDS | | Count (%) |
|---|---|---|
| **Media Format** | | |
| | Link | 6 (75) |
| | Image | 1 (12.5) |
| | Words only | 1 (12.5) |
| | Video | — |
| **Tone** | | |
| | Neutral | 8 (100) |
| | Positive | — |
| | Negative | — |
| **Content** | | |
| | Education/awareness | 6 (75) |
| | Research | 1 (12.5) |
| | Clinical practice-related | 1 (12.5) |
| | Patient story, progress update | — |
| | Other | — |
| **Perspective** | | |
| | Other mental health professionals | 5 (62.5) |
| | Professional organization | 3 (37.5) |
| | Physician | — |
| | Patient | — |
| | Other | — |
| **Spesific professional mentioned?** | | |
| | Yes | 5 (62.5) |
| | No | 3 (37.5) |

**0286 - Examination of Separation Anxiety Factors in Children Mitral Valve Prolapse Echocardiographic** the Frequency of Disorder and Related and Adolescents with Together with Data

Zeynep Dilara Yetkin[a], Oyku Tosun[b], Vahdet Gormez[a], Alperen Bikmazer[a]

[a]Department of Child and Adolescent Psychiatry, Istanbul Medeniyet University, Istanbul,Turkey
[b]Department of Pediatric Cardiology, Istanbul Medeniyet University, Istanbul,Turkey

**Introduction**: Mitral valve prolapse is defined as the movement of one or both mitral leaflets towards the left atrium during systole, with a prolapse of at least 2 mm. Although prevalence studies in the child and adolescent population are insufficient, current epidemiological studies have found that the prevalence of MVP is approximately 2-5% and is more common in girls. Leaflet thickening, known as myxomatous degeneration, is the more common type. Patients are generally asymptomatic, but when symptoms are present, they may vary. Since symptoms such as chest pain, shortness of breath, fatigue, tachycardia, palpitations, dizziness are similar to the physical symptoms of anxiety, the relationship between anxiety disorders and MVP has been frequently examined to date. In addition, studies on the comorbidity of MVP and anxiety disorders in children are limited.

Separation anxiety disorder (SAD) is a disorder characterized by persistent, excessive and developmentally inappropriate fear of separation from the main attachment figures, usually made up of parents. Anxiety sensitivity (AS) was first defined in 1991 as an extreme fear of anxiety-related sensations and symptoms that are believed to have physical, cognitive, and social consequences. AS consists of dimensions related to physical, cognitive, and social fears of anxiety symptoms and total score of AS. Worrying about the possibility of psychiatric symptoms leading to cognitive consequences defines the cognitive subdimension, worrying about symptoms that can be observed by others defines the social subdimension, and worrying about physical symptoms defines the physical subdimension. Studies have found that physical sensitivity is associated with panic disorder (PD) and post-traumatic stress disorder (PTSD), social sensitivity and social phobia (SP), generalized anxiety disorder (GAD), PTSD and depression with cognitive sensitivity. The results of studies on whether the rates of somatic complaints differ between anxiety disorders in childhood are different. Despite this, one study found that children with PD and SAD were more likely to report somatic complaints compared to children with specific phobias, and that children with SAD and GAD reported more somatic complaints than children with SP[1].

When the literature is examined, it has been shown that MVP and anxiety disorders can be comorbid. It is known that MVP symptoms are similar to the physical symptoms of anxiety. Therefore, separation anxiety symptoms accompanying the diagnosis of mitral valve prolapse may be overlooked. In addition, knowing the factors related to the relationship between SAD and MVP and intervening in these factors in the future may affect the prognosis of both MVP and SAD.

**Method:** 55 patients between the ages of 7 and 18, who came to the pediatric cardiology outpatient clinic between December 2022-December 2023 and were diagnosed with MVP, gave written and verbal consent to participate in the study, were included in the study in order of application. 42 children and adolescents in the same age range who were referred to the pediatric cardiology outpatient clinic to be evaluated for innocent murmurs or participation in sports were included as the control group. All participants underwent a physical examination, electrocardiography and echocardiography evaluation by a pediatric cardiologist. People were included in the study as there was no cardiac or extracardiac pathology in the control group. All participants were evaluated by a clinical interview by a child and adolescent psychiatrist.

Sociodemographic data form, separation anxiety clinical assessment interview and semi-structured Kiddie Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version (K-SADS-PL) were applied by the interviewer for psychiatric diagnosis. DSM-5 Separation Anxiety Disorder Severity Scale Child Form, Childhood Anxiety Sensitivity Index, Revised Children Anxiety and Depression Scale (RCADS), child form of Egna Minnen Betraffande Upfostran (EMBU-C; My Memories of Upbringing Scale) were applied to all participants. Egna Minnen Betraffande Upfostran Short Parent Form (s-EMBU-P) was applied to the parents of all participants.

**Results:** A total of 97 participants were included in the study. The MVP group of 55 people consisted of 38.2% boys and 61.8% girls. The control group consists of 55.8% boys and 44.2% girls. The average age of the participants was 12.7 years. There was no significant difference in the sociodemographic data of the participants between the two groups in terms of age and gender. Compared to the control group, the diagnosis of SAD in the MVP group (p<0.001) and the severity of SAD symptoms were significantly higher in the MVP group (p<0.001). In terms of perceived parental attitude, mother's emotional warmth scores were lower, emotional pressure/punishment and overprotection scores were higher in the MVP group than in the control group, but it was not found to be statistically significant.

Parent-reported warmth scores were lower in the MVP group, control, overprotectiveness, and rejection scores were higher, but none were statistically significant. There was no significant difference between the two groups for total anxiety sensitivity. When classical (thickness of one or two valves≥5mm) and non-classical MVP (thickness of one or two valves<5mm) were compared in the MVP group, parent-reported overprotection scores were found to be higher in the classical MVP group, but were not statistically significant ($p=0.057$).

In the MVP group, jet flow velocity (JV) due to mitral regurgitation and physical sub-dimension scores of anxiety sensitivity were positively correlated ($p<0.05$) and perceived maternal emotional warmth was negatively correlated ($p<0.05$). In the MVP group, there was a correlation between thickening of the anterior leaflet (AL) of the mitral valve and symptoms of separation anxiety and panic disorder ($p<0.05$). There was a correlation between panic disorder symptoms and corrected QT interval (QTc) in the MVP group ($p<0.05$).

**Discussion:** To our knowledge, this study is the first to examine echocardiographic data and separation anxiety and related features together in MVP patients. Separation anxiety disorder diagnosis and symptom severity were higher in the MVP group than in the control group. Although the relationship between MVP and panic disorder is known, it is an important finding in terms of revealing the relationship between MVP and separation anxiety disorder.

MVP symptoms may have predisposed these children to separation anxiety. These children may develop a predisposition to separation anxiety symptoms out of concern that they may experience similar symptoms when they are away from their caregivers.

The physical symptoms and somatic complaints seen in separation anxiety disorder are similar to the symptoms in panic disorder. Therefore, SAD and PD are thought to share a similar physiological basis [2,3]. There are also genetic studies showing that a diagnosis of SAD in childhood shares a common diathesis with panic attacks in adulthood [4]. Due to this common diathesis of panic disorder and separation anxiety disorder; It is possible that PD, which is reported to be more common in adult MVP patients, may manifest as separation anxiety in child MVP patients.

In addition to this, children may be less considered in terms of psychiatric differential diagnoses because the symptoms seen in MVP patients are similar to the physical symptoms of SAD and these symptoms are evaluated only by pediatric cardiology.

In a meta-analysis conducted in 2013, it was found that children with chronic medical diseases had increased control and overprotectiveness in terms of parental attitudes, as well as decreased emotional warmth scores [5]. On the contrary, although perceived parent scores in our study were similar to the literature, they were not found to be statistically significant. This difference can be revealed in studies with larger samples.

In the MVP group, jet flow velocity due to mitral regurgitation was found to be positively correlated with physical subdimension scores of anxiety sensitivity. As the jet flow speed increases due to mitral insufficiency, the increase in anxiety sensitivity, especially in the physical sub-dimension, can be considered as a psychiatric consequence of the increase of physical symptoms or chronic experience of physical symptoms occurring in MVP. This situation is consistent with the increased physical anxiety sensitivity demonstrated in PD and SAD [2].

While there is no correlation between emotional warmth reported by the mother and jet flow velocity, there is a negative correlation with maternal emotional warmth perceived by the child. Physical symptoms or possible complications (moderate to severe mitral insufficiency, ventricular arrhythmias, etc.) that occur with the increase in jet flow velocity may negatively affect the person emotionally. Thus, the child's need for emotional warmth may increase and the mother's emotional warmth perceived by the child may be felt low. On the other hand, as the mother's emotional warmth increases, the jet flow velocity decreases and the child's positive emotional experiences may increase, resulting in fewer physical symptoms or fewer complications, which may have a positive effect on the course of MVP.

In the MVP group, a correlation was found between thickening of the anterior leaflet of the mitral valve and symptoms of separation anxiety and panic disorder. As the degenerative thickening of the MVP leaflet increases, the risk of MVP complications increases. Since this relationship may increase the physical symptoms of MVP, it may provide a basis for the formation of SAD and PB.

Increased sympathetic activity plays an important role in the pathophysiology of panic disorder. Autonomic changes also have direct effects on the ventricular myocardium and thus affect the duration of cardiac repolarization. The QT interval on the ECG reflects the repolarization time of the ventricular myocardium. In our study, the positive correlation between PD symptoms and QT length in MVP patients supports the literature. This is clinically important, as autonomic dysfunction [6,7] and repolarization changes characterized by prolongation of the QT interval and increase in QT dispersion [8,9,10] are among the causes of ventricular arrhythmias in MVP. If PD symptoms are intervened in these patients, serious complications such as ventricular arrhythmias can be prevented.

Considering all the findings, it may be useful to draw attention to the clinical relationship between MVP and SAD. It is thought that examining various factors such as AS and parental attitude in MVP may be important in terms of the course of the disease.

Further comprehensive studies investigating the relationships and related factors between MVP and SAD will be useful to prevent complications and determine intervention methods. It is important to address the physical and mental health of MVP patients in an integrative manner.

**Keywords:** anxiety sensitivity, echocardiography, mitral valve prolapse, parental attitude, separation anxiety

**Referances:**

1.      Crawley SA, Caporino NE, Birmaher B, Ginsburg G, Piacentini J, Albano AM et al (2014) Somatic complaints in anxious youth. Child Psychiatry Hum Dev 45:398–407
2.      Hannesdottir DK, Sigurjonsdottir SB, Njardvik U, Ollendick TH. Do Youth with Separation Anxiety Disorder Differ in Anxiety Sensitivity From Youth with Other Anxiety Disorders? Child Psychiatry Hum Dev. 2018;49(6):888–96.
3.      Köroğlu E, editor. Amerikan Psikiyatri Birliği Ruhsal Bozuklukların Tanısal ve Sayımsal El Kitabı, Beşinci Baskı (DSM-5). 5th ed. Ankara: Hekimler Yayın Birliği; 2014.
4.      Roberson-Nay R, Eaves LJ, Hettema JM, Kendler KS, Silberg JL. Childhood separation anxiety disorder and adult onset panic attacks share a common genetic diathesis. Depress Anxiety. 2012;29(4):320–7.
5.      Pinquart M. Do the parent-child relationship and parenting behaviors differ between families with a child with and without chronic illness? A meta-analysis. J Pediatr Psychol. 2013 Aug;38(7):708-21. doi: 10.1093/jpepsy/jst020. Epub 2013 May 9. PMID: 23660152.
6.      GaffneyFA,BastianBC,LaneLB,etal.Abnormalcardio- vascular regulation in the mitral valve prolapse syndrome. Am J Cardiol 1983; 52: 316-20
7.      Micieli G, Cavallini A, Melzi d'Eril GV, et al. Haemodynamic and neurohormonal responsiveness to different stress tests in mitral valve prolapse. Clin Auton Res 1991; 1: 323-7.
8.      Kulan K, Komsuoğlu B, Tuncer C, Kulan C. Significance of QT dispersion on ventricular arrhythmias in mitral valve prolapse. Int J Cardiol 1996; 54: 251-7
9.      Ulgen MS, Biyik I, Karadede A, Temamogullari AV, Alan S, Toprak N. Relation between QT dispersion and ventri- cular arrhythmias in uncomplicated isolated mitral valve prolapse. Jpn Circ J 1999; 63: 929-3
10.      Zouridakis EG, Parthenakis FI, Kochiadakis GE, Kanoupa- kis EM, Vardas PE. QT dispersion in patients with mitral valve prolapse is related to the echocardiographic degree of the prolapse and mitral leaflet thickness. Europace 2001; 3: 292-8.

## 0297 - Comparing the Sociality Functioning and Facial Emotin Recognition between Children Diagnosed with Sluggish Cognitive Tempo and Attention Deficit Hyperactivity Disorder with Healthy Controls

Utku Kaçmaz[1], Nagihan Cevher Binici[1], Fatma Sibel Durak[1], Eyüp Sabri Ercan[2], Ali Evren Tufan[3]

[1] Health Sciences University Dr. Behçet Uz Teaching and Research Hospital Department of Child and Adolescent Psychiatry
[2] Ege University Faculty of Medicine Department of Child and Adolescent Psychiatry
[3] Bolu Abant Izzet Baysal University Faculty of Medicine Department of Child and Adolescent Psychiatry

**Introduction:** Sluggish Cognitive Tempo (SCT), a new clinical characterization, is often comorbid with Attention Deficit Hyperactivity Disorder (ADHD) yet recognized as a distinct psychiatric disorder from ADHD.(1) Numerous studies indicate that social dysfunction in ADHD correlates with difficulties in understanding social cues, impulsivity, and attention problems. Limited research on the SCT group suggests difficulties in social functioning due to introversion and social isolation.(2) However, the prevalence of ADHD comorbidity and the wide age range in community-based samples limit scientific understanding of the social functioning of pure SCT cases and related factors.

**Objective:** This study aims to compare pure SCT cases selected from a clinical sample with pure ADHD cases and healthy control group during school-age in terms of social skills and emotion recognition abilities, while determining how these factors predict each other and peer relationships.

**Method:** Children and adolescents with attention deficit and hyperactivity symptoms were received DSM-V-based assessments at the outpatient unit of Child and Adolescent Psychiatry Deparment, Izmir Behcet Uz Child Hospital evaluating symptom severity, occurrence across settings, and accompanying symptoms.
Teachers are asked to complete the DSM-IV-Based Screening and Assessment Scale for Attention Deficit and Disruptive Behavior Disorders (DSM-IV Assessment Scale), while parents are requested to complete the Child Behavior Checklist (CBCL) and the DSM-IV Assessment Scale. If any of the 4 questions (13,17,80,102) in the CBCL score 2 or more points, these cases are anticipated to have SCT clinic, and further evaluation is requested via completion of the Barkley Child Attention Scale (BCAS) by parents and teachers, which has a cutoff point set at 23.
Clinical interview results, along with teacher and parent evaluations, assess SCT and ADHD presence, determining ADHD subtypes.
Specific Learning Disorder Battery was administered to parents and teachers in the aim of excluding specific learning disabilities. The intellectual capacities were assessed clinically using the WISC-R.
All participants in the study group and healthy children are evaluated for the presence of additional psychiatric disorders by the clinician using the KSADS-PL-T.

A total of 40 ADHD cases, 43 SCT cases and 43 cases in similar age range without psychiatric illness were included in our study. Inclusion criteria for the ADHD, SCT and healthy control groups included literacy, a total IQ score of 80 or above, absence of additional psychiatric disorders, and no psychotropic drug use in the last 3 months. In ADHD cases, those with comorbid oppositional defiant disorder were included. Exclusion criteria for all groups included chronic medical illness, use of any group of drugs, history of head trauma causing loss of consciousness, neurological diseases causing a decrease in motor skills, illiteracy of the subject or at least one parent, and presence of intellectual disability. All parents of the children participating in the study completed the Social Skills Assessment Scale (SSAS), and Sociodemographic Clinical Data forms related to their children. Children and adolescents were asked to fill out the Social Skills Scale (SSS) and Friend Relationship clinical data forms for themselves, followed by an emotional recognition(RMET) inventory administered by the clinician involved in the research. Simultaneously, teachers of all participants were asked to complete the Teacher Clinical Form.
In our study, version 21.0 (IBM, Armonk, NY, USA) was utilized for statistical analysis. Descriptive statistics were expressed as mean ± standard deviation or median (minimum-maximum) for continuous variables and as counts and (%) for categorical variables. Cross-tabulation statistics (Chi-square, Fisher) were used for comparing categorical variables. Parametric data showing normal distribution were compared using Student's t-test and ANOVA, while non-parametric data not conforming to normal distribution were compared using Mann-Whitney U and Kruskal-Wallis tests. Post hoc Tukey analysis was conducted for multiple group comparisons. Correlations between measurements were evaluated using Spearman's Rho Test and Pearson test, considering the distribution of variables. Results were defined as statistically significant at $p < 0.05$.

**Results:** In the research groups, the RMET, SSS total scores, and SSAS scores are significantly lowest in the SCT group, while the ADHD group was significantly lower than the control.

**Table.1**
In our study, when evaluating intergroup school friendship data, no statistically significant difference was observed in in the rates of school friendships between groups according to both parent and child reports; however, according to teacher reports, the rates of having 4 or more friends in the SCT group were statistically significantly lower compared to both the ADHD and healthy control groups (p=0.000).

**Table.2**
In our study, when evaluating intergroup out-of-school friendship data, no statistically significant difference was found in the rates of out-of-school friendships between groups according to parent reports. However, according to child reports, the rates of having 6 or more friends in the YBT group were statistically significantly lower compared to both the ADHD and healthy control groups (p=0.035).

In our study, when evaluating intergroup peer relationship data, no statistically significant difference was observed in the rates of peer relationships between groups according to parent reports. However, according to child and teacher reports, the rates of lack of effort in forming relationships and struggling in relationship-building were statistically significantly higher in the SCT group compared to both the ADHD and healthy control groups (p-values=0.000 and 0.000, respectively).

Additionally, in ADHD group children, setting limits on meeting friends was significantly higher compared to SCT and control groups, as reported by parents (respectively; %50 versus %30.2 and %18.6) and by the children themselves (respectively; %42.5 versus %34.9 and %14.0), with statistically significant differences (respectively,p-values=0.009 and 0.013). Moreover, according to teachers, the rate of not making an effort to participate in activities (%32.6 versus %12.5 and %7.0), spending time alone during breaks (%32.6 versus %15.0 and %0.0), and not being embraced by peers (%27.9 versus %17.5 and %0.0) was significantly higher in the SCT group compared to the ADHD and healthy control groups (respectively, p-values=0.002, 0.000, and 0.000).

When comparing the scales, it was found that in the SCT group, there was no significant correlation between the RMET and SSS, and the SSAS, however a significant correlation was found between the SSS and the SSAS.

According to the logistic regression analysis conducted for Peer Relationships by Teacher, the model created for SSAS Total Score, Child SSS Total score, and RMET Total Score was found to be statistically significant (p=0.000, R sq:0.218). In the univariate analysis, it was determined that the SSAS Total Score had approximately 2.8 times higher impact, and the Child Social Skills Total Score had approximately 2.9 times higher impact on Peer Relationships by Teacher. Thus, it was concluded that SSAS Total Score and Child Social Skills Total Score are independent factors significantly affecting 'Peer Relationships by Teacher'. **Table.3**

**Discussion:** In our study, individuals with SCT scored significantly lower in all subcategories and total scores of the RMET, SSS, and SSAS tests administered by their families compared to those with ADHD and the control group. This confirms that individuals with SCT face social challenges and tend to be more introverted, consistent with existing literature, indicating difficulties across various social skill domains from basic relationship-building to advanced communication.

On the other hand, individuals with ADHD scored higher than those with SCT but lower than the control group. This difference suggests that individuals with ADHD may be more externally oriented than those with SCT. However, the lower scores in the ADHD group compared to the control group may stem from deficiencies in social skills content and quality. Research on children with ADHD highlights difficulties in interpreting social cues and inappropriate responses, leading to impaired social relationships and functional deficits across school, family, and academic settings.(3) Some studies indicate that children with ADHD or at risk for ADHD experience deficiencies in recognizing emotions from facial expressions.(4)

It is believed that individuals with SCT may struggle particularly in the sustained attention domain, which is also considered important in the RMET test battery. Considering the significance of sustained attention in the RMET battery, it is speculated that individuals with SCT may score lower compared to those with ADHD.

In our study, when evaluating the intergroup school friendship data, no statistically significant difference was found in the rates of school friendships among groups according to both parents and children. However, according to teachers, the rate of having four or more friends in the SCT group was found to be significantly lower compared to the ADHD and healthy control groups.

Research involving individuals with symptoms of SCT has shown that these individuals experience general social problems and social withdrawal. These findings have been particularly evident in assessments conducted by teachers compared to evaluations made by parents.(5)

In our study, rates of lack of effort and difficulty in forming relationships were found to be statistically significantly higher in the SCT group compared to the ADHD and healthy control groups, as reported by both the child and the teacher.

The lack of effort or difficulties in forming friendships among individuals with SCT can be explained by their tendency towards social isolation and their more introverted nature.

**Keywords:** Sluggish Cognitive Tempo, Attention Deficit Hyperactivity Disorder, Sociality Functioning, Emotin Recognition, Peer relationships

**References**
**1.** Milich, R., Balentine, A. C. & Lynam, D. R. ADHD Combined Type and ADHD Predominantly Inattentive Type Are Distinct and Unrelated Disorders. *Clinical Psychology: Science and Practice* **8**, (2001).
**2.** Becker, S. P. & Langberg, J. M. Sluggish Cognitive Tempo Among Young Adolescents With ADHD: Relations to Mental Health, Academic, and Social Functioning. *J Atten Disord* **17**, (2013).
**3.** Tuğlu C, Şahin ÖÖ. EriŞkin Dikkat Eksikliği Hiperaktivite Bozukluğu: Nörobiyoloji, Tanı Sorunları ve Klinik Özellikler. Current Approaches in Psychiatry/Psikiyatride Guncel Yaklasimlar. 2010;2(1).
**4.** Da Fonseca, D., Seguier, V., Santos, A., Poinso, F. & Deruelle, C. Emotion understanding in children with ADHD. *Child Psychiatry Hum Dev* **40**, (2009).
**5.** Becker, S. P. & Langberg, J. M. Sluggish Cognitive Tempo Among Young Adolescents With ADHD: Relations to Mental Health, Academic, and Social Functioning. *J Atten Disord* **17**, (2013).

**Table.1**

| | ADHD Group (Med±SD) | SCT Group (Med±SD) | Control Group (Med±SD) | p-value |
|---|---|---|---|---|
| SSAS Total Score | 228,85±42,47 | 211,49±45,14 | 271,05±37,74 | 0.000* |
| *SSS Total Score* | 58,63 ± 8,16 | 54,93 ± 8,78 | 65,67 ± 4,26 | 0.000* |
| RMET Total Score | 16,15 ± 3,12 | 14,56 ± 3,93 | 19,91 ± 1,96 | 0.000* |

**Table. 2**

| | n | ADHD Group | SCT Group | Control Group | $X^2$ | P-value |
|---|---|---|---|---|---|---|
| School Friendship According to the Parents | None<br>1<br>2-3<br>4-5<br>> 6 | 1 (%2,5)<br>1 (%2,5)<br>13 (%32,5)<br>14 (%35,0)<br>11 (%27,5) | 0 (%0,0)<br>4 (%9,3)<br>21 (%48,8)<br>11 (%25,6)<br>7 (%16,3) | 0 (%0,0)<br>0 (%0,0)<br>14 (%34,1)<br>15 (%36,6)<br>12 (%29,3) | 11,3 | 0.130 |
| School Friendship According to the Child | Hiç<br>1<br>2-3<br>4-5<br>> 6 | 1 (%2,5)<br>1 (%2,5)<br>14 (%35,0)<br>13 (%32,5)<br>11 (%27,5) | 0 (%0,0)<br>4 (%9,3)<br>15 (%34,9)<br>12 (%27,9)<br>12 (%27,9) | 0 (%0,0)<br>0 (%0,0)<br>18 (%41,9)<br>11 (%25,6)<br>14 (%32,6) | 8,10 | 0.332 |
| School Friendship According to the Teacher | Hiç<br>1<br>2-3<br>4-5<br>>6 | 0 (%0,0)<br>4 (%10,0)<br>20(%50,0)<br>16 (%40,0)<br>0 (%0,0) | 0 (%0,0)<br>14 (%32,6)<br>25 (%58,1)<br>4 (%9,3)<br>0 (%0,0) | 1 (%2,3)<br>1 (%2,3)<br>25 (%58,1)<br>15 (%34,9)<br>1 (%2,3) | 26,4 | 0.000* |

Table. 3 Peer Relationship Model According to Teacher" için logistic regression analysis.

| | OR | Univariate Analysis | | Total | |
|---|---|---|---|---|---|
| | | 95 %CI | p-değeri | R Square | p-value |
| SSAS Total Score | 2,827 | 0,002-0,011 | 0,005* | | |
| Child SSS Total Score | 2,907 | 0,012-0,064 | 0,004* | 0,218 | 0,000* |
| RMET Total Score | 0,300 | 0,045-0,061 | 0,765 | | |

## 0300 - Evaluation of Clinical, Laboratory and Psychosocial Characteristics and Psychiatric Disorders of Children with Premature Pubarche Adrenarche Cases

Gülçin Arslan[1], Tuğçem Şar[2], Pınar Imıl[2] İbrahim Mert Erbaş[1], Gülin Tabanlı[1], Fatma Sibel Durak[2], Behzat Özkan[1]

[1]Health Sciences University Dr. Behçet Uz Teaching and Research Hospital Department of Pediatric Endocrinology, İzmir
[2]Health Sciences University Dr. Behçet Uz Teaching and Research Hospital Department of Child and Adolescent Psychiatry, İzmir

**Introduction:** Premature pubarche is the onset of pubic hair before the age of 8 in girls and 9 in boys[1]. Axillary hair development may also occur in conjunction with this. The most significant characteristic of premature adrenarche (PA) is the absence of other symptoms of puberty (e.g., early breast growth, early menarche in girls, and the testicles attaining pubertal size in boys)   and it is regarded as a variation of normal in early puberty[2]. Gonadotropins and sex steroids are at prepubertal levels, according to laboratory results; the most typical indicator is a DHEAS level above 40 µg/dl[1]. The primary cause of adrenarche is an increase in adrenal androgen secretion; but the mechanisms of onset and control of adrenarche remain unclear. Girls with PA are exposed to slightly higher androgens earlier than their contemporaries, in contrast to girls with central precocious puberty (CPP) who are exposed to elevated estrogens. Compared to females who adrenarche on time, there have been some reports of greater incidence of psychopathology in girls with PA[3].

In recent years, it has been shown that precocious puberty causes depression, anxiety and stress in both the child, especially girls, as the rate is higher in girls and the family[4]. It's been suggested that girls who have early puberty may experience social isolation, embarrassment, and bullying because of how differently they appear from their peers[5]. Psychosexual development, psychopathology, and mental functioning and cognitive abilities and limitations are the primary aspects of adolescent behavior that are equally relevant to the child going through normal or abnormal puberty[5]. It is widely acknowledged that depression incidence increases after puberty. A meta-analysis by Galvao et al. involving 8055 participants showed an increased incidence of depression among those who entered puberty early[4]. Due to late puberty, a relationship with depression could not be shown in patients that were followed up in the same study. Some studies looking at the connection between psychopathologies and early puberty have also demonstrated that gender differences exist[6].

The goal of the current study is to investigate whether similar psychosocial problems arise due to the fear of "early puberty" in premature adrenarche cases.

**Materials and Methods:**
**Study Procedure:** Children between the ages of 6 and 8, who were admitted to the Pediatric Endocrinology Outpatient Clinics of Behçet Uz Teaching and Research Hospital between June and December 2023 due to premature **adrenarche** (Female cases aged 4-8 years and boys aged 4-9 years, with no signs of puberty other than pubic hair growth on physical examination and normal laboratory tests) were included as the study group and 64 healthy prepubertal children in a similar age and gender group who were referred to pediatric outpatient clinics for various reasons and did not have a chronic disease. The cases underwent detailed physical examinations and laboratory tests for possible additional endocrine pathology. Cases exceeding 8 years (for girls) or 9 years (for boys), those who did not consent, those with incomplete data, deficiencies in psychiatric tests, refusal of psychiatric interviews, chronic illnesses, precocious puberty, cortisol insufficiency, or elevated adrenal gland precursor hormones were excluded from the study.
**Data collection instruments:** The data collection instruments comprised a sociodemographic form and two assessment scales. The sociodemographic form included inquiries regarding age, gender, academic performance, absenteeism, familial and peer-related issues, substance use, parental characteristics, family structure, domestic violence exposure, household income, and psychiatric family history.
The Child Behavior Checklist (CBCL) is a standardized measure for parents to assess behavioral symptoms and competencies in children aged 4-16 years. It includes 118 behavioral problem items and 20 social competencies, organized into four social competency scales (activity, social, school, and competence), eight behavioral problem scales (withdrawal, somatic complaints, anxious/depressed, social problems, thought problems, attention problems, delinquent, and aggressive), and three composite scales (internalizing, externalizing, and total problems). Validity and reliability in our language were determined by N. Erol[7].
The Revised Children's Anxiety and Depression Scale (RCADS) is a 47-item, youth self-report questionnaire for late childhood populations, and it is particularly useful for screening and detecting changes in symptoms over time. With subscales tailored to age and gender, it exhibits high internalizing problem scores, making it ideal for research, clinical assessment and therapy evaluation. Validity and reliability in our language were determined by V. Görmez et al[8].
**Statistical analysis:** Statistical analyses were conducted using SPSS 21.0. Data distribution was assessed using the Kolmogorov–Shapiro test. Descriptive statistics included numbers, percentages, means ± standard deviations for normally distributed variables and medians (25-75th percentile) for non-normally distributed variables. Student's t-test and Mann-Whitney U test compared normally and non-normally distributed data, respectively. Categorical data were analyzed using the chi-square test. Pearson or Spearman correlation analysis evaluated parameter relationships.

**Results:** Pubic hair growth in the premature adrenarche group was stage 1 (5.9%) in 2 patients, stage 2 (79.4%) in 27 patients, and stage 3 (14.7%) in 5 patients. Axillary hair growth was present in 14 patients (41.2%). Median DHEAS level was 82.5 (57.7 – 105.5) and 5 patients had exaggerated adrenarche (DHEAS>130).
In the premature adrenarche group, 32 patients (94.1%) exhibited pubic hair growth, while axillary hair was present in 14 patients (41.2%). Two patients were at Tanner stage 1 (5.9%), 27 at Tanner stage 2 (79.4%), and 5 at Tanner stage 3 (14.7%). Excessive exaggerated adrenarche, indicated by DHEAS levels >130 µg/dl, was observed in 5 patients. Notably, only the CADS-Child panic disorder and obsessive-compulsive disorder scores were significantly elevated in children with premature adrenarche (p=0.019 and p=0.020, respectively) (Table 1). Subgroup analysis based on axillary hair presence revealed significant differences in separation anxiety, social phobia, and generalized anxiety disorder scores (p<0.05) (Table 2). Psychiatric disorders were more prevalent in the premature adrenarche group (33.3%) compared to controls (8.6%), with ADHD, separation anxiety, and social anxiety disorder being the most common diagnoses. However, there was no significant correlation between DHEA-S levels and psychiatric assessment scale scores (p>0.05).
Subgroup analyses revealed no significant differences in most measures between groups. However, significant disparities emerged in panic disorder and obsessive-compulsive disorder scores on the RCADS (p=0.019, 0.020), indicating potential psychological implications. While exaggerated adrenarche exhibited no significant impact, axillary hair growth correlated significantly with separation anxiety, social phobia, and generalized anxiety disorder scores (p=0.010, 0.039, 0.004, respectively). Additionally, overweight/obese children exhibited significant differences in introversion and social phobia scores compared to normal weight counterparts (p=0.001, 0.036) (Table 3). Notably, DHEAS levels showed no significant association with behavioral or anxiety-related parameters.

**Discussion :** As hypothesized, our findings reveal a higher prevalence of psychiatric disorders among children with premature **adrenarche** compared to the control group. Specifically, cases with premature **adrenarche** demonstrated significantly higher scores for panic disorder and obsessive-compulsive disorder, indicating a potential association between premature **adrenarche** and specific anxiety-related conditions. Furthermore, subgroup analyses revealed significant differences in separation anxiety, social phobia, and generalized anxiety disorder scores between children with and without axillary hair growth, while the presence of exaggerated adrenarche did not significantly affect psychiatric outcomes. Literature research suggests that while some studies suggest a link between early puberty and increased depression, others indicate no such association[9]. In our study, no cases of depression were diagnosed, and there were no differences between groups. However, existing research underscores an elevated risk of developing major depressive disorder in individuals with pre-existing anxiety disorders[9].

In another outcome, discernible differences emerge within both the introversion subgroup of the CBCL and the social phobia subgroup of the RCADS between normal weight children and their overweight or obese counterparts. The observed connections between overweight or obesity and increased introversion and social phobia may arise from various factors, such as social stigma, body image concerns, and physiological impacts on eating behaviour and mood regulation. This suggests that body weight and pubertal development may interact to influence psychological functioning in children with premature **adrenarche.**

The absence of a significant relationship between DHEA-S levels and psychiatric assessment scale scores indicates that hormonal factors alone may not fully account for the observed psychological differences. However, studies suggest that DHEAS can induce anxiogenic responses, indicating a potential impact of adrenarche hormones on anxiety levels, while research links stress to levels of DHEA and DHEAS, implicated in adrenarchal development, suggesting that anxiety may have triggered premature adrenarche[10]. This emphasizes the intricate interplay between hormonal, psychological, and environmental factors in the onset and manifestation of psychological symptoms in children experiencing premature adrenarche.

The limitations of our study include its cross-sectional design, which precludes causal inferences, and the relatively small sample size. Longitudinal studies with larger cohorts are needed to elucidate the long-term psychological outcomes associated with premature **adrenarche** and to explore potential protective factors that may mitigate its negative effects.

**Conclusion**: Our study reveals heightened psychiatric morbidity in children with premature adrenarche, particularly anxiety disorders. These findings suggest a potential link between premature adrenarche and psychiatric disorders, emphasizing the need for further research to understand underlying mechanisms. Comprehensive psychological assessment and support are crucial for children undergoing early pubertal changes, including variations like premature adrenarche. Future research should focus on the underlying mechanisms and long-term implications of premature adrenarche on mental health for enhanced holistic care.

**Keywords:** Anxiety, depression, precocious puberty, premature adrenarche

**Table 1. Comparison of findings between premature adrenarche and healthy control groups**

| Variables | Premature Adrenarche (n=34) | Healthy Control (n=35) | p |
|---|---|---|---|
| Medication use | 6 (17.6%) | 3 (8.6%) | 0.306 |
| Dietary supplements | 4 (11.4%) | 16 (45.7%) | 0.002 |
| CBCL Internalizing Problems | 6 (2 – 14) | 6 (3 – 11) | 0.871 |
| CBCL Externalizing Problems | 2 (1 – 6) | 2 (0 – 6) | 0.860 |
| RCADS Separation Anxiety | 4 (2 – 6) | 2 (1 – 5) | 0.053 |
| RCADS Social Phobia | 3.5 (2 – 5) | 3 (2 – 6) | 0.645 |
| RCADS Generalized Anxiety | 2 (1 – 3) | 1 (1 – 3) | 0.175 |
| RCADS Panic Disorder | 2 (0 – 3) | 1 (0 – 2) | 0.019 |
| RCADS Obsessive Compulsive Dis. | 1 (0 – 3) | 0 (0 – 1) | 0.020 |
| RCADS Major Depressive Dis. | 1 (0 – 4) | 1 (0 – 3) | 0.356 |

**Table 2. Subgroup comparison between children with and without axillary hair growth**

| Variables | No Axillary Hair (n=20) | Axillary Hair Present (n=14) | p |
|---|---|---|---|
| CBCL Internalizing Problems | 5.5 (2 – 14) | 7 (3 – 16) | 0.371 |
| CBCL Externalizing Problems | 2 (0 – 6) | 3.5 (2 – 9) | 0.210 |
| RCADS Separation Anxiety | 3 (1 – 5) | 5.5 (5 – 9) | 0.010 |
| RCADS Social Phobia | 3 (2 – 4) | 5 (3 – 7) | 0.039 |
| RCADS Generalized Anxiety | 1 (1 – 2) | 3 (2 – 6) | 0.004 |
| RCADS Panic Disorder | 2 (0 – 3) | 2 (1 – 3) | 0.341 |
| RCADS Obsessive Compulsive | 1 (0 – 2) | 2 (0 – 4) | 0.071 |
| RCADS Major Depressive Dis. | 1 (0 – 2) | 3 (0 – 7) | 0.271 |

**Table 3. Subgroup comparison in premature adrenarche group based on obesity**

| Variables | Normal Weight (n=20) | Overweight or Obese (n=14) | p |
|---|---|---|---|
| CBCL Internalizing Problems | 3 (2 – 6) | 14 (8 – 25) | 0.001 |
| CBCL Externalizing Problems | 1.5 (0 – 5) | 3.5 (2 – 9) | 0.104 |
| RCADS Separation Anxiety | 3 (2 – 7) | 5 (3 – 6) | 0.416 |
| RCADS Social Phobia | 3 (2 – 4) | 4 (3 – 10) | 0.036 |
| RCADS Generalized Anxiety | 2 (1 – 3) | 2 (1 – 4) | 0.545 |
| RCADS Panic Disorder | 1.5 (0 – 3) | 2.5 (0 -3) | 0.341 |
| RCADS Obsessive Compulsive | 1 (0 – 3) | 1.5 (0 – 3) | 0.616 |
| RCADS Major Depressive Dis. | 1 (0 – 4) | 1 (0 – 6) | 0.717 |

**Key words:** depression, anxiety, premature pubarche.

1.      Ibáñez L, Dimartino-Nardi J, Potau N, Saenger P. Premature adrenarche--normal variant or forerunner of adult disease? Endocr Rev. 2000 Dec;21(6):671-96. doi: 10.1210/edrv.21.6.0416. PMID: 11133068

2.      Rosenfield RL, Lipton RB, Drum ML. Thelarche, pubarche, and menarche attainment in children with normal and elevated body mass index. Pediatrics. 2009 Jan;123(1):84-8. doi: 10.1542/peds.2008-0146. Erratum in: Pediatrics. 2009 Apr;123(4):1255. PMID: 19117864

3.      Sontag-Padilla LM, Dorn LD, Tissot A, Susman EJ, Beers SR, Rose SR. Executive functioning, cortisol reactivity, and symptoms of psychopathology in girls with premature adrenarche. Dev Psychopathol. 2012 Feb;24(1):211-23. doi: 10.1017/S0954579411000782. PMID: 22293005; PMCID: PMC3362926.

4.      Galvao TF, Silva MT, Zimmermann IR, Souza KM, Martins SS, Pereira MG. Pubertal timing in girls and depression: a systematic review. J Affect Disord. 2014 Feb;155:13-9. doi: 10.1016/j.jad.2013.10.034. Epub 2013 Nov 8. PMID: 24274962.

5.      Ehrhardt AA, Meyer-Bahlburg HF. Psychosocial aspects of precocious puberty. Horm Res. 1994;41 Suppl 2:30-5. doi: 10.1159/000183956. PMID: 8088701.

6.      Ge, X., Conger, R. D., & Elder, G. H., Jr. (2001). Pubertal transition, stressful life events, and the emergence of gender differences in adolescent depressive symptoms. *Developmental Psychology, 37*(3), 404–417. https://doi.org/10.1037/0012-1649.37.3.404

7.      N, E. (1995). The adaptation and standardisation of the Child Behavior Checklist among 6-18 year-old Turkish children. Eunethydis: European Approaches to Hyperkinetic Disorders.

8.      Validation and reliability study of the Childhood Anxiety and Depression Scale, Child and Adult Clinical Psychiatry Congress, Istanbul, Turkey, 2016.

9.      Dorn LD, Hitt SF, Rotenstein D. Biopsychological and cognitive differences in children with premature vs. on-time adrenarche. Arch Pediatr Adolesc Med. 1999 Feb;153(2):137-46. doi: 10.1001/archpedi.153.2.137. PMID: 9988243.

10.     Cicchetti, D., & Rogosch, F. A. (2007). Personality, adrenal steroid hormones, and resilience in maltreated children: A multilevel perspective. *Development and Psychopathology, 19*(3), 787–809. https://doi.org/10.1017/S0954579407000399

**0313 – Relationship Between Sensory Processing Sensitivity, Theory of Mind Abilities, Irritability and Behavioral Profile in Children and Adolescents Diagnosed with Attention Deficit Hyperactivity Disorder**

[Burak Demirci](#), [Alperen Bikmazer](#), [Vahdet Gormez](#)

Medeniyet University, Prof. Dr. Suleyman Yalcin City Hospital, Kadıköy, İstanbul

Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopment disorder involving symptoms of inattention, hyperactivity, and impulsivity.[1](1)
Alongside the primary symptoms, a variety of internalizing and externalizing behavioral challenges frequently accompany ADHD.[2] (2)

There are previous studies in literature showing patients with adhd diagnosis having sensory processing issues and theory of mind deficits. (3) (4)

The aim of this study is to investigate the impact of sensory processing sensitivity (SPS), theory of mind (ToM) capability and irritability on behavioral profile of children and adolescents with ADHD diagnosis.

This cross sectional study included 142 children (107 male, 35 female, mean age 10,74± 2,58)

diagnosed with ADHD 7-16 years of age and their parents. Exclusion criteria included having psychotropic treatment in the last 3 months, any additional medical conditions or a diagnosis of psychiatric disorders such as major depressive disorder, anxiety disorder, obsessive-compulsive disorder, autism, and intellectual disability excluding oppositional defiant disorder (ODD) and conduct disorder (CD).

**Assesments**

Sociodemographic Data Form. This interview form includes detailed questions about age, gender, grade, birth and developmental history of the child, also educational and socioeconomic status, parents, medical and psychiatric history of family.

The Kiddie Schedule for Affective Disorders and Schizophrenia Present And Lifetime Version (KSADS-PL). This form is used to detect psychopathological diagnosis in children.

SNAP-IV (Swanson Nolan Pelham Questionnaire) ADHD Scale This scale is used to measure the core symptoms of ADHD.

Reading Mind In The Eyes Test (RMET). This test measures the ability to make accurate inferences about the mental state of the person in the picture, assesing component of theory of mind abilities of the child.

Affective Reactivity Index. Parent and self reported questionnaire to measure irritability.

Highly Sensitive Child Scale. This parent reported scale to assess sensory processing sensitivity. Giving total sensitivity, overreaction and depth of processing subscores.

Child Behavior Check List (CBCL) 6-18 Parent Form. The CBCL/6–18 This scale produces an Internalizing Problems score including Anxious/Depressed, Withdrawn/Depressed, and Somatic Complaints and an Externalizing Problems score including Rule-Breaking Behavior and Aggressive Behavior.

The analysis of data has been performed by using a Statistical Package for the Social Sciences (SPSS) 26.0 statistical software (Chicago, IL, USA) with Proces_v3.5 module (Hayes, 2018). Logistic and linear regression were conducted to assess the determinants of externalizing and internalizing behaviors. A two-tailed p value of 0.05 was considered to be statistically significant. This study was approved by Istanbul Medeniyet University Ethics Committee (2023/0680)

 Of the participants 122 of them were from primary school, 20 of them were from highschool. 124 of them had combined type, 16 inattention type and 2 hyperactivity/impulsive type ADHD diagnosis also 88 of them had ODD and 2 of them had CD comorbid diagnosis along with ADHD diagnosis.

We found a statistically significant positive correlation between the total sensitivity scores of the participants and the internalizing problems (r=0,272, p=0,001), externalizing problems (r=0,235, p=0,005), hyperactivity and impulsivity scores (r=0,238, p=0,004), total adhd scores (r=0,205, p=0,014), irritability scores (r=0,180, p=0,032).

There was also statistically significant positive correlation between overreaction scores and internalizing problems (r=0,216, p=0,010), hyperactivity and impulsivity (r=0,196, p=0,020), total ADHD scores (r=0,207, p=0,013).

We found statistically significant positive correlation between depth of processing scores and externalizing problems (r=0,252, p=0,003), hyperactivity and impulsivity (r=0,212, p=0,011), irritability scores (r=0,229, p=0,006).

We found statistically significant negative correlation between participants RMET Scores and internalizing problems (r=-0,194, p=0,020), externalizing problems (r=-0,316, p<0,001, irritability scores (r=-0,174, p=0,038).

According to the Hierarchical Linear Regression Analysis, it was found that 10% of the variance in externalizing problem scores is significantly explained by the RMET scores (F=15.58, p<0.001). With the addition of total sensitivity scores to Model 1, it was found that 13% of the variance in externalizing problem scores is significantly explained (F=10.46, p<0.001). When examining Model 2, it was found that only the RMET scores (p=0.001, CI:-0.968 to -0.266) and total sensitivity scores (p=0.028, CI:0.284 to 5.036) significantly contribute to explaining externalizing problem scores. With the inclusion of irritability scores to Model 2, it was found that 52% of the variance in externalizing problem scores is significantly explained (F=49.32, p<0.001). Upon examining Model 3, it was found that only RMET scores (p=0.002, CI:-0.680 to -8.149) and irritability scores (p=0.000, CI:8.652 to 12.660) significantly contribute to explaining externalizing problems score.

According to the Hierarchical Linear Regression Analysis, it was found that 4% of the variance in internalizing problem scores is significantly explained by the RMET score (F=5.50, p=0.020). With the addition of total sensitivity scores to Model 1, it was found that 9% of the variance in internalizing problem scores is significantly explained (F=7.25, p<0.001). When examining Model 2, it was found that only the total sensitivity scores (p=0.004, CI:1.066 to 5.402) significantly contribute to explaining internalizing problem scores.

With the inclusion of irritability scores to Model 2, it was found that 24% of the variance in internalizing scores is significantly explained (F=14.29, p<0.001). Upon examining Model 3, it was discovered that only the total sensitivity scores (p=0.018, CI:0.433 to 0.473) and irritability score (p=0.000, CI:3.532 to 8.037) significantly contribute to explaining internalizing problem scores.

**Discussion**: Our study investigate the complex relationships among sensory processing sensitivity (SPS), theory of mind (ToM) abilities, irritability, and internalizing and externalizing behavior problems. By adding correlation analyses along with hierarchical linear regression, we gained a comprehensive understanding of these variables interaction. Firstly, a statistically significant positive correlation was observed between participants' total sensitivity processing sensitivity scores and their internalizing problem, externalizing problem scores and irritability. This suggests that individuals with higher levels of sensory processing sensitivity may be more prone to experiencing a range of behavior problems and increased irritability. Conversely, significant negative correlations were found between RMET scores and their internalizing, externalizing problem scores and irritability. This implies that individuals with better ToM abilities tend to have fewer behavior problems and lower levels of irritability. Adding on to these correlations, the hierarchical linear regression analyses provided further insights into the predictive utility of these variables. For externalizing problem scores, both RMET scores and total sensitivity scores emerged as significant predictors initially. However, with the inclusion of irritability scores, only RMET scores and irritability remained significant predictors, suggesting their primary roles in explaining variance in externalizing behaviors. Similarly, for internalizing problem scores, RMET scores were initially significant predictors, but their significance diminished with the inclusion of total sensory processing sensitivity scores and irritability scores. This underscores the importance of sensory processing sensitivity and irritability in explaining internalizing behaviors.

These findings highlight the interplay among sensory processing sensitivity, theory of mind abilities, irritability, and behavior problems. The positive correlations between sensory processing sensitivity and behavior problems, along with the negative correlations between ToM abilities and behavior problems, emphasize the complex nature of these relationships.

Our study has several limitations. The cross-sectional nature of the study limits causal inference, and future research having longitudinal designs coulds show temporal dynamics. Additionally, expanding the sample diversity and incorporating other relevant factors could enhance the generalizability of findings.

In conclusion, our study contributes to understanding the multifaceted nature of individual differences in sensory processing sensitivity and its implications for behavioral profile of children with adhd diagnosis. By integrating correlation analyses with regression modeling, we showed the unique contributions of sensory processing sensitivity and theory of mind abilities to behavior problems and irritability.

1. Drechsler RB Silvia; Brandeis, Daniel; Grünblatt, Edna; Berger, Gregor; Walitza, Susanne. ADHD: Current Concepts and Treatments in Children and Adolescents. Neuropediatrics. 2020 Jun 19;51(05):315–35.
2. McRae E, Stoppelbein L, O'Kelley S, Fite P, Smith S. Comorbid Internalizing and Externalizing Symptoms Among Children with ADHD: The Influence of Parental Distress, Parenting Practices, and Child Routines. Child Psychiatry Hum Dev. 2020 Oct;51(5):813–26.
3. Ghanizadeh A. Sensory Processing Problems in Children with ADHD, a Systematic Review. Psychiatry Investig. 2011;8(2):89.
4. Caillies S, Bertot V, Motte J, Raynaud C, Abely M. Social cognition in ADHD: Irony understanding and recursive theory of mind. Research in Developmental Disabilities. 2014 Nov;35(11):3191–8.

**Keywords:** ADHD, Sensory Processing Sensitivity, Theory of Mind, Irritability, Internalizing, Externalizing.

## 0317 Resting-State Functional Connectivity of Salience Network in Depression

Aslihan Uyar Demir[1], Simay Selek[2], Yigit Erdogan[2], Omer Kitis[3], Mehmet Cagdas Eker[2], Ali Saffet Gonul[2]

[1]SoCAT Lab, Dept. of Psychiatry, Faculty of Medicine, Ege University, Izmir, Turkey; Mugla Sıtkı Kocman University Training and Research Hospital, Muğla, Turkey
[2]SoCAT Lab, Dept. of Psychiatry, Faculty of Medicine, Ege University, Izmir, Turkey
[3]Dept. of Radiology, Faculty of Medicine, Ege University, Izmir, Turkey

**Background and Objective**: Functional magnetic resonance imaging (fMRI) has greatly enhanced our comprehension of depression by enabling researchers to study both the structural and functional characteristics of the brain in affected individuals. Resting-state fMRI (rs-fMRI) has emerged as a critical tool in psychiatric research due to its simplicity and efficacy[1]. One of the key focuses is on functional connectivity (FC) analysis, which explores correlations in brain activity between different regions[2]. Recent studies have highlighted the Salience Network (SN), which includes various cortical and subcortical regions such as the anterior cingulate cortex, prefrontal cortex, supramarginal gyrus, and limbic areas like the amygdala. The SN is crucial for processing salient information and integrating emotional and cognitive signals[3]. Research suggests that the SN exhibits dynamic connectivity patterns, acting as a "dynamic switch" that adapts its connections based on task demands or environmental stimuli[4]. Disruptions in SN functioning, therefore, may lead to abnormalities in salience processing, impacting emotional regulation, attention, and self-referential processing—common symptoms of depression[5]. Our study aims to directly compare FC patterns within the SN between individuals with depression and healthy controls. By doing so, we hope to uncover the underlying mechanisms of aberrant SN connectivity in depression, offering insights into the pathophysiology of the disorder.

**Methods**: We conducted a study involving 36 participants diagnosed with Major Depressive Disorder (MDD) and 34 age-gender matched controls. The study was supported by the Scientific Research Project Coordination Unit of Ege University (project ID no: 21-3T/35). Functional data preprocessing was performed using the CONN toolbox 19c in MATLAB. Independent Component Analysis (ICA) was applied to all participants, utilizing default settings for CONN 19c with the G1 FastICA algorithm. Pearson's correlation coefficients were calculated between the time series of the Salience Network (SN) component and all voxels in the whole brain, and Fisher's r-to-z transform was applied to increase normality (Figure 1). Functional connectivity (FC) strength between the SN and different brain regions was assessed using Pearson's correlation coefficients. FC maps of the SN for each group were obtained via one-sample ttests, corrected for multiple comparisons using family-wise error (FWE) correction. To explore group effects and differences, one-way analysis of covariance (ANCOVA) was likely employed.

**Figure 1: Regions comprising the SN identified through network analysis using ICA on Rs-fMRI data.**
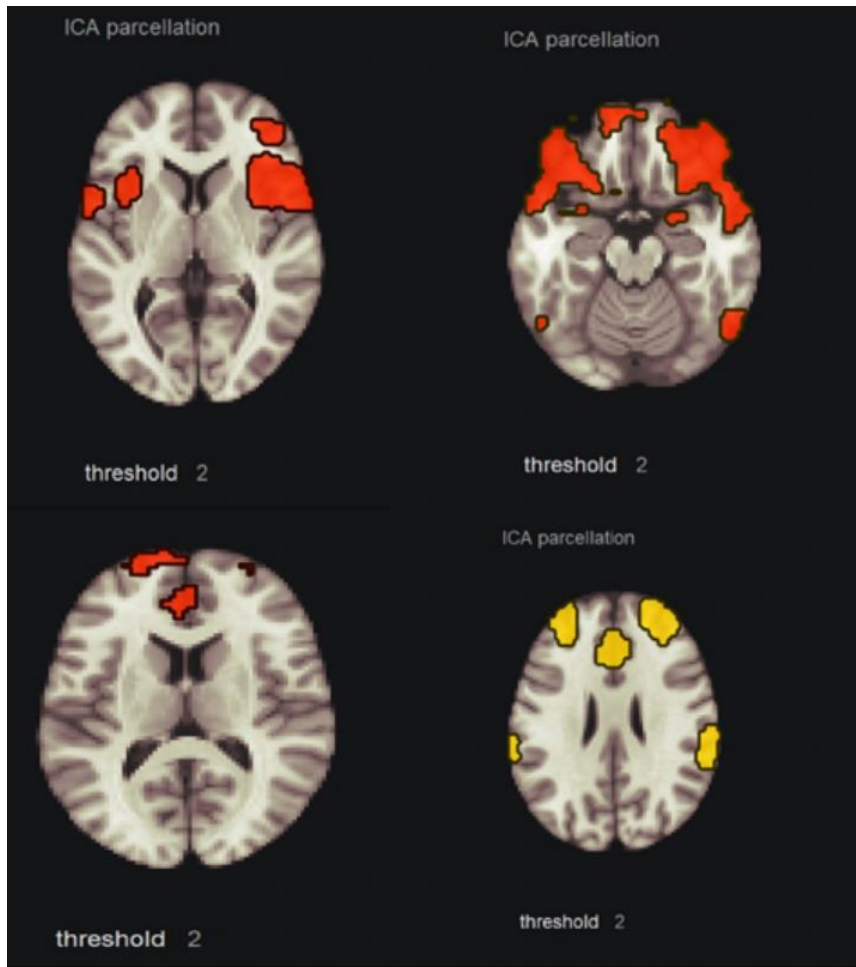
**RESULTS:** Our results revealed distinctive connectivity patterns between the anterior insula and amygdala in individuals experiencing depression compared to controls. Additionally, disrupted connectivity between the rostral prefrontal cortex (PFC) and right supramarginal gyrus (SMG) was observed in the depression group (Figure 2C; Figure 3A). These findings suggest that altered connectivity between the rostral PFC and the right SMG may contribute to cognitive and emotional symptoms such as rumination, negative self-referential processing, and difficulties in emotional understanding and response. Furthermore, decreased connectivity between the anterior insula and amygdala in depression may contribute to difficulties in emotional regulation and heightened emotional reactivity characteristic of the disorder.

**Figure 2: Connectivity Matrix of Salience Network**
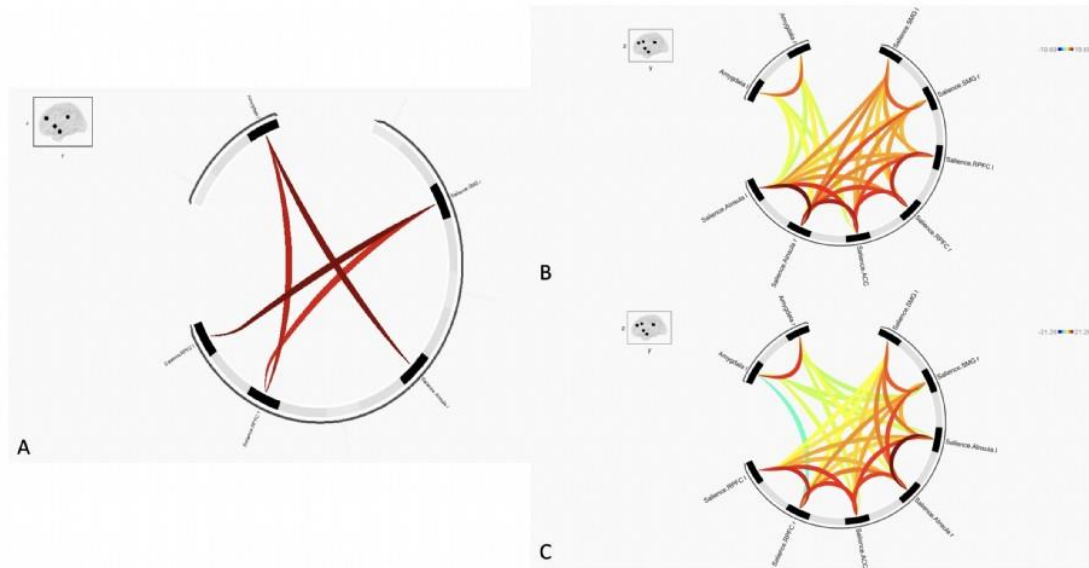


*A: Control>Depression, B: Control, C: Depression*

**Figure 3: Salience Network Connectivity Pattern**
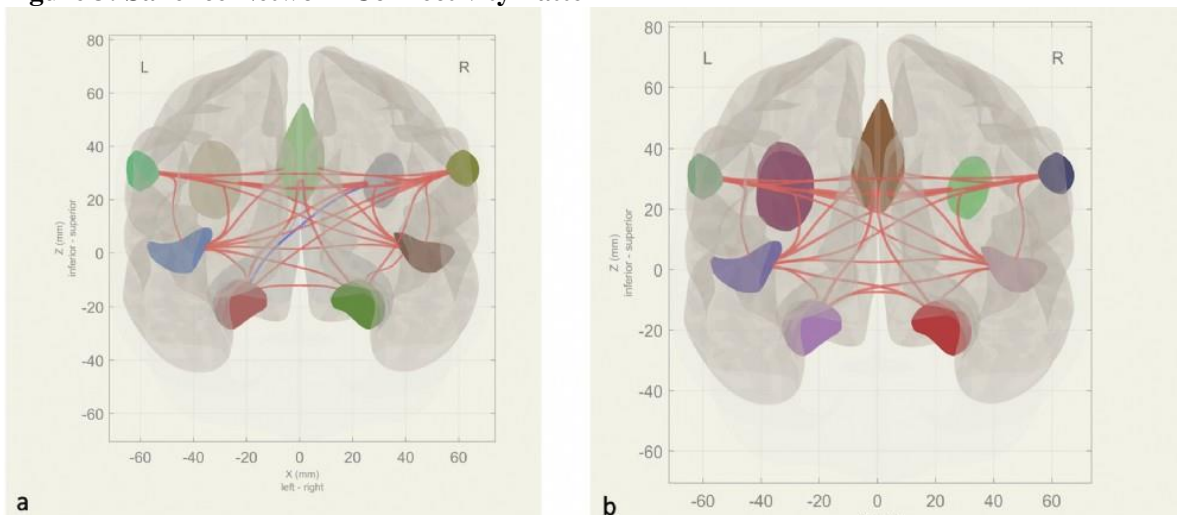


*a)SN connectivity pattern in depression b)SN connectivity pattern in control.*

**Conclusion:** The altered connectivity between the rostral PFC and the right supramarginal gyrus may underlie some of the cognitive and emotional symptoms experienced by individuals with depression. The rostral PFC is associated with higher-order cognitive functions, such as decision-making and social behavior, while the right supramarginal gyrus is involved in attention and language processing. The altered connectivity between these regions may contribute to cognitive symptoms of depression, such as rumination (repetitive negative thinking), negative self-referential processing (biased self-perception), and difficulties in understanding and responding to emotional stimuli. Understanding this altered connectivity provides insights into how cognitive processes are affected in depression, which can guide the development of interventions targeting cognitive symptoms. In individuals with depression compared to controls, differences in connectivity patterns between the anterior insula and amygdala are observed. The anterior insula and amygdala are key regions involved in emotional processing and regulation. Another difference is decreased connectivity between the anterior insula and amygdala in depression. Reduced connectivity in this circuit may contribute to difficulties in emotional regulation and heightened emotional reactivity observed in depression.

Understanding the differences in connectivity patterns in depression provides valuable insights into the neural mechanisms underlying the disorder. These insights may help identify biomarkers or neural signatures of depression, facilitating early detection and personalized treatment approaches.

Moreover, knowledge of aberrant connectivity can inform the development of targeted interventions, such as neuromodulation techniques (e.g., transcranial magnetic stimulation) or psychotherapeutic approaches (e.g., cognitive-behavioral therapy), aimed at modulating connectivity and alleviating depressive symptoms.

By elucidating the neural underpinnings of depression and offering potential intervention strategies, this research contributes to improving the diagnosis and treatment of depression, ultimately enhancing the well-being of affected individuals.

In summary, understanding the altered connectivity patterns in depression provides critical insights into the neural basis of the disorder and informs the development of targeted interventions to alleviate symptoms and improve outcomes for individuals with depression.

**Keywords:** Depression; Functional Magnetic Resonance Imaging; Functional Connectivity; Brain Networks; Salience Network

[[1]     L. Parkes, T. D. Satterthwaite, ve D. S. Bassett, "Towards precise resting-state fMRI biomarkers in psychiatry: synthesizing developments in transdiagnostic research, dimensional models of psychopathology, and normative neurodevelopment", *Current Opinion in Neurobiology*, c. 65. 2020, doi: 10.1016/j.conb.2020.10.016.

[2]     K. J. Friston, "Functional and Effective Connectivity: A Review", *Brain Connect.*, c. 1, sayı 1, 2011, doi: 10.1089/brain.2011.0008.

[3]     V. Menon ve L. Q. Uddin, "Saliency, switching, attention and control: a network model of insula function.", *Brain structure & function*, c. 214, sayı 5–6. 2010, doi: 10.1007/s00429-010-0262-0.

[4]     D. Sridharan, D. J. Levitin, ve V. Menon, "A critical role for the right fronto-insular cortex in switching between central-executive and default-mode networks", *Proc. Natl. Acad. Sci. U. S. A.*, c. 105, sayı 34, 2008, doi: 10.1073/pnas.0800005105.

[5]     L. Luo *vd.*, "Abnormal large-scale resting-state functional networks in drug-free major depressive disorder", *Brain Imaging Behav.*, c. 15, sayı 1, 2021, doi: 10.1007/s11682-019-00236-y.

## 0328 - Comparison of Clinical Profile and Medication Usage Between Disruptive Mood Dysregulation Disorder and Major Depressive Disorder in Children

Helin Aburşu[1], Mehmet Fatih Ceylan[1], Selma Tural Hesapçıoğlu[1]

[1]Ankara Yildirim Beyazit University Yenimahalle Education and Research Hospital

**1. Objective:** DMDD is a relatively new diagnosis characterized by chronic irritability and anger outbursts, defined under the Depressive Disorders section in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition[1]. To meet the diagnostic criteria for DMDD, children and adolescents exhibit severe, recurrent, and disruptive temper outbursts at least three times per week. Both DMDD and MDD can characterized by irritability in childhood. It is acknowledged that children and adolescents diagnosed with DMDD exhibit an escalated propensity towards receiving a diagnosis of MDD during adulthood[2,3]. The study aims to compare the sociodemographic, clinical, and medication usage characteristics of these two groups presenting to the outpatient clinic with similar complaints, such as irritability and emotion regulation problems.

**2. Methods**

**2.1 Participants**

A cross-sectional study was conducted between March 2022 and March 2023 at the Child and Adolescent Psychiatry Clinic of Ankara Yıldırım Beyazıt University Yenimahalle Training and Research Hospital. The study included children and adolescents aged 6-18 years, along with their parents, who presented complaints of irritability, dysphoria, and unhappiness. Participants diagnosed with MDD or DMDD based on the Schizophrenia for School-Aged Children Present and Lifetime Version (K-SADS-PL) semi-structured interview[4] and who volunteered were included. In total, 106 children and adolescents diagnosed with DMDD and 127 children and adolescents diagnosed with MDD were included in the study. The study excluded children and adolescents diagnosed with autism spectrum disorder and psychotic disorder, as well as cases diagnosed with comorbid MDD and DMDD.

**2.2 Data Collection Tools**

After the K-SADS PL interview, children and adolescents diagnosed with DMDD or MDD were asked to complete the following measures: Children's Depression Inventory (CDI)[5] and the Strengths and Difficulties Questionnaire (SDQ)[6] Child Form. Parents completed the Sociodemographic Form and the SDQ Parent Form[6].

**2.3 Statistical Analysis**

Statistical analyses were performed using SPSS version 22. For continuous variables with a normal distribution, t-tests were utilized for comparison, whereas Mann-Whitney U tests were employed for those not normally distributed. Chi-square tests were used to compare categorical variables. A significance level of $p < 0.05$ was considered statistically significant.

**3. Results**: This study is the first to compare the clinical and sociodemographic characteristics as well as medication usage of individuals diagnosed with DMDD and MDD. The mean age of participants in the DMDD group (n=106) was $14.5 \pm 2.09$ years, while in the MDD group (n=127) it was $15.0 \pm 1.56$ years. There was no statistically significant difference in age between the groups. In the DMDD group, 75.4% of participants were female, while in the MDD group, 84.2% were female. Although both groups had a higher proportion of females, there was no significant difference in gender between the groups. Regarding socioeconomic status, 59.4% of participants in the DMDD group and 51.1% in the MDD group belonged to low socioeconomic status. The mean age of parents in the DMDD group was lower than in the MDD group. Individuals in the DMDD group witnessed significantly more domestic violence compared to those in the MDD group. In the DMDD group, 16 cases (15.0%) have dropped out of formal education, while in the MDD group, 4 cases (3.1%) have dropped out of formal education. Cases in the DMDD group exhibit significantly higher rates of school dropout.

The most commonly used medication group in the DMDD group was oral antipsychotics, with a rate of 84.4% (Figure 1). The most frequently used medication was risperidone, with a rate of 61.3%. In the MDD group, the most commonly used medication group was antidepressants, with a rate of 96.6% (Figure 1), and the most frequently used medication was sertraline, with a rate of 63.3%. When comparing the medication usage between the two groups, the DMDD group statistically significantly used more oral and depot antipsychotics, mood stabilizers, and ADHD medications compared

to the MDD group. Conversely, individuals with MDD used antidepressants significantly more than those with DMDD (Table 1).

**Table 1.** Comparison of medication groups used by cases

| Drug Group | DMDD N (%) | MDD N (%) | $\chi^2$ | p |
|---|---|---|---|---|
| **Antidepressant Drug Usage** | 53 (50,0) | 123 (96,8) | 68,628 | **0,000** |
| **Oral Antipsychotic Drug Usage** | 90 (84,9) | 56 (44,0) | 16,369 | **0,000** |
| **Depot Antipsychotic Drug Usage** | 20 (18,8) | 5 (3,9) | 13,447 | **0,000** |
| **Attention Deficit Drug Usage** | 50 (47,1) | 13 (10,2) | 39,950 | **0,000** |
| **Mood Stabilizer Drug Usage** | 15 (14,1) | 4 (3,1) | 9,337 | **0,002** |

DMDD: Disruptive mood dysregulation disorder, MDD: Major depressive disorder
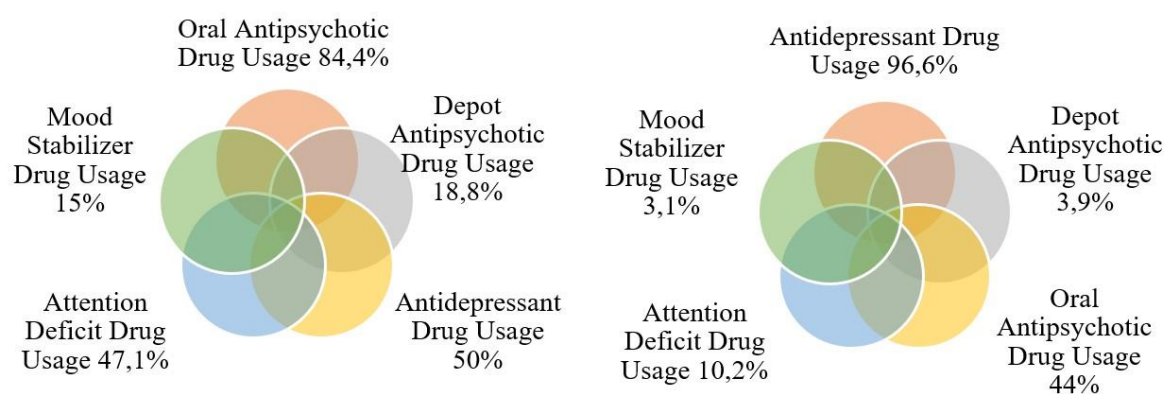


*Figure 1. Distribution of medication usage in DMDD and MDD cases.*

The three most common comorbid diagnoses in the DMDD group were ADHD (76.4%), conduct disorder (17%), and anxiety disorder (16%). Parents of individuals in the DMDD group reported significantly more behavioral problems, attention, and hyperactivity problems in their children compared to the MDD group. The prosocial score was significantly worse in the DMDD group than in the MDD group (Table 2). When examining the dysregulation profile, 45.2% of individuals in the DMDD group and 25.9% in the MDD group showed dysregulation.

**Tablo 2.** Comparison of problem areas reported by the cases' parents

| Strengths and Difficulties Questionnaire Parent Form | Diagnosis | Mean ± SD | t | p |
|---|---|---|---|---|
| **Hyperactivity score** | **DMDD** | 6,0 ± 2,3 | 5,990 | **0,000** |
| | **MDD** | 4,3 ± 2,0 | | |
| **Conduct problems score** | **DMDD** | 4,3 ± 2,1 | 5,638 | **0,000** |
| | **MDD** | 2,7 ± 2,0 | | |
| **Emotional problems score** | **DMDD** | 4,6 ± 2,7 | 2,070 | **0,040** |
| | **MDD** | 5,3 ± 2,5 | | |
| **Peer problems score** | **DMDD** | 3,7 ± 1,6 | 1,384 | 0,168 |
| | **MDD** | 4,0 ± 2,0 | | |

| Total difficulties score | DMDD | 18,8 ± 6,2 | 2,779 | **0,006** |
|---|---|---|---|---|
| | MDD | 16,5 ± 6,0 | | |
| Prosocial score | DMDD | 6,2 ± 2,5 | 2,533 | **0,012** |
| | MDD | 7,0 ± 2,1 | | |

DMDD: Disruptive mood dysregulation disorder, MDD: Major depressive disorder, SD: Standard deviation

## 4. Discussion

### 4.1 Comparison of sociodemographic and clinical characteristics

Our study found that individuals diagnosed with DMDD exhibit more attention and hyperactivity problems, as well as behavioral problems, compared to those diagnosed with MDD. Additionally, social adaptation is significantly worse in the DMDD group compared to the MDD group. In the literature, it has been noted that children and adolescents diagnosed with DMDD struggle with empathy and have deficits in theory of mind[13]. The verbal and behavioral outbursts of individuals with DMDD are likely associated with deficiencies in their social adaptation areas.

While DMDD involves significant emotion regulation disturbances, it presents a different and more severe clinical picture compared to MDD in terms of problem areas. It is observed to be a severe and chronically debilitating condition affecting social adaptation, school life, and family relationships.

There was no significant difference between the groups regarding age and gender. However, the mean age of mothers of individuals in the DMDD group is significantly lower. This finding may be associated with increased behavioral problems in children of younger mothers[7]. It is observed that individuals diagnosed with DMDD drop out of formal education significantly more than those with MDD. Witnessing domestic violence is also significantly more common in individuals diagnosed with DMDD. In the literature, it has been shown that children and adolescents exposed to domestic violence are at increased risk of exhibiting behavioral problems, experiencing disrupted school attendance, and displaying increased aggression[8-10].

In the DMDD group, 81 (76.4%) individuals have comorbid ADHD, 18 (17%) have conduct disorder, 17 (16%) have anxiety disorder, and 9 (8.5%) have substance use disorder diagnoses. Similar comorbid diagnoses are reported in the literature for DMDD[11-12].

### 4.2 Comparison of medication usage

There was no specific treatment guideline for the DMDD diagnosis group, similar to irritability and anger outbursts. Upon review of the literature, stimulants, second-generation antipsychotic medications, mood stabilizers, and antidepressant medications have been tried in children and adolescents diagnosed with DMDD[14-16]. In a retrospective study by Findling et al., it was found that 60.2% of patients in the DMDD diagnosis group were using ADHD medications, 58.9% were using antipsychotic medications, 54.3% were using antidepressant medications, and 27.3% were using mood stabilizers[12]. Despite exhibiting intense emotional dysregulation and being classified under depressive disorders, individuals diagnosed with DMDD use significantly more antipsychotic medications compared to mood stabilizers and antidepressants.

In conclusion, DMDD represents a psychopathology marked by profound behavioral disturbances associated with mood dysregulation, underpinned by deficits in social adaptation and empathy. Although there appears to be a requirement for substantial utilization of antipsychotic medications within clinical settings, prudent consideration is advised concerning potential adverse effects.

**Keywords:** Disruptive Mood Dysregulation Disorder, dysregulation, antipsychotics, major depressive disorder

## References

1- American Psychiatric Association (2013) Diagnostic and statistical manual of mental disorders: DSM-5. 5th edn. Washington, D.C.: American Psychiatric Publishing.

2- Copeland WE, Shanahan L, Egger H, Angold A, Costello EJ. Adult Diagnostic and Functional Outcomes of DSM-5 Disruptive Mood Dysregulation Disorder. American Journal of Psychiatry. 2014 Jun;171(6):668–74

3- B. Birmaher DB. Depressive and disruptive mood dysregulation disorders. In: Dulcan's Textbook of Child and Adolescent Psychiatry. 3rd ed. American Psychiatric Association Publishing; 2022. p. 245–78.

4- Unal F, Oktem F, Cetin Cuhadaroglu F, Cengel Kultur SE, Akdemir D, Foto Ozdemir D, et al. Reliability and Validity of the Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version, DSM-5 November 2016-Turkish Adaptation (K-SADS-PL-DSM-5-T). Turkish Journal of Psychiatry. 2019

5- Öy B. Çocuklar için depresyon ölçeği geçerlilik güvenlik çalışması. Türk Psikiyatri Dergisi. 1991;2:132–7

6- Güvenir T, ÖA, BB, AH, ŞB ve İS. Güçler ve Güçlükler Anketi'nin (GGA) Türkçe uyarlamasının psikometrik özellikleri. Çocuk ve Gençlik Ruh Sağlığı Dergisi. 2008 Feb;15:65–74

7- Agnafors S, Bladh M, Svedin CG, Sydsjö G. Mental health in young mothers, single mothers and their children. BMC Psychiatry. 2019 Dec 11;19(1):112.

8- Holt S, Buckley H, Whelan S. The impact of exposure to domestic violence on children and young people: A review of the literature. Child Abuse Negl. 2008 Aug;32(8):797–810.

9- Walker-Descartes I, Mineo M, Condado LV, Agrawal N. Domestic Violence and Its Effects on Women, Children, and Families. Pediatr Clin North Am. 2021 Apr;68(2):455–64.

10- Hughes HM. Psychological and behavioral correlates of family violence in child witnesses and victims. American Journal of Orthopsychiatry. 1988 Jan;58(1):77–90.

11- Freeman AJ, Youngstrom EA, Youngstrom JK, Findling RL. Disruptive Mood Dysregulation Disorder in a Community Mental Health Clinic: Prevalence, Comorbidity and Correlates. J Child Adolesc Psychopharmacol. 2016 Mar;26(2):123–30.

12- Findling RL, Zhou X, George P, Chappell PB. Diagnostic Trends and Prescription Patterns in Disruptive Mood Dysregulation Disorder and Bipolar Disorder. J Am Acad Child Adolesc Psychiatry. 2022 Mar;61(3):434–45.

13- Özyurt G, Öztürk Y, Tufan AE, Akay A, İnal N. Differential Effects of Disruptive Mood Dysregulation Disorder Comorbidity in Attention Deficit Hyperactivity Disorder on Social Cognition and Empathy. J Atten Disord. 2024 Feb;28(4):458-468. doi: 10.1177/10870547231215516. Epub 2023 Dec 8. PMID: 38069496.

## 0329 - The Effect of Depressıon in Schizophrenia and The Addition of Antidepressant Treatment to Cognıtıve Functions

Emine Önal[a], Bilge Çetin İlhan[a]

[a]Department of Psychiatry, Konya Beyhekim Psychiatry Clinic

**Objective/Introduction**: Schizophrenia is the most common and significant psychotic mental disorder, characterized by symptoms such as delusions, hallucinations, speech and behavior disorders. It is a heterogeneous disorder in terms of causes, onset, symptoms, course, treatment, and outcome. Therefore, it can be considered not as a single disease but as a group of disorders. (1) Depressive symptoms in schizophrenia are associated with disruptions in daily functioning, deterioration in quality of life, increased medication use, and more hospitalizations. (2) Cognitive impairment in schizophrenia is considered a fundamental feature, including positive and negative symptoms of the illness. Cognitive impairment holds a more crucial role than other factors in patients' adaptation and high functionality. Cognitive areas such as processing speed, attention, memory, executive functions/working memory, and social functions are evaluated in different domains. Recent studies have observed impairment in all these areas in schizophrenia patients. (3) Moreover, the development of depression in schizophrenia leads to increased mortality rates due to higher suicide rates. (4) The observation of negative symptoms and cognitive dysfunction in the nature of the disease can also lead to the oversight and untreated depression symptoms in the planning and follow-up of the disease's treatment. Our study aims to detect depressive symptoms in patients, arrange appropriate treatment plans, and demonstrate improvement in the mentioned conditions following suitable treatment. Our study is ongoing, and we are providing preliminary information from our research

**Method**: Our study included patients previously diagnosed with schizophrenia and diagnosed with depression (scoring 11 or above on the Calgary Depression Scale for Schizophrenia (CDSS)). The Positive and Negative Syndrome Scale (PANSS), Clinical Global Impression Scale (CGI), and Global Assessment Scales (GAS) were administered to the patients. The Auditory Verbal Learning Test (AVLT) and Trail Making Test (TMT) were used to assess immediate memory, verbal memory, and attention, psychomotor speed, and executive functions. The Suicide Probability Scale (SPS) was used to examine the patients' inclination towards suicidal behavior, hopelessness, suicidal behavior, self-negative evaluation, and hostility with its sub-scales.
Scale interviews conducted at weeks 0 and 6 compared clinical improvement and suicidal ideation in patients using different antidepressant medications for psychotic and depressive symptoms after the diagnosis of comorbid depression with schizophrenia. During the clinical examination, patients displaying depressive symptoms were assessed using the Calgary Depression Scale for Schizophrenia (CDSS), and patients meeting the appropriate score criteria were administered other scales and a sociodemographic data form.
Patients were provided with detailed explanations about the study, and their informed consent was obtained at both the initial and final interviews. For statistical analysis, the chi-square test was used for qualitative data, analysis of variance (ANOVA) for normally distributed data, and the Kruskal-Wallis test for non-conforming values.

**Results/Conclusions**: A total of 53 patients were included in the study, with 40 patients completing the follow-up interviews. Eight patients discontinued medication use due to side effects, and five patients did not attend the follow-up interviews. Treatment modification was applied to one patient. When comparing the results of the 40 patients who completed the study, statistically significant improvement was observed in the Calgary Depression Scale for Schizophrenia (CDSS), Clinical Global Impression Scale (CGI), Global Assessment Scales (GAS), Auditory Verbal Learning Test (AVLT), Trail Making Test (TMT), and Suicide Probability Scale (SPS) sub-scales of hopelessness, self-negative evaluation, and suicidal ideation after the use of antidepressant treatment.

A statistically significant decrease was observed in the Calgary Depression Scale for Schizophrenia (CDSS), which measures depressive symptoms, and in the Clinical Global Impression Scale (CGI), which evaluates clinical well-being. A significant increase was noted in the Global Assessment Scales (GAS), which assesses symptom severity and illness intensity. In the sub-parameters of the Auditory Verbal Learning Test (AVLT), measuring immediate memory, verbal learning, and verbal memory, statistically significant changes were observed. The Trail Making Test (TMT A-B), another test measuring cognitive functions, also showed statistically significant changes in its sub-parameters. The Suicide Probability Scale (SPS), predicting the likelihood of suicide, demonstrated statistically significant changes in the sub-parameters of hopelessness, self-negative evaluation, hostility, suicide, and the total score.

**Discussion**: The inherent cognitive impairment in schizophrenia, coupled with the addition of depression, highlights a crucial issue where the depressive impact on cognitive functions can adversely affect the quality of life and functionality of patients. In the literature, the addition of antidepressants to the treatment of schizophrenia patients is suggested to exacerbate cognitive impairment due to the nature of the disease, which includes not only cognitive decline from the beginning but also the addition of depressive symptoms. (5) Poor quality of life and impaired social adaptation are among the factors that increase the risk of self-harm in these patients. Recognizing this situation and adding appropriate antidepressant treatment can lead to improvement in patients' cognitive functions, enhance their adaptation, and potentially extend their lifespan.

**REFERANCES**

1.      Sadock BJ. Kaplan & Sadock's synopsis of psychiatry: behavioral sciences/clinical psychiatry: Wolters Kluwer Philadelphia; 2015.

2.      Öztürk MO, Uluşahin A. Ruh sağlığı ve bozuklukları: Nobel Tıp Kitabevleri; 2018.

3.      Schaefer J, Giangrande E, Weinberger DR, Dickinson D. The global cognitive impairment in schizophrenia: consistent over decades and around the world. Schizophrenia research. 2013;150(1):42-50.

4.      Bai W, Liu Z, Jiang Y, Zhang Q, Rao W, Cheung T, et al. Worldwide prevalence of suicidal ideation and suicide plan among people with schizophrenia: a meta-analysis and systematic review of epidemiological surveys. Translational psychiatry. 2021;11(1):552.

5.      Holthausen EA, Wiersma D, Knegtering RH, Van den Bosch RJ. Psychopathology and cognition in schizophrenia spectrum disorders: the role of depressive symptoms. Schizophrenia Research. 1999;39(1):65-71.

**Key Words**: Schizophrenia, Depressive Symptoms, Cognitive Function.

## 0330 - Comparison of Sociodemographic Characteristics of Patients with and without Neuroanatomical Variations- Preliminary Results

Yesim Saglam Oz[1], Ipek Ege Gurel Ficicioglu[1], Kerim Kiziltan[1], Ahmet Oz[2], Gul Karacetin[1]

[1]Department of Child and Adolescent Psychiatry, Bakirkoy Mazhar Osman Research and Training Hospital for Psychiatry, Neurology and Neurosurgery: Istanbul, Turkey
[2] Department of Radiology, Istanbul University-Cerrahpasa, Istanbul, Turkey

**Introduction:** The role of neuroanatomic variations in psychiatric disorders has become an increasing focus of interest in recent years. Common psychiatric disorders such as psychotic disorders and mood disorders have been associated with specific anomalies and changes in brain structures. In the recent literature academic research and case studies especially about mega cisterna magna (MCM) and cavum septum pellucidum (CSP), have increased and it has been mentioned that these variations may be associated with psychiatric diseases.

Mega cisterna magna refers to a variant characterized by a focal enlargement of the cerebrospinal fluid filled subarachnoid space in the inferior and posterior portions of the posterior cranial fossa. Brainstem structures are normal, it does not affect cerebrospinal fluid flow through the ventricles and it also does not compress any neighboring structures. Mega cisterna magna is thought to occur in approximately 1% of all brains imaged postnatally. It constitutes 54% of all cystic posterior fossa malformations[1]. There is very limited data that describes the association of mega cisterna magna with mania and schizophrenia. The evidence is limited to single case reports. There is no large-scale case series to study the relationship with the MCM and psychiatric disorders. There are multiple case-reports that linked MCM with schizophrenia and obsessive- compulsive disorder (OCD), manic episode, psychosis, and recurrent catatonia. Some studies suggest that the cerebellum is connected to many regions of the cerebral cortex by a circuit that is called cortico-cerebellar-thalamic-cortical circuit (CCTCC) and cerebellum may play a crucial role in this distributed circuit and coordinate or modulate aspects of cortical activity[2]. Although the exact etiology for mega cisterna magna, mania or schizophrenia is not clear, both the psychotic disorders and the mega cisterna magna may be the expression of a single underlying neurodevelopmental abnormality in relation with CCTCC[3].

The septum pellucidum forms the medial walls of the lateral ventricles and consists of two thin laminae that normally fuse shortly after birth. If the laminae do not fuse, a potential gap called "cavum septum pellucidum" (CSP) occurs. The incidence of CSP among healthy individuals varies considerably and is therefore considered as a normal anatomical variation of the brain. There are multiple studies that investigate the relation of midline brain abnormalities with mood

disorders and psychotic disorders. The role of aberrant neurodevelopmental processes in the pathophysiology of psychosis is largely emphasized in the literature[4]. Mood disorders are less emphasized from a neurodevelopmental disorder perspective, therefore midbrain abnormalities and mood disorders are less studied in the literature. The relation of these abnormalities with psychotic/mood disorders bring-out the dilemma about the role of neurodevelopmental abnormalities and the role of neurodegeneration.

This study aims to investigate the relationship between neuroanatomic variations such as MCM and CSP with psychotic disorders and mood disorders. In particular, it has evaluated the relationship of neuroanatomic variations with clinical features such as disease duration, disease severity, and medication burden. In this context, the potential contributions of neuroanatomic variations to the clinical course and potential treatment approaches are considered.

**Method:** The study included a total of sixteen patients, consisting of 8 patients with neuroanatomic variation from a tertiary referral center and 8 patients with a similar diagnosis but without neuroanatomic variation, which were randomly selected. In total, there are 8 patients diagnosed with schizophrenia and other psychotic disorders, and 8 patients diagnosed with mood disorders. The diagnostic evaluation has been made according to the DSM-5 diagnostic criteria with Kiddie-Schedule for Affective Disorders and Schizophrenia for

School-Age Children (6-18 Years) - Present and Lifetime Version. Illness severity and clinical symptoms were measured using rating scales. Subjects with substance use disorder head trauma, epilepsy, intellectual disability, chronic medical and neurological diseases were excluded. In cranial magnetic resonance imaging conducted to exclude organic pathology, findings meeting the definition of neuroanatomic variation (such as mega cisterna magna, cavum septum pellucidum, cavum vergae, etc.) were detected in 8 patients. The study protocol underwent scrutiny and approval by the local ethics committee. The aim was to investigate the hypothesis that patients with neuroanatomic variations may have longer disease duration, higher disease severity, and higher chlorpromazine equivalent doses.

**Results:** In the study sample, the mean age of patients with neuroanatomic variations was $17.2 \pm 0.7$ years, and 37.5% were female. There were no significant differences observed between the study groups in terms of gender, years of education (p=0.577), parental years of education (p=0.385, p=0.301), total disease duration (p=0.363), disease severity (p=0.554), smoking status, and mean chlorpromazine equivalent dose (p=0.316). Interestingly, for patients without neuroanatomic variations included in the study, higher chlorpromazine equivalent doses were detected.

**Discussion/Conclusion:** This study compares patients diagnosed with mood disorders and psychotic disorders with and without neuroanatomic variations in terms of socio-demographic characteristics, disease duration, disease severity, and medication burden. These findings suggest that neuroanatomic variations may play a significant role in the course of illness and response to treatment. In addition, some studies highlight a possible aberrant cerebellar functioning of cortico-thalamic-cerebellar-thalamic-cortical circuits in early- onset psychotic patients [5]. CSP is present in 100% of fetuses and premature infants, but the posterior half of the leaves typically fuse within 3-6 months[6]. The presence of CSP later in life may reflect neurodevelopmental abnormalities of structures bordering the septum pellucidum, such as the corpus callosum and hippocampus, and may be considered a sign of limbic system dysgenesis[7]. In a recent meta-analysis, Trzesniak et al. reported that the frequency of CSP ranged from 1.1% to 89.7% in healthy volunteers, and from 10.0% to 89.5% in patients with schizophrenia spectrum disorders [8].

In the literature, it has been found that CSP affects neighboring dense synaptic networks and irregularities in the distribution of serotonin (5-HT2A) receptors, which may affect the septal regulatory role in the limbic system[9]. Therefore, CSP may be more commonly encountered in schizophrenia due to similar pathological conditions.

 In our study, for patients without neuroanatomic variations, lower chlorpromazine equivalent doses to treat have been detected. This may raise a question of a possible dopaminergic neurotransmitter blockage in patients with neuroanatomical variations, therefore requiring less chlorpromazine equivalent doses for those patients. In the literature, reduced cerebellar inhibition in patients with schizophrenia was underlined, with less cerebellar purkinje cells found in patients with bipolar disorder and schizophrenia[10]. Considering these findings, neuroanatomical variations may also infer with cerebellar inhibition process. However, our preliminary study has some limitations such as male and female patients' quantity not being equal, and our patient sample being small with 16 patients in total, and study being cross-sectional. In literature, association between psychotic/mood disorders and neuroanatomic variations is usually presented as single case-reports, in our final study, we aim to collect and present multiple neuroanatomical variation cases to draw

attention to possible common and different features of the cases. Furthermore, larger samples and further research are needed to fully understand the mechanism of this relationship.

**Keywords:** Neuanatomical Variations, Psychotic Disorder, Mood Disorder

**References:**

1.      Kollias, S.S., Ball, W.S. and Prenger, E.C. (1993) 'Cystic malformations of the posterior fossa: Differential diagnosis clarified through embryologic analysis.', *RadioGraphics*, 13(6), pp. 1211–1231. doi:10.1148/radiographics.13.6.8031352.
2.      Andreasen, N.C. and Pierson, R. (2008) 'The role of the cerebellum in schizophrenia', *Biological Psychiatry*, 64(2), pp. 81–88. doi:10.1016/j.biopsych.2008.01.003.
3.      Langarica, M. and Peralta, V. (2005) 'Psicosis Asociada a megacisterna magna', *Anales del Sistema Sanitario de Navarra*, 28(1). doi:10.4321/s1137-66272005000100012.
4.      Insel, T.R. (2010) 'Rethinking schizophrenia', *Nature*, 468(7321), pp. 187–193. doi:10.1038/nature09552.
5.      Wilson, T.W. *et al.* (2009) 'Aberrant high-frequency desynchronization of cerebellar cortices in early-onset psychosis', *Psychiatry Research: Neuroimaging*, 174(1), pp. 47–56. doi:10.1016/j.pscychresns.2009.03.009.
6.      SHAW, C.-M. and ALVORD, E.C. (1969) 'Cava septi pellucidi et verg Æ: Their normal and pathological states', *Brain*, 92(1), pp. 213–224. doi:10.1093/brain/92.1.213.
7.      Nopoulos, P.C. *et al.* (1998) 'Frequency and severity of enlarged cavum Septi Pellucidi in childhood-onset schizophrenia', *American Journal of Psychiatry*, 155(8), pp. 1074–1079. doi:10.1176/ajp.155.8.1074.
8.      Trzesniak, C. *et al.* (2011) 'Are cavum septum pellucidum abnormalities more common in schizophrenia spectrum disorders? A systematic review and meta-analysis', *Schizophrenia Research*, 125(1), pp. 1–12. doi:10.1016/j.schres.2010.09.016.
9.      Meyer, J.H. *et al.* (2003) 'Dysfunctional attitudes and 5-HT2receptors during depression and self-harm', *American Journal of Psychiatry*, 160(1), pp. 90–99. doi:10.1176/appi.ajp.160.1.90.
10.      Buckley, P.F. (2011) 'Lower number of cerebellar Purkinje neurons in psychosis is associated with reduced Reelin expression', *Yearbook of Psychiatry and Applied Mental Health*, 2011, pp. 366–368. doi:10.1016/s0084-3970(10)79371-3.

**Table 1**. Sociodemographic Variables

| Clinical Variables | Patients with Neuroanatomical Variation (n=8) | Patients without Neuroanatomical Variation (n=8) | p |
|---|---|---|---|
| Gender, female, n (%) | 3 (37.5) | 3 (37.5) | 1 |
| Age, y, M ± SD | 17.2 ± 0.7 | 16.27 ± 0.9 | **0.044** |
| Eğitim, y, M ± SD | 9.6 ± 3.4 | 8.75 ± 2.6 | 0.577 |
| Education of Mother, y, M ± SD | 7.00 ± 4.2 | 5.00 ± 4.6 | 0.385 |
| Education of Father, y, M ± SD | 8.75 ± 5.5 | 6.25 ± 3.5 | 0.301 |
| CDI-S, M ±SD | 5.75 ± 0.8 | 6.00 ± 0.7 | 0.554 |
| Total Duration of Disease | 18.5 ± 16.3 | 11.8 ± 12.0 | 0.363 |
| Chlorpromazine Equivalent Dose , M ± SD | 595.6 ± 448.4 | 824.3 ± 431.4 | 0.316 |
| Suicidal Behavior, n (%) | 2 (25) | 2 (25) | |
| NSSI, n (%) | 3 (37.5) | 4 (50.0) | |

| Smoking, n (%) | 4 (50.0) | 4 (50.0) |
| --- | --- | --- |

Note: CDI: Clinical Global Impression Scale, M: mean, NSSI: non-suicidal self-injury, SD: standard deviation, y:years
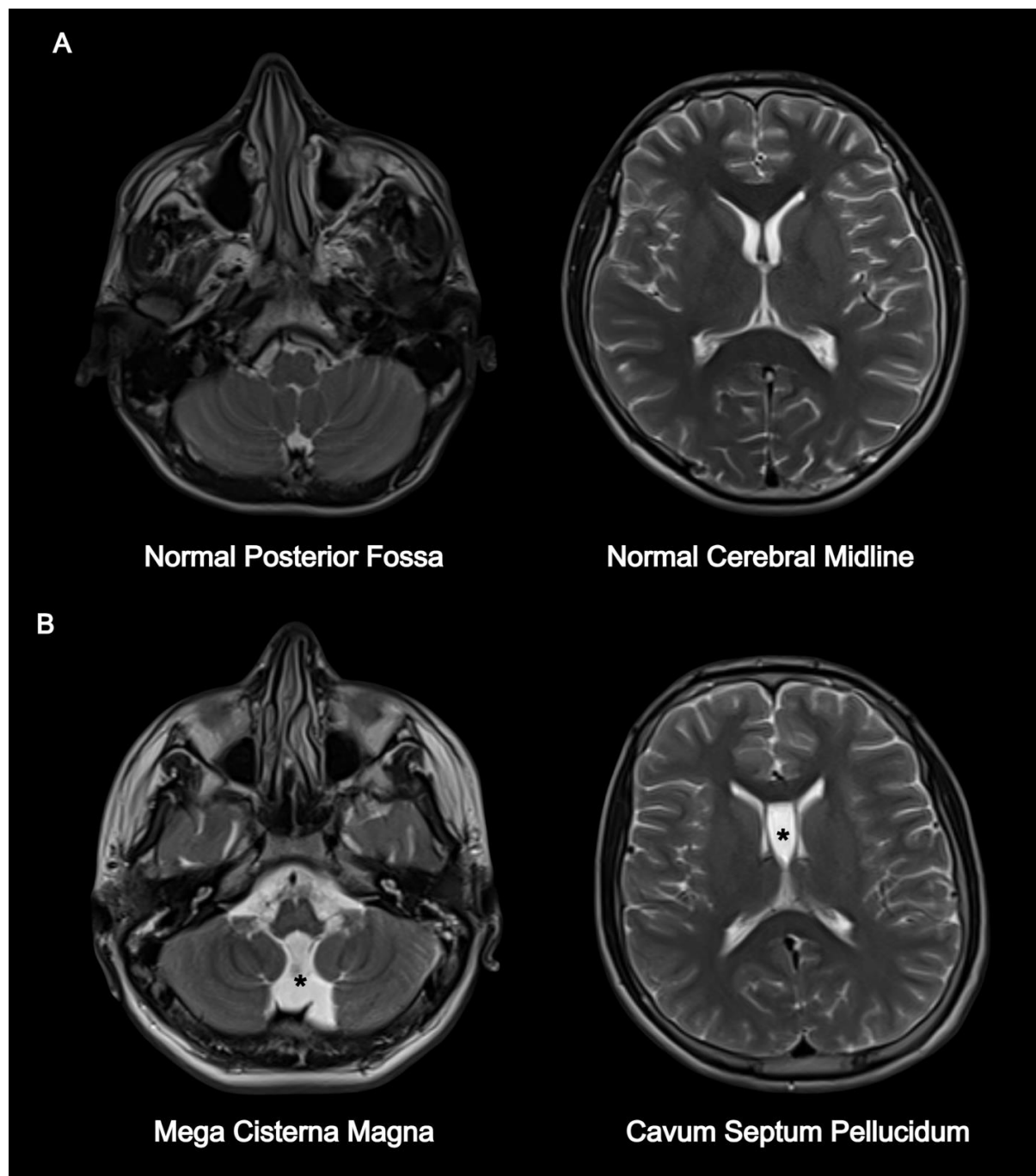


Figure 1. A. Normal posterior fossa and normal cerebral midline anatomy. B. Neuroanatomical variations (mega cisterna magna ve cavum septum pellucidum)

## 0334 - Parental Attitudes Towards Psychiatric Medication Use in Children and Adolescents

<u>Şefika Nurhüda Karaca Cengiz</u>[a], Mehmet Cengiz[b], Servet Yüce[c]

[a]Department of Child and Adolescent Psychiatry, Eskisehir City Hospital, Eskisehir, Turkey
[b]Department of Child Health and Diseases, Eskisehir Yunusemre Government Hospital, Eskisehir, Turkey
[c]Department of Child Health and Diseases, Sirnak Provincial Health Directorate Public Health, Sirnak, Turkey

**Objective:** Over the past 50 years, there has been a noticeable increase in the use of psychotropic medications in children. However, it has been reported that families often avoid medication use due to concerns about side effects and stigma, or they prematurely reduce or discontinue medications from those recommended [1, 2]. Attitudes of families towards the use of psychotropic medications have been examined in various populations [3, 4]. Attitudes against medication use have been reported due to various reasons such as not understanding the necessity of medication, perceiving side effects to be more significant than they are, and concerns about social exclusion and vocational obstacles [1-4]. Although concerns of families regarding psychotropic medication use are expressed in clinical practice in our country, to our knowledge, there is no study specifically addressing attitudes towards psychiatric medications in children and adolescents.

The aim of this study is to shed light on what can be done to facilitate changes in these attitudes by evaluating parents' attitudes towards seeking child psychiatric care for their children and towards the psychiatric medications recommended for them, and by informing families through child and adolescent psychiatrists and professionals in the field.

**Methods:** Our research included 348 parents with children aged 0-18 years, who participated in the study through an online survey after obtaining their consent. The survey collected socio-demographic data such as age, gender, psychiatric diagnoses, educational background, socioeconomic status, as well as attitudes towards seeking child and adolescent psychiatric care and psychiatric medications. A total of 33 questions were asked to parents. The responses to these questions were statistically analyzed using Pearson chi-square, Mann-Whitney U, Kruskal-Wallis tests, and Spearman correlation analyses. SPSS version 29.0 was utilized for the analyses, and a significance level of $p < 0.05$ was considered.

**Results:** Our study aimed to evaluate parental attitudes towards psychiatric medication use in children and adolescents, with a total of 348 parents participating, comprising 338 mothers (97.1%) and 10 fathers (2.9%). Among the respondents, 52.3% of children were male, and 47.7% were female, with a mean age of $7.0 \pm 3.9$ years.

The rate of previous referrals to child psychiatry among participants was 30.7% (n: 107/348), with 20.4% (n: 71) of these children receiving a diagnosis upon referral. The most common diagnoses were attention deficit hyperactivity disorder, anxiety disorder, autism spectrum disorder, depression, and language delay. The rate of medication prescription for diagnosed children was 15.8% (n: 55). Of these, 76.4% (n: 42) adhered to the prescribed medication regimen, while 20% (n: 11) did not initiate treatment, and 3.6% reported premature discontinuation.

When queried about their thoughts on psychiatric medications, 55.2% of parents believed these drugs induce sedation rather than therapeutic effects, whereas 44.3% believed in their therapeutic efficacy, 27.6% did not, and 28.2% were unsure. Furthermore, 60.9% of parents acknowledged the diverse mechanisms and effects of psychiatric medications, while 30.7% of parents were unsure about that.

Approximately 44.8% of parents (n:156) had received a psychiatric diagnosis themselves, with 79.5% of these individuals (124/156) receiving medication recommendations. Among those prescribed medication, 58.9% (n: 73/124) adhered to the regimen as directed by their psychiatrist. In the study, the presence of psychiatric diagnoses in the family was found to be 46.8% (n: 163/348). The rate of psychiatric medication use within the family was determined as 51.4% (n: 179/348). 53.4% of participants reported that psychiatric medications are "used more than necessary." The percentage of those who consider them to be used in a normal amount is 12.9%, while those who consider them to be used less than normal is 6.9%, and those who do not know/have no opinion is 26.7%. The percentage of participants who believe that psychiatric medications are more effective in high doses is 4.3%, while the percentage of those who believe that high doses do not have an effect in treatment is 78.7%. The rate of participants who use other medications (painkillers, antipyretics, antibiotics, etc.) for other complaints is recorded as 90.2%. Approximately two-thirds of participants (66.4%) stated that they are more afraid of psychiatric medications compared to other medications.

When asked about their concerns regarding the use of psychiatric medications in children, the most common were: concern about potential serious side effects (62.4%), fear of dependency (50.6%), concern about professional barriers due to record in the system (47.1%), belief that long-term use may cause brain damage (41.4%), and fear of stigma (31%). The percentage of participants with no concerns about the use of psychiatric medications in children is 13.2% (n: 46/348). 94.3% of participants stated that they would prefer their child to receive psychotherapy before starting medication when diagnosed with a psychiatric disorder.

Mothers who filled out the form believe that therapy alone or in combination with medication would be more effective in psychiatric illnesses compared to fathers (p: 0.038). Fathers, on the other hand, express that they find medication use and therapy together more effective.

Mothers were found to have a higher level of knowledge about treatment methods for psychological illnesses compared to fathers (p: 0.002). Regarding asking questions about treatment, mothers are more inclined to seek advice from another child psychiatrist, while fathers prefer to research on the internet or ask acquaintances (p<0.001). There was no relationship found between the educational and socioeconomic levels of parents and their attitudes towards psychiatric medications.

Parents who have previously sought psychiatric care for their child have a significantly lower rate of believing that psychiatric medications are overused (p: 0.009). Children of parents who themselves have previously received psychiatric diagnoses have significantly higher rates of seeking psychiatric care (p: 0.032). Families who have sought psychiatric care for themselves and taken their child to psychiatry have significantly higher rates of using medications properly and for an adequate period (p: 0.016). Families who have taken their child to psychiatry have higher confidence rates in the effectiveness of therapy and/or medication for common psychiatric illnesses (p: 0.003). Families who have taken their child to psychiatry have a significantly higher rate of consulting more reliable sources (another child psychiatrist, pharmacist, etc.) for questions regarding treatment (p: 0.037). Families who have taken their child to psychiatry have significantly lower rates of believing that psychiatric medications cause sedation/sleepiness rather than healing (p: 0.049).

**Discussion:** In recent years, like in other parts of the world, there has been an increase in the frequency of psychiatric medication use among children and adolescents in our country as well [5, 6]. The increase in medication use has led to a growing interest in evaluating parental attitudes towards medications in research studies [3, 4]. To our best knowledge, there is no study evaluating parental attitudes towards psychiatric medications in our country. In our study, while concerns about serious side effects of psychiatric medications among parents were found to be higher compared to other populations in previous studies, concerns about addiction and stigma were found to be at similar levels [3, 4]. In our study, the high level of concern about the risk of career choices due to system records may be particularly related to the high interest in professions such as military service, policing, and piloting, where psychiatric referrals and medication use are considered as elimination criteria by society, and this association may be related to psychiatric medication use. In our study, it was observed that mothers had a higher level of knowledge about psychiatric treatments compared to fathers. This finding is consistent with previous studies [3]. In our study, no relationship was found between the educational and socioeconomic levels of parents and their attitudes towards psychiatric medications. However, a study conducted in Oman in 2023 found that socioeconomic and educational levels were associated with seeking second opinions more frequently when psychiatric medications were prescribed [4].

It can be speculated that the higher frequency of taking children to child psychiatry by parents who have previously received psychiatric diagnoses themselves, and the significantly higher rates of using medications properly and for an adequate period by families who have sought psychiatric care for themselves and taken their child to psychiatry, may be associated with previously gaining awareness about psychiatry, positively influencing thoughts towards seeking psychiatric help and increasing adherence to treatment. It is believed that involving parents and psychiatrists in the process of shared decision-making by providing information about medication effects and side effects will support caregivers in making informed choices about treatment [2]. Considering the current workload of child and adolescent psychiatrists in our country, we believe that providing more detailed information to families about psychiatric medications, their mechanisms of action, and side effects, as well as increasing the dissemination of information by physicians through communication channels, will be beneficial in minimizing the likelihood of families not seeking psychiatric treatment due to incomplete or incorrect information.

**Keywords:** Psychiatric Medication, Parents, Attitudes, Children

**REFERENCES:**

[1]     Gronholm PC, Ford T, Roberts RE, Thornicroft G, Laurens KR, Evans-Lacko S. Mental Health Service Use by Young People: The Role of Caregiver Characteristics. PLOS ONE. 2015;10(3):e0120004.

[2]     McLaren JL, Barnett ER, Acquilano SC, Concepcion Zayas MT, Drake RE, Leyenaar JK. Psychotropic Polypharmacy and Antipsychotics in Children: A Survey of Caregiver's Perspectives. Community Mental Health Journal. 2022;58(3):512-6.

[3]     Lazaratou H, Anagnostopoulos DC, Alevizos EV, Haviara F, Ploumpidis DN. Parental attitudes and opinions on the use of psychotropic medication in mental disorders of childhood. Ann Gen Psychiatry. 2007;6:32.

[4]     Al-Harthi H, Al-Huseini S, Al-Shukaili M, Chan MF, Al-Mahrouqi T, Al-Breiki M, et al. Parental Attitude Towards the Prescription of Psychotropic Medications for Mental Disorders in Children in a Tertiary Care University Hospital in Oman. Sultan Qaboos Univ Med J. 2023;23(2):190-7.

[5]     Lopez-Leon S, Lopez-Gomez MI, Warner B, Ruiter-Lopez L. Psychotropic medication in children and adolescents in the United States in the year 2004 vs 2014. Daru. 2018;26(1):5-10.

[6]     Araz Altay M, Bozatlı L, Demirci Şipka B, Görker I. Current pattern of psychiatric comorbidity and psychotropic drug prescription in child and adolescent patients. Medicina. 2019;55(5):159.

## 0336 - Comparison of Sociodemographic Characteristics and Behavioral Patterns of Patients with Non-Suicidal Self-Injury Behaviour in a Closed Psychiatric Ward

Yesim Saglam Oz[1], <u>Kerim Kiziltan</u>[1], Nurdan Aydin[1], Gul Karacetin[1]

[1]Bakırkoy Mazhar Osman Research and Training Hospital for Psychiatry, Neurology and Neurosurgery: Istanbul, Turkey

**Introduction:** Non-suicidal self-injury (NSSI) is a highly dysfunctional disorder, which can be defined as the act of causing deliberate and direct harm to one's body tissue without suicidal intent. Many descriptions of NSSI have been made throughout the history such as "deliberate and intentional damage to one's body without suicidal intent". There are various NSSI methods that include cutting, hitting, scratching and burning oneself. (*1*) Nevertheless, research interest in NSSI has been increasing recently. It is also included in Section III of DSM-5. Major depressive disorder (MDD) is one of the most common psychiatric disorders and it is closely associated with NSSI. NSSI and MDD show major comorbidity. NSSI has been associated with a broad array of self-reported functions, including emotion-regulation, self-punishment or communication of distress. (*2*) In a recent study, it is shown that 34.2% of patients with MDD reported having a history of NSSI, and NSSI presence increased the risk of being diagnosed with MDD. (*3*) NSSI is thought to be related to emotional dysregulation and depressive symptoms, which are closely associated with MDD. NSSI serves different functions such as listed above depending on the person's psychology and it is crucial to understand NSSI behavior to be able to approach MDD patients with NSSI, hence have better treatment prognosis according to the NSSI pattern.

**Methods:** The study included 51 MDD adolescent patients who were admitted to our closed psychiatric ward due to their high suicidal risk and severe depressive complaints. The diagnostic evaluation has been made according to the DSM-5 diagnostic criteria with Kiddie-Schedule for Affective Disorders and Schizophrenia for School-Age Children (6-18 Years) - Present and Lifetime Version.Those patients also had been performing NSSI acts in response to various stressors and thoughts. The patients already had been on antidepressant treatment for a while but their depressive symptoms had proved to be resistant. We collected sociodemographic characteristics of patients and gave the patients Inventory of Statements of Self Injury form in Turkish to assess the patterns and thought processes of NSSI in those patients.

**Results:** In the study sample, 39 patients were female and 12 were male. The average age was 15.8 ±1.5 years. No significant difference in NSSI patterns was observed between genders. 34 (66.7%) patients had history of smoking and 10 (19,6%) patients had history of substance use, from those, 6 patients had been diagnosed with substance use disorder . There was no difference in the frequency of harm in the sample taken (p= 0.172). 44 (86.3%) patients had a previous history of suicide attempts, and the average number of suicide attempts of those patients was 2.2 ± 1.6. The most common pattern of NSSI was Cutting with 42(82.4%) patients, and the least common pattern was Rubbing Skin Against Rough Surfaces with 9(17.6%) patients. Severe Scratching and Interfering with Wound Healing were also common forms of NSSI with being present in All patients in the study were diagnosed with MDD, nevertheless, there were multiple comorbidities, such as post-traumatic stress disorder (10 patients), substance use disorder (6 patients), attention-deficit/hyperactivity disorder (14 patients), oppositional defiant disorder (8 patients) and conduct disorder (9 patients)

**Discussion:** This study aims to compare sociodemographic characteristics and NSSI patterns of patients with MDD. These findings suggest certain patterns of NSSI might be associated with some different outcomes. It has been shown that the prevalence of suicidal behavior is higher in individuals diagnosed with MDD and NSSI together. In our sample, 66.7% of our patients exhibited suicidal behavior. This indicates the importance of a more detailed assessment and close monitoring in cases where these two diagnoses coexist (*4*). As listed above, NSSI serves different functions and Inventory of Statements of Self Injury Form aims to differentiate the patient's thoughts and NSSI's function. It evaluates functions such as Affect Regulation, Interpersonal Boundaries, Self-Punishment and more. In our study, similar to the literature, the most commonly identified reasons for engaging in NSSI were affect regulation, followed by distress-self labeling and self-punishment (*5*).

The most common method of NSSI is reported to be cutting oneself (over 70%), followed by hitting, scratching, banging, and burning (*6*). In our sample, the most common form of self-harm among adolescents is cutting oneself. Cutting oneself is most prevalent among females. The difference between the female and male populations in our sample is consistent with the literature. However, the female population is higher in our sample, so caution should be exercised in generalizing this result. Meta-analysis results have shown that both clinical and non-clinical samples exhibit a higher prevalence of NSSI behavior among females compared to males (*7*). In our study, no significant difference was observed

between genders. It is also important to understand the underlying thought process of the functions that NSSI serves for the patient. This is only possible with evaluating the patient with the right approach. Comorbidities in MDD patients might be important in terms of NSSI patterns and also to understand the precipitating and perpetuating factors. It is evident to suggest that NSSI is associated with a range of psychological difficulties including depression, anxiety and post-traumatic stress disorder.  In literature, it is also shown that MDD with and without NSSI show different prognosis and even different physiological findings. (*8*)  It is showned that MDD patients with NSSI had alterations in the right lingual gyrus, right middle occipital gyrus, and right superior frontal gyrus in fMRI findings. In our preliminary study, we manage to assess patients from our closed psychiatric ward, howerer, studying NSSI patterns of patients from outpatient clinics could be meaningful to reflect a wider portion of the population. We plan to add more patients from outpatient clinic to our final study in order to enrich our understanding. Furthermore, larger samples and further research are needed to fully understand the underlying behavioral patterns and mentality of NSSI.

**Table.1 Sociodemographic Characteristics**

| Variables | MDD (n=51) |
|---|---|
| Age, y, M ± SD | 15.8 ±1.5 |
| Education, y, M ± SD | 9.3 ± 2.3 |
| Mother's education, y, M ± SD | 9.5 ± 4.2 |
| Father's education, y, M ± SD | 9.2 ± 4.4 |
| Sex, female, n (%) | 39(76.5) |
| Smoking, n (%) | 34(66.7) |
| Suicide attempt, n (%) | 44(86.3) |
| Number of previous suicide attempts, M ± SD | 2.2 ± 1.6 |
| NSSI in the last 1 year, n (%) | 44(86.3) |
| Number of NSSI in the last 1 year, M ± SD | 17.2 ± 56.8 |

*M: mean, MDD: Major Depressive Disorder, NSSI: Non-Suicidal Self-Injury, SD: standard deviation, y: years*

**Table.2 NSSI types**

| | |
|---|---|
| Cutting, n (%) | 42(82.4) |
| Biting, n (%) | 12(23.5) |
| Burning, n (%) | 10(9.6) |
| Carving, n (%) | 15(29.4) |
| Pinching, n (%) | 11(21.6) |
| Pulling Hair, n (%) | 17(33.3) |
| Severe Scratching, n (%) | 29(56.9) |
| Interfering with Wound Healing, n (%) | 21(41.2) |
| Rubbing Skin Against Rough Surface, n (%) | 9(17.6) |
| Sticking Self with Needles, n (%) | 10(19.6) |
| Swallowing Dangerous Substances, n (%) | 21(41.2) |

*NSSI: Non-Suicidal Self-Injury*

**Table.3 Comorbidities**

| | |
|---|---|
| Substance Use Disorder, n (%) | 6(11.8) |
| Post-Traumatic Stress Disorder, n (%) | 10(19.6) |
| Attention-Deficit/Hyperactivity Disorder, n (%) | 14(27.5) |
| Oppositional Defiant Disorder, n (%) | 8(15.7) |
| Conduct Disorder, n (%) | 9(17.6) |

**REFERENCES**

1- Muehlenkamp JJ, Gutierrez PM. An investigation of differences between self-injurious behavior and suicide attempts in a sample of adolescents. Suicide Life Threat Behav. 2004 Spring;34(1):12-23. doi: 10.1521/suli.34.1.12.27769. PMID: 15106884.

2- Edmondson AJ, Brennan CA, House AO. Non-suicidal reasons for self-harm: A systematic review of self-reported accounts. J Affect Disord. 2016 Feb;191:109-17. doi: 10.1016/j.jad.2015.11.043. Epub 2015 Nov 28. PMID: 26655120.

3- Kang L, Li R, Liu H, et al.. Nonsuicidal self-injury in undergraduate students with major depressive disorder: the role of psychosocial factors. J Affect Disord 2021;290:102–8. 10.1016/j.jad.2021.04.083

4- Knorr AC, Tull MT, Anestis MD, Dixon-Gordon KL, Bennett MF, Gratz KL. The Interactive Effect of Major Depression and Nonsuicidal Self-Injury on Current Suicide Risk and Lifetime Suicide Attempts. Arch Suicide Res. 2016 Oct-Dec;20(4):539-52. doi: 10.1080/13811118.2016.1158679. Epub 2016 Mar 8. PMID: 26953789; PMCID: PMC5072359.

5- Laye-Gindhu, A., Schonert-Reichl, K.A. Nonsuicidal Self-Harm Among Community Adolescents: Understanding the "Whats" and "Whys" of Self-Harm. J Youth Adolescence 34, 447–457 (2005).

6- Whitlock J, Eckenrode J, Silverman D. Self-injurious behaviors in a college population. Pediatrics. 2006 Jun;117(6):1939-48. doi: 10.1542/peds.2005-2543. PMID: 16740834.

7- Bresin K, Schoenleber M. Gender differences in the prevalence of nonsuicidal self-injury: A meta-analysis. Clin Psychol Rev. 2015 Jun;38:55-64. doi: 10.1016/j.cpr.2015.02.009. Epub 2015 Mar 6. PMID: 25795294.

8- Yan R, Huang Y, Shi J, Zou H, Wang X, Xia Y, Zhao S, Zhou H, Chen Y, Li X, Wu X, Yao Z, Lu Q. Alterations of regional spontaneous neuronal activity and corresponding brain circuits related to non-suicidal self-injury in young adults with major depressive disorder. J Affect Disord. 2022 May 15;305:8-18. doi: 10.1016/j.jad.2022.02.040. Epub 2022 Feb 15. PMID: 35181386.

**0339 - Assessment of Suicide Attempt Frequency in Late Adolescents with Gender Dysphoria and its Relationship with Resilience**

Gizem Durcan[1], Hilal Doktur[2], Şenol Turan[3], Pınar Kadıoglu[4]

[1]Department of Child and Adolescent Psychiatry, Medical Faculty of Cerrahpasa, Istanbul University-Cerrahpasa, Istanbul, Turkey
[2]Department of Child and Adolescent Psychiatry, Bakirkoy Training and Research Hospital for Mental Health and Neurological Disorders, Istanbul, Turkey
[3]Department of Psychiatry, Medical Faculty of Cerrahpasa, Istanbul University-Cerrahpasa, Istanbul, Turkey
[4]Division of Endocrinology and Metabolism, Department of Internal Medicine, Cerrahpasa Faculty of Medicine, Istanbul University-Cerrahpasa, Istanbul, Turkey

**Objective:** Although gender dysphoria is defined as the feeling of belonging to the opposite sex from early childhood, it is often diagnosed in adolescence and these individuals experience various problems in social environments such as family, friends and school. In a large-sample community-based study, it was shown that individuals with gender dysphoria had higher suicidality (suicidal ideation and attempt) and self-harm than those without gender dysphoria [1]. Although the factors associated with increased suicidality in individuals with gender dysphoria have not been clearly defined, there are studies showing that stressful life events may be effective [2]. It is known that individuals' responses to similar stressful life events may be different and resilience may play an important role in this. Resilience is seen as the process of adapting to significant sources of stress such as trauma, threat, tragedy or family and relational distress, serious health problems, workplace and financial problems [3]. The aim of this study was to evaluate the frequency of suicidal thoughts and attempts in late adolescents who are gender dysphoria and to examine the relationship between suicide attempts and depression, anxiety scores and psychological resilience.

**Methods:** Study Participants
The study included 104 late adolescents aged 18-25 years with gender dysphoria who were admitted to Istanbul University-Cerrahpaşa, Cerrahpaşa Medical Faculty, Psychiatry and Endocrinology outpatient clinics. Gender dysphoria was diagnosed by an experienced psychiatrist through clinical evaluation based on DSM-5 diagnostic criteria.
Study Procedure
Participants were asked to complete the sociodemographic data form created by the researchers, the Psychological Resilience Scale for Adults and the Hospital Anxiety and Depression Scale (HAD).
In addition to clinical and demographic information, suicidality and discrimination were also assessed in the sociodemographic form. Non-suicidal self injury (NSSI) was assessed by asking the question "Have you ever attempted to harm yourself without the intent to die?". Suicidal ideation was assessed by asking "Have you ever had suicidal ideation?" (Have you ever thought of killing yourself?) and suicide attempt was assessed by asking "Have you ever attempted suicide?" (Have you ever tried to kill yourself?). Participants were also asked "Do you feel discriminated against by society?
The evaluation of the resilience scale was done in such a way that the higher the score, the higher the psychological resilience. Increased scores on the HAD scale indicate increased symptoms of depression and anxiety, and the cut-off scores of the scale are 11 for anxiety and 7 for depression.
Statistical analysis
Statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS) software (version 21.0). Descriptive statistical methods (Frequency, Percentage, Mean, Standard deviation, median and IQR [25-75]) were examined and Kolmogorov - Smirnov distribution test was used to examine the normal distribution. Categorical variables were compared using Pearson's Chi-square test and Fischer Exact test. Since the data did not show normal distribution, the Mann – Whitney U test were used for group comparisons and Spearman's correlation analysis for intercorrelations between continuous parameters. The results with reliabilities of 0.95 or greater were interpreted and P-values <0,05 were considered as significant.

**Results:** Of the individuals with gender dysphoria, 77 (74%) were female to male (FtM) and 27 (26%) were male to female (MtF) with a mean age of 21.2 ± 1.8 years. Sixty (57.7%) smoked cigarettes, 51 (49%) drank alcohol, and no one abused substance. There was no significant difference between MtF and FtM in terms of alcohol use, NSSI, presence of suicidal ideation and attempt, whereas smoking was more frequent in the FtM group. Comparison of sociodemographic characteristics of MtF and FtM groups is given in Table 1. In scale comparisons, no statistically significant difference was found between MtF and FtM in terms of depression, anxiety and resilience scores (for all p > 0.05).

Thirty-three (31.7%) reported non-suicidal self injury (NSSI), 46 (44.2%) reported suicidal ideation, and 21 (20.2%) reported suicide attempts. The age and educational levels of suicide attempters were similar to those of non-suicide attempters. Although not statistically significant, two thirds of the patients with suicide attempts thought that they were discriminated against in the community, whereas only half of the patients without suicide attempts thought so (p = 0.283). While depression and anxiety scores were significantly higher in suicide attempters compared to non-suicide attempters, resilience scores (except family cohesion and social resources subscales) were significantly lower. The comparison of depression, anxiety and resilience scores of those with and without suicide attempts is given in detail in Table 2.

**Discussion:** This study showed that about half of late adolescents with gender dysphoria had suicidal ideation and one in five had suicide attempts. We also showed that resilience was significantly lower in those who attempted suicide.

Although there are varying rates in the literature, there are studies reporting up to 50% suicide attempts in individuals with gender dysphoria [4]

Recent metaanalysis results show that internal and external minority stress factors have an impact on suicidality with varying effect sizes [5,6]

Gosling et al., 2022; Pellicane and Ciesla, 2022). In our study, although it was not statistically significant, the rate of those who thought they were discriminated against was higher among those who attempted suicide. Our low sample number may have caused the results to be statistically insignificant. In addition, lower resilience may create vulnerability to stressful life events, leading to an increase in suicidality.

In addition to high depression and anxiety scores, low resilience scores in suicide attempters indicate the importance of evaluating factors such as resilience in addition to psychiatric diagnoses in the follow-up of transgender individuals.

**Key Words:** Gender Dysphoria, Late Adolescents, Resilience, Suicide, Transsexualism

**References**
1.      Mitchell HK, Keim G, Apple DE, Lett E, Zisk A, Dowshen NL, Yehya N. Prevalence of gender dysphoria and suicidality and self-harm in a national database of paediatric inpatients in the USA: a population-based, serial cross-sectional study. Lancet Child Adolesc Health. 2022;6(12):876-884
2.      Guzman-Parra J, Sánchez-Álvarez N, Guzik J, Bergero-Miguel T, de Diego-Otero Y, Pérez-Costillas L. The Impact of Stressful Life Events on Suicidal Ideation in Gender Dysphoria: A Moderator Effect of Perceived Social Support. Arch Sex Behav. 2023;52(5):2205-2213
3.      Guzmán-González M, Barrientos J, Saiz JL, Gómez F, Cárdenas M, Espinoza-Tapia R, et al. Salud mental en población transgénero y género no conforme en Chile. Rev Med Chil [Internet]. 2020;148(8):1113–20
4.      Toomey RB, Syvertsen AK, Shramko M. Transgender Adolescent Suicide Behavior. Pediatrics 2018; 142(4)
5.      Gosling, H., Pratt, D., Montgomery, H., & Lea, J. The relationship between minority stress factors and suicidal ideation and behaviours amongst transgender and gender non-conforming adults: A systematic review. *Journal of Affective Disorders 2022;303*(15):31–51
6.      Pellicane, M. J., & Ciesla, J. A. Associations between minority stress, depression, and suicidal ideation and attempts in transgender and gender diverse (TGD) individuals: Systematic review and meta-analysis. *Clinical Psychology Review 2022;91*:102–113

**Table 1. Sociodemographic Characteristics of Participants**

| | Female to Male (n=77) | Male to Female (n=27) | $X^2/Z$ | p |
|---|---|---|---|---|
| | **n (%) or Median (IQR 25-75)** | | | |
| **Age (years)** | 21 (20-23) | 21 (20-22) | -0.654 | 0.513 |
| **Education (years)** | 12 (12-14) | 13 (12-15) | -1.410 | 0.158 |
| **Smoking cigarettes** | 50 (65%) | 10 (37%) | 5.283 | 0.022 |
| **Drinking alcohol** | 42 (55%) | 9 (33%) | 2.800 | 0.094 |
| **Presence of lifetime non-suicidal self injury** | 28 (36%) | 5 (19%) | 2.173 | 0.140 |
| **Lifetime presence of suicidal ideation** | 35 (45%) | 11 (41%) | 0.040 | 0.842 |
| **Lifetime presence of suicidal attempt** | 18 (23%) | 3 (11%) | 1.183 | 0.277 |

**Table 2. Comparison of depression, anxiety and resilience subscales in suicide attempters with non-suicide attempters**

| | Non-suicide attempters (n=83) | Suicide attempters (n=21) | Z | p |
|---|---|---|---|---|
| | **Median (IQR 25-75)** | | | |
| **HAD-depression** | 4 (2-8) | 9 (6-10.5) | -3.338 | 0.001 |
| **HAD-anxiety** | 7 (2-9.25) | 10 (7-14) | -2.849 | 0.004 |
| **Structured style** | 16 (13-20) | 12 (8.25-15) | -3.770 | <0.001 |
| **Perception of future** | 19 (13-20) | 16 (12-16.75) | -2.403 | 0.016 |
| **Family cohesion** | 21 (15-26) | 20.5 (16-25.75) | -0.576 | 0.564 |
| **Perception of self** | 26 (22-30) | 18.5 (16-25.75) | -3.573 | <0.001 |
| **Social competence** | 25 (21-27) | 20 (10.75-24.75) | -2.885 | 0.004 |
| **Social resources** | 29 (26-32) | 28 (20.5-32.75) | -0.528 | 0.597 |

*HAD: Hospital Anxiety and Depression Scale*

## 0343 - The Effects of Hypoglycemia Anxiety on Quality of Life of Adolescents with Type1 Diabetes and Their Parents, and its Relationship with Comorbid Psychiatric Disorders

Belde Baca[a], Seda Aybüke Sarı[b], Nurullah Çelik[c],

[a] Erenköy Ruh ve Sinir Hastalıkları Eğitim ve Araştırma Hastanesi Çocuk ve Ergen Psikiyatrisi ve Hastalıkları AD
[b] Hatay Mustafa Kemal Üniversitesi Çocuk ve Ergen Psikiyatrisi ve Hastalıkları AD
[c] Sivas Cumhuriyet Üniversitesi Tıp Fakültesi Çocuk Endokrinoloji Anabilim Dalı

**Background:** Type 1 diabetes mellitus (T1DM) is a chronic disease characterized by atüre deficiency due to the autoimmune destruction of pancreatic beta cells. It is commonly diagnosed in childhood, requiring lifelong care. Hypoglycemia is a frequent complication, causing significant anxiety in individuals with T1DM. Adolescents with T1DM often feel anxious and dependent, affecting their ability to manage the disease independently. Studies indicate that diabetic adolescents, particularly girls, are more prone to depression than their healthy peers. Lack of support and social stigma can worsen their mental health and disease control, reducing their quality of life. Research suggests that maintaining strong metabolic control can improve the quality of life in diabetic adolescents. Psychological disorders are 2-3 times more common in T1DM adolescents compared to the general population, with anxiety, depression, adjustment disorders, and eating disorders being more prevalent. The chronic atüre of T1DM and its potential for causing permanent disabilities and irreversible changes, as well as the need for long-term care, increase the burden on parents, leading to emotional stress. This study aims to determine the level of hypoglycemia anxiety in T1DM adolescents and their parents, examine its impact on their quality of life, determine if there are accompanying psychiatric disorders in these adolescents, treat them if present, and determine to what extent these disorders affect psychiatric disorders associated with hypoglycemia anxiety.

**Aim:** To determine the hypoglycemia anxiety (HA) levels of adolescents diagnosed with Type 1 Diabetes Mellitus (T1DM) and their parents and to examine the effect of HA on the quality of life (Qol).

**Patients and Methods:** This study included 79 patients aged 12-18 years diagnosed with T1DM at least three months ago and being followed up at the Sivas Cumhuriyet University Faculty of Medicine Pediatric Endocrinology outpatient clinic, along with their parents. Patients with mental retardation or additional medical or neurological conditions that would hinder their understanding of the scale forms were excluded. The researchers conducted a survey with the participating children and their parents, which included sociodemographic information and questions related to T1DM. All adolescents and parents participating in the study were given the Virginia University Pediatric/Adolescent Low Blood Sugar Scale to measure their hypoglycemia anxieties, and the Childhood Quality of Life Parent Form to measure their quality of life.
Survey form was used for data collection. The survey form included questions regarding participants' sociodemographic data and questions about T1DM, such as the year of diagnosis, frequency of daily blood sugar measurements, method of insulin use, latest HbA1c value, frequency of hypoglycemia, hospitalization status, treatment and diet compliance, presence of additional medical conditions, and history of psychiatric consultation.
SPSS 22.00 was used for data analysis, with parametric tests for comparisons and the chi-square test for count data. Results were presented as mean ± standard deviation, median (Minimum-Maximum), or percentages. A significance level of 0.05 was considered.

**Results:** Seventy-nine adolescents with Type 1 DM were included. 51.9% were female, 48.1% male, with a mean age of 13.48±0.22 years. The sociodemographic data are in Table 1. 36.7% were diagnosed <2 years ago, 25.3% 2-5 years ago, and 38% over 5 years ago. They checked blood sugar 6.7±4.1 times/day. Hypoglycemia frequency was 1.73±0.31 in 15 days, 3.25±0.5 in a month, and 6.9±8.3 in 3 months. Hospitalization was <2 times for 69.6% and ≥2 times for 30.6%. Cases were grouped by HbA1c levels and diagnosis year. No gender differences were found (p=0.86, p=0.62). Maternal and paternal education showed significant differences (p=0.005, p=0.003), indicating better control with higher education. When grouped by HbA1c levels, no significant difference was found in scores from the Low Blood Sugar Scale (LBSS) or the Children Low Blood Sugar Scale (CLBSS) (p=0.674, p=0.768, p=0.83). No significant difference was found based on diagnosis duration (p>0.05). Psychiatric disorders reduce perceived quality of life for both the child and the parent. Adolescents with psychiatric disorders had lower perceived quality of life. Correlation Analyses revealed a positive correlation was found between parental "anxiety" and adolescent "behavior" scores (r=0.243, p=0.031). No significant relationship was found between CQLSA and CQLSP subscales. Strong correlations were found among other subscales. There was no significant relationship between CQLSA and CQLSP scores and LBSS scores. A positive

correlation was found only between CQLSA and LBSS total scores (p<0.001). As fear of hypoglycemia increased, perceived quality of life decreased.

**Conclusion:** This study sheds light on the challenges adolescents with T1DM face, emphasizing the importance of psychological support and tailored care to improve their quality of life. In our study, we examined how gender, parental occupations, economic status, family structure, and place of residence relate to HbA1c levels in adolescents with Type 1 Diabetes (T1DM). While no statistically significant differences were found for most factors individually, there was a significant relationship with parental education levels. Studies have shown conflicting results regarding the relationship between fear of hypoglycemia and gender. Our study did not find a significant relationship, possibly due to the small sample size. The study also found a negative correlation between the frequency of hypoglycemia episodes and HbA1c levels, consistent with existing literature on glycemic control in T1DM adolescents. Many studies have examined the relationship between fear of hypoglycemia and glycemic control in children, with some finding no link between the two, while others have found a positive association between parents' fear of hypoglycemia and children's glycemic control. Our study did not find a significant relationship between these factors. Additionally, autoimmune diseases are more common in individuals with Type 1 Diabetes (T1DM), with thyroid diseases being the most common among adolescents in our study. Despite the challenges of managing a chronic illness, adolescents generally perceive themselves as healthy, as evidenced by their quality of life scores.

Many studies have examined the relationship between fear of hypoglycemia and quality of life. Consistent with studies, our study also found a strong negative relationship between fear of hypoglycemia and quality of life. Additionally, studies examining the relationship between parents' perceived quality of life for their children and fear of hypoglycemia have shown varying results. Our study also found a statistically significant negative relationship between parents' perceived quality of life for their children and fear of hypoglycemia. Furthermore, our study revealed a statistically significant negative relationship between adolescents' fear of hypoglycemia and their quality of life. This is consistent with literature showing that high fear of hypoglycemia is associated with decreased quality of life.

In numerous studies, the relationship between glycemic control and psychiatric disorders has been explored, often using HbA1c levels as an indicator. Poor metabolic control is believed to increase the risk of psychological maladjustment and diabetes-related complications. Stress and mental illness can affect metabolic control directly through endocrine pathways. Factors like insulin resistance during adolescence, increased appetite, weight gain, body image issues, and adolescent maladjustment also impact physiological and psychological health. Psychiatric symptoms are thought to indirectly affect metabolic control by hindering self-care behaviors. Studies show a significant relationship between HbA1c levels and psychiatric diagnoses.

Hypoglycemia, a serious complication of insulin therapy, can lead to physical and psychological issues. Fear of hypoglycemia can result in various reactions, such as the fear of needing help, losing control, or appearing ridiculous. Individuals experiencing severe hypoglycemia may fear not recognizing it, experiencing it alone, feeling confused, exhibiting embarrassing behaviors, fainting in public, dizziness, making mistakes, or experiencing it during sleep or prolonged activity. Studies indicate that the fear of hypoglycemia increases the psychological burden.

The perceived quality of life of diabetic adolescents is not significantly different from that of healthy peers, but it is significantly lower in children with a psychiatric disorder accompanying T1DM. This underscores the importance of psychiatric support in diabetes management. Studies also show a positive correlation between hypoglycemia fear and psychiatric diagnoses in adolescents.

In our study, it was observed that as adolescents' fear of hypoglycemia increased, their perceived quality of life decreased, and the likelihood of comorbid psychiatric disorders increased. However, while there was a negative relationship between the perceived quality of life of parents with adolescent children and the child's comorbid psychiatric disorder, no significant relationship was found between parental fear of hypoglycemia and these factors. In conclusion, the challenges of adolescence and the difficulties and complications of living with a chronic disease like diabetes, including the fear of hypoglycemia, can reduce the quality of life in adolescents and increase the risk of developing psychiatric disorders. Therefore, an approach that focuses on the patient rather than the disease and the provision of psychiatric support can prevent the development of hypoglycemia, reduce the patient's fears of hypoglycemia, improve quality of life, and prevent or manage psychiatric disorders.

**Keywords:** Type 1 Diabetes Mellitus, Adolescents, Hypoglycemia Fear, Quality Of Life, Psychiatric Disorders

**0346 - Investıgatıng the Correlatıon between Screen Time and the Development of Adhd-Related Symptoms in**

## Adults Who Did Not Have a Prior Diagnosıs of Attentıon Defıcıt Hyperactivity Dısorder (Adhd) During Their Childhood Years

Gözde Bolu, Gülsüm Zuhal Kamiş
Ankara Bilkent Şehir Hastanesi

**Objectıve**: Developing technology has penetrated almost every aspect of our daily lives and has become an important part of most people's lives. It is reported that most adults use the internet every day, with about a quarter of them online most of the time. Studies have emphasized that frequent use of digital technology and intense screen time may have potential negative effects such as increased attention deficit symptoms, impaired emotional and social intelligence, technology addiction, social isolation, impaired brain development, and sleep disruption.

Most of the studies distinguishing between technology use and ADHD symptoms focus on children and adolescents. It is important to examine the duration of screen time and the development of psychiatric symptoms such as attention deficit, impulsivity, and affective changes in adults who do not have a history of ADHD. Therefore, to examine the relationships between screen time and attention deficit hyperactivity disorder symptoms and affective illness in adults after the age of 18 and who have not been diagnosed with ADHD in the past. By establishing these relationships in healthy individuals, valuable information can be obtained regarding the potential impact of screen viewing on ADHD symptoms.

**Method**: The research was approved by Ankara Bilkent City Hospital No. 1 Clinical Research Ethics Committee on 05.04.2023 with the number E1-23-34-29. The research was planned as a cross-sectional, descriptive study. Online surveys created by the researchers were distributed on widely used social media platforms, and the participants who clicked on the surveys first gave their consent through the Informed Consent Form, then completed the Sociodemographic Data Form, Screen Time Survey, Adult Attention Deficit and Hyperactivity Disorder Scale, Beck Depression Scale, Beck Anxiety Scale. was requested and the data were recorded by the researchers.
Materials
*Sociodemographic data form*: It is a form developed by researchers to record clinical characteristics such as age, gender, educational status, history of additional medical diseases, history of psychiatric diseases, smoking, alcohol and substance use.
*Screen Time Questionnaire*: It is an 18-item self-report scale. It allows calculating the average daily screen usage time of modern screen-based technological devices by querying the usage time of modern screen-based technological devices as primary activity and background activity on weekdays and weekends. The Turkish adaptation and validity and reliability studies of the scale were carried out by the researchers.
Adult Attention Deficit and Hyperactivity Disorder Scale (ASRS): It is one of the scales developed by WHO in 2004 to screen 'attention deficit' and 'hyperactivity/impulsivity' disorders. The scale has two subscales: attention deficit and hyperactivity (Kessler et al. 2005).
*Beck Depression Scale (BDS):* Developed by Aaron T. Beck and his colleagues in 1961, it is a 21-item, four-point Likert-type self-report scale that shows emotional, somatic, cognitive and motivational symptoms of depression (Beck et al. 1961).
*Beck Anxiety Scale (BAS):* It is a 21-item scale developed by Aaron T. Beck and his colleagues in 1988 (Beck et al. 1988).

**Results**

In our study, 206 people were reached and 166 people completed the survey. The sociodemographic data of the participants are shown in **table 1**.

**Table 1. Sociodemographic and Clinical Characteristics of Participants**

|  | **%** |
|---|---|
| **The average age(age±SD)** | 38.8±13.1 |
| **Gender** | |
| Woman | 59.60% |
| Man | 40.40% |
| **Marital status** | |
| Married | 55.40% |
| Not married | 44.60% |
| **Educational Status** | |
| Elementary school | 5% |
| High school | 1% |
| Associate degree | 4% |
| University and higher | 90% |
| **Working Status** | |
| Student | 5.4% |
| Housewife | 1.8% |
| Unemployed | 1.2% |
| Retired | 14.5% |
| Working | 77.1% |
| **Psychiatric History** | 12.7% |
| **Comorbid Medical Illness** | 26.5% |
| **Smoking** | |
| no | 65.7% |
| yes | 22.9% |
| ex-smoker | 11.4% |
| **Alcohol Use** | |
| Not using | 63.9% |
| ≤twice a week | 34.3% |
| > twice a week | 1.8% |

The results of the correlation analyzes between screen time and ASRS, BDS, BAS and age are presented in **table 2**.

**Table 2. The Correlations Between Screen Time ASRS, BDS, BAS scores and Age**

|  | Basic activity total screen time on weekdays | Basic activity total screen time on weekday nights | Weekend basic activity total screen time | Workday background total screen time | Weeknight background total screen time | Weekend background total screen time |
|---|---|---|---|---|---|---|
| Age | **p:0.026** **r:-0.173*** | p:0.631 r:-0.38 | **p:0.004** **r:-0.223**** | p:0.235 r:-0.93 | **p:0.035** **r:0.163*** | p:0.196 r:-0.101 |
| ASRS attention | p:0.510 r:0.51 | p:0.437 r:0.61 | **p:0.030** **r:0.168*** | **p:0.003** **r:0.231**** | p:0.080 r:0.136 | **p:0.013** **r:0.274*** |
| ASRD hyperactivity | p:0.154 r:0.111 | p:0.470 r:0.056 | p:0.016 r:0.186 | **p:0.003** **r:0.232**** | **p:0.010** **r:0.201**** | **p:0.020** **r:0.257*** |

| | | | | | | |
|---|---|---|---|---|---|---|
| ASRS total | p:0.0229<br>r:0.094 | p:0.427<br>r:0.062 | **p:0.014**<br>**r:0.191*** | **p:0.001**<br>**r:0.248**** | **p:0.015**<br>**r:0.188*** | **p:0.012**<br>**r:0.278*** |
| BDS | p:0.073<br>r:0.142 | p:0.233<br>r:0.094 | **p:0.002**<br>**r:0.243**** | p:0.055<br>r:0.161 | p:0.297<br>r:0.083 | p:0.129<br>r:0.120 |
| BAS | **p:0.034**<br>**r:0.190*** | p:0.274<br>r:0.099 | **p:0.001**<br>**r:0.296**** | p:0.448<br>r:0.069 | p:0.482<br>r:0.063 | p:0.311<br>r:0.091 |

ASRS: ADHD Self Report Scale  BDS: Beck Depression Scale BAS: Beck Anxiety Scale

Additionally it was determined that there was a positive correlation between ASRS total scores and total Beck depression and Beck anxiety scores (respectively r:0.516 $p<0.001$ and r:0.365 $p<0.001$).

The mean screen times of the participants (screen use as basic acitivity on weekdays, weekdays daytime and weekends, as background activity on weekdays and weekends) were compared in terms of sociodemographic characteristics and clinical characteristics, and the results are presented in **table 3.**

**Table 3. Mean Screen Time by Sociodemographic and Clinical Characteristics**

| | | Screen time (minutes mean+SD | | | | | |
|---|---|---|---|---|---|---|---|
| | | basic weekday activity | basic activity on weekday nights | basic activity on the weekend | Workday background | Weeknight background | Weekend background |
| gender | female | 433,6+259 | 297,2+168,9 | 486+275,3 | 142,9+122,7 | 121,2+108,9 | 201,7+157,4 |
| | male | 441.9+225.8 | 275.3+173.6 | 436.9+228.1 | 154.4+132.8 | 131.3+175.9 | 170.6+134.0 |
| marital status | not married | 469.1+249.8 | 301.6+178.3 | **523.3+282.1*** | 142.2+127.3 | **101.5+83.1*** | 187.4+153.8 |
| | married | 411.1+241.1 | 278.0+164.4 | **420.2+227.6*** | 151.8+126.6 | **144.4+170.0*** | 190.5+145.1 |
| working status | not working | 372.6+208.8 | 290.9+156.7 | **348.0+203.3**** | 123.4+139.6 | 164.1+178.8 | 169.0+176.6 |
| | working | 450.6+251.7 | 287.8+174.0 | **491.2+261.6**** | 152.7+123.7 | 117.04+128.9 | 193.4+142.4 |
| who he/she lives with | single | 478.0+260.2 | **372.7+209.1**** | **586.2+275.6**** | 163.8+145.4 | 118.2+85.5 | 238.9+183.1 |
| | family | 420.4+239.0 | **271.8+157.1**** | **426.6+242.8**** | 144.0+124.0 | 130.2+157.2 | 178.4+137.9 |
| | other | 499.2+274.3 | 240.0+134.8 | 545.0+278.2 | 145.0+117.8 | 92.5+76.2 | 160.0+140.9 |
| psychiatric disorder | yes | 423.9+238.2 | 282.1+170.6 | 452.8+248.4 | 143.4+119.5 | 123.3+135.2 | 184.4+139.0 |
| | no | 498.6+266.8 | 324.8+172.0 | 545.8+309.3 | 166.0+165.7 | 136.0+171.7 | 210.7+201.9 |
| other medical disease | yes | 445.4+243.4 | 295.5+170.7 | 482.4+250.6 | 147.5+124.8 | 118.5+109.4 | 194.6+154.1 |
| | no | 408.1+238.6 | 266.9+173.4 | 414.4+275.8 | 138.1+127.5 | 137.3+199.6 | 162.5+122.4 |

Independent Samples T test, Oneway Anova test and Bonferroni correction were used. *=$p<0,05$ **=$p<0,01$

**Discussion**: This is a comprehensive study examining sociodemographic data, screen time, attention deficit and hyperactivity symptoms, depression and anxiety symptoms, and the relationship between these parameters in a non-clinical sample.
Although the findings of the study were collected online and are difficult to compare with the results of community-based epidemiologic studies, useful observations can be made regarding the psychological profiles and screen time of the participants. The identification of this information is expected to be important for identifying factors in the emergence of ADHD-related symptoms. Examining the relationship between screen time, depressive and anxiety symptoms, and attention deficit and hyperactivity symptoms and providing behavioral recommendations may facilitate the management of such cases.

Research has shown correlations between age, gender and internet activity screen time. Impulsivity, loneliness, novelty seeking and behavioral inhibition system can also be shown among the risk factors for increased screen time. It is thought that there may be a relationship between these factors and screen time in adults with ADHD.

In our study, similar to previous findings, a significant relationship was found between ADHD symptoms and screen use. However, the causal relationship between screen time and ADHD symptoms and the direction of this relationship is complex. Many studies have found a link between weekend activities such as watching television and playing video games and symptoms of attention deficit hyperactivity disorder. In our study, the association between weekend screen use and attention deficit hyperactivity symptoms in the non-clinical population is consistent with this finding. However, none of the participants in our population had been previously diagnosed with ADHD. This suggests that excessive screen time in people without ADHD may lead to impaired attention.

The results obtained between workday activities such as computer use or prolonged screen time and attention deficit symptoms were similar to previous studies. A 2014 meta-analysis showed an association between media use and attention problems. A recent survey of adolescents without ADHD symptoms at the start of the study showed a significant association between more frequent use of digital media and ADHD symptoms after 24 months of follow-up. It has been suggested that there is more association between internet addiction and ADHD than other psychiatric disorders, and it is reported that they experience more symptoms of inattention, hyperactivity and impulsivity. It is possible that people with ADHD symptoms are at higher risk of developing technology addiction and screen use, but an alternative explanation is that intensive technology use and intensive screen use resulting from addictive behaviors cause ADHD-like symptoms. It is important to evaluate other factors that may impair attention, such as intensive technology use, before diagnosing ADHD in patients presenting with attention disorders in adulthood.

Affective disorders can also alter attention and sleep. Study findings supporting the relationship of time spent in front of the screen and on social media with social isolation, depression, sedentary life and obesity are also presented. In our study, the fact that screen time was positively correlated with anxiety scores in adults without a diagnosis of ADHD indicates that the two components may be two-way influencing each other. It has been observed that screen time and usage behaviors are effective in the emergence of ADHD-related symptoms, depression and anxiety symptoms should be questioned in those who apply to psychiatry due to these symptoms, and it may be important to develop behavioral approaches and new treatment models for this.

Keywords: ADHD, Screen time, Depression, Anxiety

**REFERENCES**

1. Xiao Wang, Yuexuan Li and Haoliang Fan, The associations between screen time- based sedentary behavior and depression: a systematic review and meta-analysis, Wang et al. BMC Public Health (2019) 19:1524

2. Gary W. Small, MD; Jooyeon Lee, MD; Aaron Kaufman, MD; Jason Jalil, MD; Prabha Siddarth, PhD; Himaja Gaddipati, DO, ScM; Teena D. Moody, PhD; Susan Y. Bookheimer, PhD, Brain health consequences of digital technology use, Dialogues Clin Neurosci. 2020;22(2):179-187.

3. Jerome, G.J.; Fink, T.; Brady, T.; Young, D.R.; Dickerson, F.B.; Goldsholl, S.; Findling, R.L.; Stepanova, E.A.; Scheimann, A.; Dalcin, A.T.; et al. Physical Activity Levels and Screen Time among Youth with Overweight/Obesity Using Mental Health Services. Int. J. Environ. Res. Public Health 2022, 19, 2261.

4. Michal Kahn, Ortal Schnabel, Michael Gradisar, Geila S. Rozen, Michelle Slone, Naama Atzaba-Poria, Liat Tikotzky, Avi Sadeh, Sleep, screen time and behaviour problems in preschool children: an actigraphy study, Received: 27 May 2020 / Accepted: 21 September 2020

5. Mark Zimmerman, MD; Jill I. Mattia, PhD, A Self-Report Scale to Help Make Psychiatric Diagnoses The Psychiatric Diagnostic Screening Questionnaire, *Arch Gen Psychiatry*. 2001;58(8):787-794.

## 0355 - Investigation Of Alexithymia and Social Skills Relationship in Adolescents Diagnosed with Obsessive-Compulsive Disorder

İrem Gülfem Demircioğlu [1], Nagihan Cevher Binici [1]

Department of child and adolescent psychiatry, Dr. Behcet Uz Pediatric Diseases and Surgery Training and Research Hospital, Izmir, Turkey [1]

**Introduction:** Alexithymia is a condition characterized by difficulty in identifying and describing subjective feelings, difficulty in distinguishing between feelings and bodily sensations of emotional arousal and an externally oriented cognitive style (1). Limited studies in adults have revealed a higher prevalence of alexithymia in individuals diagnosed with Obsessive-Compulsive Disorder (OCD) compared to the general population, with suggestions that alexithymia can exacerbate OCD symptoms (1). Research indicates that the stress caused by OCD impairs functionality in social domains, and accompanying alexithymia further worsens the understanding of emotions and social cues, impacting treatment response (1-3). This underscores the potential role of social skills and alexithymia features in OCD treatment. Upon reviewing the literature, it has been observed that there is no study specifically assessing the social skills and alexithymic characteristics of adolescents diagnosed with OCD. In this context, our study aims to compare the social functionality of individuals diagnosed with OCD with healthy control groups, evaluating differences between groups and examining the relationship between OCD-specific social skill difficulties and alexithymia.

**Method:** The study included 41 healthy adolescents and 41 OCD drug-naive patients aged between 12 to 18, with normal mental capacity and without psychiatric/physical illness who applied to the Child and Adolescent Mental Health clinics of Dr. Behcet Uz Pediatric Diseases and Surgery Training and Research Hospital within 6 months after obtaining ethical approval. Psychiatric evaluation was conducted using DSM-V diagnostic criteria and the Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version (K-SADS-PL). After obtaining consent from both groups, data were collected through the completion of the Sociodemographic Data Form, Toronto Alexithymia Scale (TAS-20), Social Support Appraisals Scale (SS-A). The Yale-Brown Obsessive-Compulsive Scale (Y-BOCS) was administered to the OCD group to determine symptom severity. Statistical analysis was performed using SPSS 21.0 in the study. Categorical variables were analyzed using Chi-square and Fisher tests, parametric data were assessed with Student's t-test and ANOVA, non-parametric data were evaluated using Mann-Whitney U and Kruskal-Wallis tests. Post-Hoc Tukey analysis was conducted for multiple group comparisons. Correlations were assessed using Spearman's Rho Test and Pearson's test. $P<0.05$ was considered statistically significant.

**Measures :** Sociodemographic Data Form: A form completed by researchers to gather information about age, gender, education, parental status, etc. Yale-Brown Obsession-Compulsion Scale: A semi-structured form based on clinical interviews. The result includes obsession and compulsion severity score, and a total severity score derived from both. Reliability and validity of the turkish version was conducted by Kocoglu et al. (4). Toronto Alexithymia Scale: The TAS-20 is a self-assessment scale consisting of twenty items. Higher scores are associated with increased alexithymia levels. It includes sub-scales for difficulty identifying feeling, difficulty describing feelings, externally-oriented thinking. Scores below 51 indicate the absence of alexithymia, while scores above 61 suggest the presence of alexithymia. Scores between 52-60 indicate a possible alexithymic group. Reliability and validity of the turkish version was conducted by Guleç et al. (5).

Social Support Appraisals Scale: A scale systematically examining perceived social support in children and adolescents. Higher scores are associated with a higher perception of social support. It includes three subscales: friend support, family support, and teacher social support. Reliability and validity of the turkish version was conducted by Gokler (6).

**Results:** In our study, we included 41 individuals diagnosed with OCD (50%) and 41 healthy controls with similar characteristics. The average age of the 82 participants was 14.8±1.39 years, with no statistically significant difference between the groups (p=0.79)

Among individuals diagnosed with OCD, 48.8% (n=20) were male, and 51.2% (n=21) were female. The control group consisted of 58.5% (n=24) males and 41.5% (n=17) females, without a statistically significant difference in gender distribution between the groups (p=0.269).
According to the assessment of the TAS-20 total score between the groups, it was observed that 63.4% (n=26) of individuals diagnosed with OCD received a diagnosis of alexithymia. Additionally, 24.4% (n=10) of the cases were identified with possible alexithymia, while 12.2% (n=6) did not receive a diagnosis of alexithymia. No individuals in the control group were diagnosed with alexithymia. The mean TAS-20 total score measured in the OCD group (65.22±10.99) and sub-scale scores were significantly higher compared to the control group (43.12±8.16) (p=0.000)
For individuals diagnosed with alexithymia, the average Y-BOCS total score was 27.14±3.30, while in the group with possible alexithymia, it was 18.50±5.29, and in the group without alexithymia, it was 18.67±9.01. The average Y-BOCS total score is significantly higher in patients diagnosed with alexithymia.

Upon evaluating the correlation analyses between Y-BOCS and TAS-20 total and sub-scores, a positive and statistically significant correlation was observed between Y-BOCS total and sub-scores, and TAS-20 total and sub-scores (Table 1).

When evaluating the mean scores of the SS-A and its subscales between groups, the average SS-A total score in the control group (185.46±10.02) was found to be significantly higher compared to the OCD group (113.46±20.82) (p=0.000). The average friend, teacher, and family social support total score measured in the control group were found to be statistically significantly higher compared to the OCD group (p values=0.000). When participants with severe levels of OCD symptom severity were excluded from the sample and compared with the control group, statistically significant differences continued to persist.
When assessing the correlation analyses between Y-BOCS and SS-A total and sub-scores, a negative and statistically significant correlation relationship was found between Y-BOCS total and sub-scores and SS-A total and sub-scores (Table 2).
The correlation analysis conducted between TAS-20 and SS-A total and sub-scores revealed a negative and statistically significant correlation relationship between TAS-20 total and sub-scores and SS-A total and sub-scores (Table 3).
According to the logistic regression analysis conducted for the Y-BOCS total score, the model created for TAS-20 total score and SS-A total score was found to be statistically significant (p=0.000, R sq:0.921). In the univariate analysis, it was determined that SS-A total score significantly negatively influenced the Y-BOCS total score approximately 15.57 times more (p=0.000). Therefore, it was found that the SS-A total score is an independent factor influencing the Y-BOCS total score. However, the TAS-20 total score did not significantly contribute to the model (p=0.543).

**Discussion:** While there are limited studies in the literature, our study is the first to investigate alexithymia and social skills together in adolescents diagnosed with OCD. In our study, TAS-20 and SS-A scores, as well as Y-BOCS scores, were evaluated in individuals diagnosed with OCD and healthy controls, and the relationships between these scores were examined. Our study may be beneficial in approaching the diagnosis and treatment process of OCD from different perspectives.

Our findings align with previous studies by Bozorg et al. (2021), Uslu et al. (2020), and Khosravani et al. (2017), indicating a significant increase in alexithymia among individuals diagnosed with OCD compared to healthy controls.

A statistically significant increase in the Y-BOCS total score in individuals diagnosed with alexithymia indicates an elevated association of alexithymia with OCD symptoms, demonstrating interconnected pathological processes. When reviewing the literature, studies by Khosravani et al., Pozza et al. have reported that in OCD patients with alexithymia, the severity of OCD symptoms is higher compared to those without alexithymia. Additionally, in some studies, it has been emphasized that the presence of alexithymic features in OCD patients may result in poor response to conventional medical treatments and psychotherapy (2). Including alexithymia in treatment strategies can help individuals with OCD understand their emotional worlds more effectively, convey them to others, and positively impact their quality of life.

According to the results, the SS-A total score of the control group was significantly higher than that of the OCD group. Low levels of social support in the areas of family, friends, and teachers among individuals with OCD indicate the broad impact of the disorder beyond mental health. Correlation analysis revealed that the SS-A total score negatively influenced the Y-BOCS total score by approximately 15.57 times and demonstrated that as the SS-A score increased, the Y-BOCS score decreased. In studies, it has been observed that as the severity of OCD symptoms increases, impairment in social functioning also increases (2). Our findings are consistent with the literature. Although CBT and pharmacotherapy are considered the gold standard for OCD in adolescents, there is no significant improvement in the functionality of 20-70% of adolescents after treatment (7). While the exact reasons for this situation are not fully understood, it is believed that inadequate social adjustment in some cases may contribute to it (8). In this context, further research is needed on how social support mechanisms can be integrated into OCD treatment strategies.

The negative correlations between Y-BOCS and SS-A, as well as TAS-20 and SS-A, underscore the importance of social networks in alleviating the burden of OCD. Social support programs, group therapies, and emotional awareness training can help individuals improve their social functioning and cope with OCD symptoms.

**Conclusion:** Our study highlights the significant impact of OCD on an individual's social life, emphasizing the importance of considering not only symptoms but also alexithymia and levels of social support in treatment plans. Understanding these complex relationships can contribute to the development of patient-centered treatment strategies.

**Keywords:** Adolescent, Alexithymia, Obsessive Compulsive Disorder, Social Skills, Yale-Brown Obsessive-Compulsive Scale

**References**
[1]     Roh D, Kim WJ, Kim CH. Alexithymia in obsessive-compulsive disorder: clinical correlates and symptom dimensions. J Nerv Ment Dis. 2011 Sep;199(9):690–5.
[2]     Rosa AC, Diniz JB, Fossaluza V ve ark. Clinical correlates of social adjustment in patients with obsessive-compulsive disorder. J Psychiatr Res. 2012;46:1286-1292.
[3]     Taylor GJ, Bagby RM. New trends in alexithymia research. Psychother Psychosom. 2004; 73(2):68-77.
[4]     Koçoğlu, F., & Bahtiyar, B. Yale-Brown Obsession-Compulsion Scale-Turkish Self-Report Form: Reliability and validity study. Journal of Clinical Psychology, 2021. 5(3), 229–243.
[5]     Güleç, H., Köse, S., Güleç, Y.M., Çitak, S., Evren C., Borckardt, J. ve Sayar, K. Reliability and Factorial Validity of The Turkish Version of The 20-Item Toronto Alexithymia Scale (TAS-20). *Klinik Psikofarmakoloji Bulteni*, 2009, *19*, 214-220.

[6]      Gökler, I. Adaptation study of the Social Support Appraisals Scale for Children and Adolescents in Turkish: Factor structure, validity, and reliability. Journal of Child and Adolescent Mental Health, 2007, 14(2), 90-99.

[7]      Beidel DC, Alfano CA. Childhood Anxiety Disorders: A Guide to Research and Treatment. Second edition. New York: Taylor & Francis. 2011

[8]      Kim KL, Reynolds KC, Alfano CA. Social impairment in children with obsessive compulsive disorder: Do comorbid problems of inattention and hyperactivity matter? J Obsessive Compuls Relat Disord. 2012;1:228-233.

Table 1. Correlation analyses of Y-BOCS and TAS-20 total/sub-scores in the case group.

| | Y-BCOS Total Scores | | YB-Compulsion Scores | | YB-Obsession Scores | |
|---|---|---|---|---|---|---|
| | $r$ | $p$ | $r$ | $p$ | $r$ | $p$ |
| TAS-20 Total Scores | 0.636 | 0,000* | 0,530 | 0,000* | 0,674 | 0,000* |
| Difficulty Identifying Feeling Sub-scores | 0,310 | 0,048* | 0,155 | 0,333 | 0,394 | 0,011* |
| Difficulty Describing Feelings Sub-scores | 0,488 | 0,001* | 0,453 | 0,003* | 0,499 | 0,001* |
| Externally-Oriented Thinking Sub-scores | 0,657 | 0,000* | 0,582 | 0,000* | 0,652 | 0,000* |

*= Statistically significant at the $p < 0.05$ level.

**Table 2.** Correlation analyses of Y-BOCS and SS-A total/sub-scores in the case group.

| | Y-BCOS Total Scores | | YB-Compulsion Scores | | YB-Obsession Scores | |
|---|---|---|---|---|---|---|
| | r | p | r | p | r | p |
| **SS-A Total Scores** | -0,848 | 0,000* | -0,807 | 0,000* | -0,807 | 0,000* |
| **Friend Support Scores** | -0,622 | 0,000* | -0,562 | 0,000* | -0,652 | 0,000* |
| **Teacher Support Scores** | -0,522 | 0,000* | -0,519 | 0,001* | -0,473 | 0,002* |
| **Family Support Scores** | -0,657 | 0,000* | -0,595 | 0,000* | -0,626 | 0,000* |

*= Statistically significant at the p<0.05 level.

**Table 3.** Correlation analyses of SS-A and TAS-20 total/sub-scores in the case group.

| | SS-A Total Scores | | Friend Support Scores | | Teacher Support Scores | | Family Support scores | |
|---|---|---|---|---|---|---|---|---|
| | r | p | r | p | r | p | r | p |
| **TAS-20 Total Scores** | -0,739 | 0,000* | -0,683 | 0,000* | -0,494 | 0,001* | -0,548 | 0,000* |
| **Difficulty Describing Feelings Sub-Scores** | -0,435 | 0,005* | -0,373 | 0,016* | -0,434 | 0,005* | -0,421 | 0,006* |
| **Difficulty Identifying Feeling Sub-scores** | -0,658 | 0,000* | -0,716 | 0,000* | -0,396 | 0,010* | -0,425 | 0,006* |
| **Externally-Oriented Thinking Sub-scores** | -0,617 | 0,000* | -0,468 | 0,002 | -0,415 | 0,007* | -0,450 | 0,003* |

*= Statistically significant at the p<0.05 level.

## 0392 – Investigation of the Relationship between Sociodemographic Risk Factors and the Development of Anxiety, Depression and PTSD After 1 Year in Earthquake Survivors Ddmitted After the Kahramanmaraş Earthquake

[1]Nilüfer Yıldız, [1]Rabia Eniş, [1]Sıla Kutlar Kapıcı, [1]Esra Akman Ayidağa, [1]Merve Çıkılı Uytun, [1]Didem Behice Öztop

[1]Department of Child and Adolescent Psychiatry Ankara University School of Medicine Ankara, Turkey

**Introduction:** On February 6, 2023, Kahramanmaraş earthquake affected many provinces and was recorded as one of the most devastating earthquakes in the history of the Republic. According to reports nearly 301,000 houses and workplaces were destroyed or moderately to severely damaged and more than 50,000 lives were lost. After earthquakes, health problems such as physical disability, infectious diseases and epidemics, housing and social difficulties can occur. In addition, psychological disorders such as depressive symptoms, anxiety symptoms and especially post-traumatic stress disorder can also occur. Following disasters such as earthquakes, people who have suffered loss of life and property go through a mentally challenging process with emotional difficulties such as uncertainty about the condition of their homes and gathering places, loss of relatives, homes, jobs and social living spaces, or worry about losing them. One of the most common psychiatric diagnoses following major natural disasters such as earthquakes is Post Traumatic Stress Disorder. This is followed by Major Depressive Disorder and Anxiety Disorder.In this study, it was aimed to determine the psychosocial risk factors of earthquake survivor children after the Kahramanmaraş earthquake and to examine the relationship of these risk factors with PTSD, ASD and MDD.

**Methods**

**Study Sample**: Participants were identified by retrospectively scanning the university electronic system from earthquake-affected children who applied to the Department of Child and Adolescent Mental Health and Diseases, Ankara University Faculty of Medicine between February 6, 2023 and February 10, 2024. The study included 100 children and caregivers from 185 earthquake-affected children between the ages of 6-18, whose contact numbers could be reached and who agreed to participate in the study. The data of the study were collected through online questionnaires between February 1 and February 10, 2024. The sociodemographic information form was completed by the caregivers and psychometric scales were completed by the children.

**Psychometric Scales**: *Revised Child Anxiety and Depression Scale*

It is a 47-item scale developed by Chorpita et al. in 2000 to measure DSM-IV based symptoms of anxiety disorders and depression in children and adolescents. Turkish validity and reliability was conducted by Görmez et al. in 2017.

*Child PTSD Symptom Scale*

It is a self-report scale designed to diagnose and assess the severity of PTSD in children and adolescents. Turkish validity and reliability was conducted by Kadak et al. in 2014.

**Statistical Analysis:** Statistical analyses were performed using SPSS Package Program 26.0. P=0.05 was taken as the significance limit. Descriptive statistics were given as mean ± standard deviation or median (minimum-maximum) for continuous variables and as frequency (percentage) for categorical variables. Pearson/Spearman Correlation Coefficient was used to examine the co-variance of continuous variables.

**Results:** Of the 100 children who participated in the study, 52 were male and 48 were female, and the mean age of the patients was 11.67 years (±3.05). It was observed that 32% of the patients had at least one child psychiatry visit before the earthquake and 29% had at least one diagnosis. The most common diagnosis was ADHD, followed by AB and MDD. The most common reasons for post-earthquake psychiatry visits were sleep problems (40%), anxiety (38%), irritability (28%) and introversion (24%). It was found that 88% of the patients changed cities after the earthquake, 31% of the patients did not stay in their own homes, and 7% continued to live in temporary shelters such as tents. It was shown that 5% of the patients stayed under the rubble for more than 8 hours, 21% of the patients lost their 1st degree relatives, 12% had physical injuries, and 4% were hospitalized. After the earthquake, 85% of patients could not reach basic needs in the first 24 hours. 59% of the patients did not receive any social support after the earthquake. Of the 100 children included in the study, 76 children did not continue their child psychiatry follow-up, only 27 of these children did not need psychiatric follow-up, and 49 children could not access psychiatric support. In our study, the prevalence of PTSD (44%), MDD (29%) and AB (26%) were found to be high in children evaluated in the first year of the earthquake. The most common AB was separation anxiety disorder (32%) and panic disorder (23%). There was a weak correlation (r=0.268, p=0.007) between pre-earthquake child psychiatry referral and current total anxiety-depression scores, and a weak correlation (r=0.232, p=0.021) between post-earthquake city change and the presence of PTSD. A negative

correlation was found between the presence of PTSD (r=-0.214, p=0.032) and total depression-anxiety scores (r=-0.306, p=0.002) in children hospitalized after the earthquake.

**Discussion:** In the literature, children and adolescents have been identified as a vulnerable population susceptible to post-disaster psychological morbidity. Existing studies show that the rate of PTSD in adolescents and children is 10% and 4 times higher in girls. In this study, the rate of post-earthquake PTSD was higher than in the general population; however, this finding is consistent with studies investigating PTSD after a natural disaster. While the prevalence of MDD in children and adolescents has been shown to be 4-5% in recent studies, it was found to be approximately 5 times higher in this study. In two studies conducted in China investigating the relationship between post-earthquake depression and PTSD, the comorbidity of depression and PTSD was found to be high and PTSD was shown to predict depression. In our study, the rates of PTSD and MDD were found to be higher than the population prevalence, while the prevalence of AB was similar to the population. Unlike the literature, the risk of developing MDD, PTSD or AB was not found to be associated with gender in our study, which may have been due to the limited sample size.

Although some studies suggest that changing cities after the earthquake and migrating to regions with low earthquake risk reduces the risk of PTSD, a study conducted four years after the August 17th earthquake in Turkey showed that those who changed cities experienced high rates of psychological distress and had higher rates of depression than those who did not change cities, despite living in a region with low earthquake risk. In our study, although the majority of the participants had changed cities at least once, there was a weak correlation between changing cities and the risk of developing PTSD. Changing cities was not associated with the risk of developing MDD. This may be due to the sample size, or it may be due to the fact that the studies investigated longer-term effects.

In the existing literature, most of the studies did not examine pre-existing psychiatric diagnosis or comorbidity in children diagnosed with PTSD. In our study, previous psychiatric diagnosis or comorbidities were screened by asking the caregivers but were not found to be associated with PTSD.Three recent studies have shown that secondary disaster stressors such as separation from family members, inadequate food and water resources, loss of family members, friends and relatives, inadequate hygiene and shelter facilities, destruction or displacement of their homes, financial difficulties and reduced social support, and interruption of education increase the psychological burden in children who are victims of natural disasters. In our study, these risk factors were screened by asking the caregivers and were not found to be associated with PTSD and MDD. Studies with larger samples are needed to evaluate these relationships.

When the literature is reviewed, many studies have shown that the risk of developing mental health problems is higher in hospitalized children. Internalizing disorders and attention deficit hyperactivity disorder were reported to be the most common mental health problems. In contrast, this study found that children hospitalized in the hospital and intensive care unit after the earthquake were less likely to develop PTSD, MDD, and AB. In hospitalized children, meeting basic needs such as shelter and nutrition in the early period, providing social support by healthcare professionals and most importantly, providing regular psychiatric support in the early period were protective in terms of the risk of developing PTSD, MDD and ADD later in these children. The results of this study show that one out of every 2 children in need of psychiatric support after the earthquake did not receive support.

According to the Disaster Epidemiology Research Center, it is estimated that more than 175 million children will be affected by natural disasters caused by climate change in the next 10 years. Considering that children are more susceptible to post- traumatic effects, it is important to ensure that children exposed to trauma receive the necessary psychiatric support. There is a need for more studies with larger samples investigating posttraumatic psychiatric conditions in children and possible risk factors and intervention methods. Due to the high risk of PTSD, MDD and AB in children of earthquake survivors, there is a need for projects that will ensure periodic psychiatric evaluations of these children, refer risky children to appropriate centers and support them with online interviews when necessary.

**Keywords**: earthquake, PTSD, depression, anxiety, child pschiatry

**KAYNAKÇA:**

1-Dyregrov A, Yule W, Olff M. Children and natural disasters. Eur J Psychotraumatol. 2018 Aug 15;9(Suppl 2):1500823. doi: 10.1080/20008198.2018.1500823. PMID: 30128084; PMCID: PMC6095022.

2-Kiliç C, Kiliç EZ, Aydin IO. Effect of relocation and parental psychopathology on earthquake survivor-children's mental health. J Nerv Ment Dis. 2011 May;199(5):335-41. doi: 10.1097/NMD.0b013e3182174ffa. PMID: 21543953.

3-Chen X, Li B, Guo WJ, Xu JJ. Posttraumatic stress disorder symptoms among child survivors of the 2008 Wenchuan earthquake: a comparison between Chinese ethnic Han and Hui groups. PeerJ. 2021 Aug 11;9:e11967. doi: 10.7717/peerj.11967. PMID: 34447635; PMCID: PMC8364314.

4-Kolaitis et al. (2003) Kolaitis G, Kotsopoulos J, Tsiantis J, Haritaki S, Rigizou F, Zacharaki L, Riga E, Augoustatou A, Bimbou A, Kanari N, Liakopoulou M, Katerelos P. Posttraumatic stress reactions among children following the Athens earthquake of September 1999. European Child & Adolescent Psychiatry. 2003;12(6):273–280. doi: 10.1007/s00787-003-0339-x.

## 0396 - 6 Month Follow-Up of The Effects and Side Effects of Mood Stabilizers in Children and Adolescents Diagnosed with Bipolar Disorder

Görkem Erçin[a], Selma Tural Hesapçioğlu[b], Mehmet Fatih Ceylan[b]

[a]Department of Child and Adolescent Psychiatry, Gaziantep City Training and Research Hospital
[b]Department of Child and Adolescent Psychiatry, Ankara Yıldırım Beyazıt University Yenimahalle Training and Research Hospital

**Objective**: Lithium is the only mood stabilizer drug approved by the FDA for the treatment of acute mania and maintenance in children and adolescents diagnosed with bipolar disorder [1]. Despite the absence of FDA approval in clinical practice, valproate, a commonly utilized anticonvulsant, plays a crucial role in the treatment of bipolar disorder [2]. The literature studies comparing the therapeutic efficacy of lithium and valproate present varying results. Aim of this study is to retrospectively evaluate the effectiveness and side effects of mood stabilizer drug treatment initiated for children and adolescents between the ages of 6 and 18 in a child and adolescent psychiatry clinic.

**Methods**: A retrospective review of the files of children and adolescents who were referred to Ankara Yıldırım Beyazıt University Yenimahalle Training and Research Hospital Child and Adolescent Psychiatry Clinic within one year was conducted. Totally 24 patients were initiated on mood stabilizers. To assess drug effectiveness; at 0., 3. and 6. months; Clinical Global Impression Scale (CGI-S) and Young Mania Rating Scale (YMRS) were used, to assess drug side effects; at 3. and 6. months; Ugvalg for Kliniske Undersgelser (UKU) and Lithium Side Effects Rating Scale (LISERS) were used. Moreover, laboratory and anthropological findings at the $0^{th}$, $3^{rd}$ and $6^{th}$ months were evaluated.

**Results**: The average age of the included patients (n=24) in the study is $15.00 \pm 1.41$ (years), with %37.5 (n=9) being male and %62.5 (n=15) being female. The patients having started mood stabilizer drugs have been diagnosed with bipolar disorder. In these cases, comorbidities are most frequently encountered with attention-deficit/hyperactivity disorder (ADHD) (%58.3), anxiety disorders (%25), and conduct disorders (%16.7), with a high prevalence of comorbidities. %54.2 (n=13) of the cases use lithium and %45.8 (n=11) use valproate. Mood stabilizers were used together with antipsychotics (risperidone and olanzapine) in the treatment. Patients diagnosed with bipolar disorder receiving lithium and valproate treatment showed a statistically significant decrease in CGI-S and YMRS scores. There was no significant difference in the mean YMRS scores at 0., 3. and 6. months between those using lithium or valproate compared to combinations of risperidone and olanzapine. There was no significant difference in the mean score differences of YMRS measurements at 0-3, 3-6, and 0-6 months between the two mood stabilizer medication groups and the combinations with risperidone or olanzapine. (Table 1 and 2.). Combinations of the lithium or valproate with antipsychotics have produced similar side effects. The severity of side effects decreased over time in controls. A significant decrease was observed in the total scores of the UKU and LISERS scales between 3-6 months in the assessment of side effects. When the entire lithium group was evaluated, there was a significant increase in weight values at 0-3-6 months, and in 92.3% of cases, a weight gain of more than %7 compared to the weights at the initiation of treatment was observed. Increased appetite was present in %92.3 of the cases. The incidence of tremor (%53.8), polyuria/polydipsia (%53.8) and decreased salivation (%38.5) was found to be higher in the lithium group. In the lithium group combined with risperidone, a statistically significant increase in TSH values was observed between 0-3 months (p=0.046), and a significant decrease was observed between 3-6 months (p=0.046), both within normal reference ranges. In the lithium group combined with olanzapine, a significant decrease in T3 values was observed between 3-6 months (p=0.043), within normal reference ranges. In the valproate group, there is a significant increase in weight values at 0-3-6 months, and in %72.7 of cases, a weight gain of more than %7 compared to the initiation of treatment is observed. In our study, when the entire valproate group was evaluated (n=11); sedation (%90.9), increased duration of sleep (%90.9) and asthenia/lassitude/fatigue (%90.9) were the most observed side effects. While no significant changes were observed in liver function tests during follow-ups in cases using valproate, it was noted that the transaminase values of two patients at 3 and 6 months were above the normal reference ranges, but lower than twice the upper limit.

**Discussion:** In our study, cases were diagnosed with bipolar disorder during adolescence, and most of these cases are of female gender. The cases diagnosed with bipolar disorder in our study have comorbid diagnoses. Bipolar disorder is frequently comorbid with other psychiatric illnesses in children and adolescents. In the COBY (The Course and Outcome of Bipolar Youth) study, it has been demonstrated that ADHD is the most common comorbidity in children and adolescents diagnosed with bipolar disorder, with a prevalence rate of %58.6. The same study reports comorbidity rates of %38.4 for anxiety disorders, %12.5 for conduct disorders, and %9.1 for substance use disorders [3]. In our study, the initiation of combination therapy for all patients from the beginning is thought to be attributed, in clinical practice, to the recognition that the symptoms of bipolar disorder constitute serious manifestations significantly impacting the quality of life for both the individual and their environment. Mood stabilizers, commonly used in the treatment of bipolar disorder, have a slower onset of action. Therefore, in situations with high clinical risk, such as manic episodes, antipsychotics, which have a faster onset of action and do not require blood level monitoring, are employed as the first-line treatment [4]. Studies investigating the effectiveness of both monotherapy and combination therapy in the acute treatment of mania in children and adolescents have been conducted. These studies suggest that, compared to monotherapy, combination therapies are more effective in the acute treatment of bipolar disorder in children and adolescents [5]. In our study, YMRS scores measured at different time points and the score differences in YMRS measurements did not reveal a significant difference between the two mood stabilizer groups. Both drugs were observed to be effective in the treatment. In the systematic review conducted with limited studies comparing the efficacy of mood stabilizers, lithium and valproate were indicated to have similar response rates in the treatment [6]. In a large scale systematic meta-review, it has been demonstrated that, in terms of side effect profiles, lithium is considered the safest mood stabilizer in children and adolescents, while valproate is identified as the least safe [7]. Similar to our study, research indicates that in children and adolescents with bipolar disorder, side effects associated with mood stabilizers decrease during the course of treatment [8]. In our study, the observed weight gain and increased appetite in patients receiving combination therapy with mood stabilizers and risperidone or olanzapine may be attributed to the effects of both antipsychotics and mood stabilizers. The most common neurological side effect of lithium is tremor, and it has been observed as a side effect in more than half of the cases using lithium in our study. Long-term lithium treatment can lead to nephrogenic diabetes insipidus by developing resistance to the effects of ADH (antidiuretic hormone) in the distal renal tubules [9]. Therefore, in our study, the incidence of side effects such as polyuria/polydipsia and decreased salivation are higher in cases using lithium. It has been reported that 25% of adolescents receiving lithium treatment experience elevated TSH levels [10], and the changes in thyroid function values in our cases may be associated with lithium use. A meta-review reports that among mood stabilizers used in children and adolescents, sedation is most observed with valproate [7]. In our study, the high sedation rate in individuals using valproate may be attributed to the concurrent use of antipsychotic treatment and valproate. During valproate treatment, approximately 40% of cases experience asymptomatic elevation of transaminases [11], and the transaminase levels of the two cases in our study are lower than twice the upper limit. Asymptomatic elevation of transaminases in cases may be associated with valproate. As a result, in our study, it has been observed that there is a risk of many side effects when using mood stabilizers together with antipsychotics, therefore regular monitoring of side effects is essential. Due to the limited studies comparing the effects and side effects of mood stabilizers in pediatric bipolar disorder, we believe that further research will contribute to the literature.

**Keywords**: Bipolar, lithium, olanzapine, risperidone, valproate

**REFERENCES**

1. Katzung BG. Basic&Clinical Pharmacology (14 th Edition). Mc Graw-Hill Education2018.
2. Pavuluri MN, Henry DB, Carbray JA, Naylor MW, Janicak PG. Divalproex sodium for pediatric mixed mania: a 6-month prospective trial. Bipolar Disorders. 2005;7(3):266-73.
3. Birmaher B, Axelson D, Strober M, Gill MK, Valeri S, Chiappetta L, et al. Clinical course of children and adolescents with bipolar spectrum disorders. Archives of general psychiatry. 2006;63(2):175-83.
4. McKnight RF, Chesney E, Amit BH, Geddes J, Cipriani A. Lithium for acute mania. Cochrane database of systematic reviews. 2019(6).

5.      Demeter CA, Townsend LD, Wilson M, Findling RL. Current research in child and adolescent bipolar disorder. Dialogues in clinical neuroscience. 2022.
6.      Jochim J, Rifkin-Zybutz RP, Geddes J, Cipriani A. Valproate for acute mania. Cochrane Databaseof Systematic Reviews. 2019(10).

7.      Solmi M, Fornaro M, Ostinelli EG, Zangani C, Croatto G, Monaco F, et al. Safety of 80 antidepressants, antipsychotics, anti-attention-deficit/hyperactivity medications and mood stabilizers in children and adolescents with psychiatric disorders: a large scale systematic meta-review of 78 adverse effects. World Psychiatry. 2020;19(2):214-32.
8.      Singh RK, Sinha VK, Chaudhury S. Effect size of lithium, carbamazepine, and sodium valproate in child and adolescent bipolar 1 disorder during manic phase: A prospective open-label study. Industrial Psychiatry Journal. 2019;28(2):185.
9.      Stone KA. Lithium-induced nephrogenic diabetes insipidus. The Journal of the American Board of Family Practice. 1999;12(1):43-7.
10.     Amerio A, Ossola P, Scagnelli F, Odone A, Allinovi M, Cavalli A, et al. Safety and efficacy of lithium in children and adolescents: A systematic review in bipolar illness. European Psychiatry. 2018;54:85-97.
11.     Luef GJ, Waldmann M, Sturm W, Naser A, Trinka E, Unterberger I, et al. Valproate therapy and nonalcoholic fatty liver disease. Annals of Neurology: Official Journal of the American Neurological Association and the Child Neurology Society. 2004;55(5):729-32.

**Table 1.** Comparison of the Efficacy Differences of Risperidone Used in Bipolar Disorder with Combined Lithium or Valproate through Repeated Measures

| Difference | Lithium+R Median (Min-Max) | Valproate+R Median (Min-Max) | p |
|---|---|---|---|
| YMRS 0-3. months | 11.0 (7-17) | 9 (6-16) | 0.473 |
| YMRS 3-6. months | 2 (0-2) | 1 (0-3) | 0.541 |
| YMRS 0-6. months | 13 (9-19) | 11 (7-16) | 0.471 |

Mann Whitney U Test; p<0.05, R: Risperidone

**Table 2.** Comparison of the Efficacy Differences of Olanzapine Used in Bipolar Disorder with Combined Lithium or Valproate through Repeated Measures

| Difference | Lithium+O Median (Min-Max) | Valproate+O Median (Min-Max) | p |
|---|---|---|---|
| YMRS 0-3. months | 15.0 (7-30) | 14.0 (7-34) | 0.627 |
| YMRS 3-6. months | 1.0 (0-3) | 1.5 (-3-2) | 0.625 |
| YMRS 0-6. months | 18.0 (8-31) | 13.5 (9-35) | 0.705 |

Mann Whitney U Test; p<0.05, O: Olanzapine

## 0416 - The Prevalence and Associated Factors of Delirium: Examination of Cases with in The Last Year in a University Hospital

Merve Özyer, Ayşe Kurtulmuş Çalış, Zülal Çelik, Fatma Büşra Parlakkaya Yıldız

Department of Psychiatry, Medeniyet University, Istanbul, Turkey

**Objective**: Delirium is a temporary brain disorder that occurs when the entire brain is affected in a short time for any reason, and in which consciousness, attention, other cognitive abilities and behavior are severely impaired, usually lasting from a few hours to a few weeks. The prevalence of delirium was found to be 36% in postoperative patients, 14-24% in patients admitted to the emergency department, and 10-30% in hospitalized patients. (1). Various studies have shown that 64-84% of delirium cases go unnoticed and 33-36% cannot be diagnosed. Hypoactive delirium may be overlooked in particular. It has been determined that patients suffering from delirium prolong hospitalization by an average of 8 days, negatively affect cognitive functions, double the risk of dementia, and significantly increase the mortality rate within one year after discharge (2).

Our research aims to evaluate the sociodemographic characteristics of patients diagnosed with delirium, their accompanying diagnoses, the rate of psychiatry consultation, the rate of delirium diagnosis among psychiatric consultations requested from inpatients, and treatment approaches for delirium. By evaluating the rate of patients diagnosed with delirium and the approaches followed in delirium treatment, it is aimed to draw the attention of clinicians to delirium and to contribute to the literature on the importance of psychiatric consultations in the management of symptoms.

**Methods**: The study included 49 male patients and 51 female patients who had been diagnosed with delirium by a clinician within the last year through the hospital system. By evaluating how many of these patients were consulted to a psychiatric clinic and the psychiatric diagnoses given to these patients, we determined the patients among whom a preliminary diagnosis of delirium was considered. We performed descriptive statistical analyzes to examine parameters such as length of stay, accompanying chronic diseases, medications used upon psychiatric recommendation, and duration of treatment, as well as sociodemographic data, in patients diagnosed with delirium in the statistical analysis. We determined the inclusion criteria as 1. Being 18 years of age and over, 2. Being diagnosed with delirium by a clinician.

**Results:** 49.1% of the patients included in our study were male and 50.9% were female. The average age of the patients was 76.33 and it was observed that there were no patients under the age of 55. Of the branches applied to, 50.9% were neurology, 16.4% emergency medicine, 10.9% psychiatry, 10.9% internal medicine, 1.8% general surgery, 1.8% gastroenterology, 1.8% pulmonology, 3.6%. It was medical oncology. 28.8% of the patients were inpatients. The rate of patients with a diagnosis of dementia at presentation was 25.1%. We determined that 40% of the patients were consulted to psychiatry. The most common symptoms of the patients consulted were evaluated as aggression, agitation, talking to themselves, shouting at night, and hallucinations. It was determined that quetiapine and haloperidol were most frequently used in treatment.

**Discussion**: Considering the well-established association of delirium with older age, the increasing life expectancy suggests a potential rise in delirium prevalence in the forthcoming years. In our sample, 60% of the patients diagnosed with delirium did not receive psychiatric consultation. The vast majority of patients diagnosed with delirium were treated with pharmacological interventions such as quetiapine or haloperidol. There were only 103 cases officially diagnosed with delirium within a one-year period at a city hospital located in Istanbul. These figures may highlight underdiagnoses/misdiagnoses of delirium in clinical settings. Awareness of delirium should be maintained by the entire healthcare team. Besides common symptoms such as irritability and insomnia, recognition of hypoactive delirium should prompt thorough investigations and targeted treatments. While pharmacological interventions are not recommended for preventing delirium, non-pharmacological approaches are emphasized. It's crucial for all physicians to be acquainted with and implement multi-component interventions including cognitive stimulation, improving sleep hygiene, promoting alertness, early mobilization, and implementing sensory aids, especially in intensive care units where delirium is frequently observed. According to our data, there are no patients under the age of 55 and 27.3% of the patients are over the age of 80. Although it is known that delirium occurs more in older ages, increasing life expectancy reveals that we will encounter the diagnosis of delirium more often. It was noteworthy that 60% of the patients diagnosed with delirium were not consulted by psychiatry and 60.5% of the treatment was arranged by other branches. Consistent with the literature, patients were treated with quetiapine rather than haloperidol and 2nd Generation antipsychotics. While pharmacological treatments are not recommended in research on preventing the development of delirium, non-pharmacological approaches come to the fore. First of all, delirium should be kept in mind by the entire healthcare team. In addition to symptoms such as irritability and insomnia, which are usually the reason for consultation, the picture of hypoactive delirium should be a warning in terms of investigations and treatments for the cause. It is important for all physicians to know and implement multi-component interventions such as cognitive stimulation, use of clocks, increasing sleep, increasing alertness, early mobility and use of glasses in intensive care units where delirium is frequently encountered.

**Keywords**: Delirium, Hypoactive Delirium, Prevention, Treatment

**REFERENCES**
1.Bilge, E. Ü., Kaya, M., Şenel, G. Ö., & Ünver, S. (2015). The incidence of delirium at the postoperative intensive care unit in adult patients. Turkish journal of anaesthesiology and reanimation, 43(4), 232.
2. Fick, D. M., Agostini, J. V., & Inouye, S. K. (2002). Delirium superimposed on dementia: a systematic review. Journal of the American Geriatrics Society, 50(10), 1723-1732.
3. Stollings, J. L., Kotfis, K., Chanques, G., Pun, B. T., Pandharipande, P. P., & Ely, E. W. (2021). Delirium in critical illness: clinical manifestations, outcomes, and management. Intensive care medicine, 47(10), 1089-1103.

**POSTER BRİEF REPORTLAR**

## 0037 - Diagnosis of Epilepsy in a Stuttering Case

Sena Aksoy Avunduk[1], Serdar Avunduk[1]

[1]Balıkesir Atatürk City Hospital, Child and Adolescent Psychiatry

**Objective**: Childhood-Onset Fluency Disorder (Stuttering) according to the Diagnostic and Statistical Manual of Mental Disorders, 5th edition, Text Revision (DSM-V-TR) classification system definition, refers to disturbances in speech fluency and timing patterns that are not appropriate for the individual's age and language skills and can occur at any age [1]. Stuttering is characterized by repetitions of sounds or syllables, speech disruptions, repetitions of monosyllabic words and production of words with tension and circumlocution. Stuttering may be accompanied secondarily by involuntary movements such as eye blinking and jaw jerking [2]. While stuttering is seen in approximately 1.4% of children under the age of 10, its lifetime prevalence has been found to be 0.72% [3] .The disorder usually begins in the ages between 2 and 7 years and peaks between 3 and 4 years [4]. It is known that approximately 75% of preschool children with developmental stuttering recover spontaneously within four years[5]. The incidence of stuttering is higher in male than in female [6]

There are multiple factors in the etiology of stuttering, such as biological predisposition, environmental factors and the temperament characteristics of the individual. Neuroimaging studies on stuttering have shown anatomical and functional differences involving the auditory and motor regions, cortical and subcortical regions of the brain[6]. Among these regions, especially the Supplementary Motor Area has been associated with stuttering [7]. In a study conducted with children who stutter, it was revealed that white matter connectivity was reduced in the white matter pathways connecting frontal motor areas with auditory regions and in the pathways connecting deeper structures such as putamen and SMA [8]. When we look at the literature, there are studies suggesting the association of epileptic activity and stuttering [9] [10] A study conducted in our country revealed that stutterers had significantly higher parieto occipital slow waves and slower fronto central asynchronous waves than control [11]. Apart from this, language-induced epilepsy, a rare syndrome in which seizures are triggered by different modalities of language such as speaking, reading and writing has been described [12]. In primer reading epilepsy seizures are triggered by reading aloud or silent, repetitive jaw jerks are observed and if the trigger continues it may progress to generalized tonic-clonic seizure[13]. We discussed the diagnosis of epilepsy in a case who applied to our outpatient clinic with a complaint of stuttering.

**Method**: Verbal consent was obtained from our case and his mother. The Gadov Parent Scale was filled in by the case's family and the Turgay Scale was filled in by his teacher. The Wechsler Intelligence Scale for Children was applied to evaluate intelligence. EEG and cranial MR eaminations were evaluated by a pediatric neurologist.

**Result**: A 9-year-old boy was brought to the child and adolescent psychiatry outpatient clinic of our hospital by his family due to stuttering. It was learned that the case, a 4th-grade student, was born by cesarean section, there were no prenatal-postnatal features, there was no history of speech disorder in the family and her grandmother had essential thrombosis disease. His complaint of stuttering started 3 years ago when he had difficulty reading in the first grade. His stuttering showed a fluctuating course, he and his family consulted a psychiatrist a year ago. Speech blocks and syllable repetitions were observed during the case evaluation in the outpatient clinic, whose complaints did not subside. In the teacher information form, it was written that he was careful at school, obeyed the rules, had good relations with his friends, was academically successful and was not listened to much because his speech was like syllables. There was no meaningful feature in the Turgay Scale filled by the teacher and in the Gadov Parent Scale. The cognitive assessment made with the Wechsler Intelligence Scale for Children, verbal, performance and all achievement scores were compatible with normal intelligence and the psychologist who administered the scale commented that he had difficulty in the verbal subtests. The case had no psychiatrically active findings other than speech problems and was referred to the child neurology unit and speech-language therapist. In the EEG examination of the pediatric neurologist, bilateral asynchronous discharges originating from the temporoparietal areas and tending to be generalized were observed at frequent intervals. Cranial MR and neurological examination of the case were found to be normal and treatment for clobazam was started by the pediatric neurologist. The case continues to be followed up in pediatric neurology.

**Discussion:** This report is important for child and adolescent psychiatrists not to ignore the diagnosis of epilepsy in cases presenting with stuttering. Although it is known that the peak age of stuttering is between 3 and 4 years of age, the age of onset may be earlier or later. In our case, it is seen that stuttering started when he was in first grade. The fact that the case's stuttering started when he learned to read in the first grade necessitates the evaluation of primary reading epilepsy or language-induced epilepsy in the differential diagnosis. Although reading epilepsy is classified as "localization-related epilepsies and syndromes", electronic data strongly suggest some similarities with idiopathic generalized epilepsies. Clinical symptoms in idiopathic generalized epilepsies are characterized by seizures originating from both cerebral hemispheres, absences, generalized tonic-clonic seizures, bilateral myoclonic jerks and EEG patterns of these generalized abnormalities[14]

The results of one comprehensive study showed a weak relation between left-handedness and stuttering [15]. Contrary to this finding, our case was right-handed. When we evaluate in terms of gender, it has been reported that gray matter volume peaks earlier in females have greater connectivity between the left and right hemispheres [16] [17]. This may be related to the fact that stuttering is more common in males. The dominant parietal and temporal lobes and Broca's area are shown among the lesion areas associated with stuttering[18]. In the EEG examination of our case, asynchronous waves originating from the bilateral temporoparietal region were detected. As a result, it is important to refer stuttering cases to a pediatric neurologist for neurological evaluation not to miss these cases.

**Keywords:** Child and Adolescent, Epilepsy, Stuttering

## References

[1]     American Psychiatric Association., Diagnostic and statistical manual of mental disorders:DSM-5-TR Fifth edition, text revision. Washington DC: American Psychiatric Association Publishing, 2022.

[2]     J. E. Prasse and G. E. Kikano, "Stuttering: An overview," American Family Physician, vol. 77, no. 9. 2008.

[3]     A. Craig, K. Hancock, Y. Tran, M. Craig, and K. Peters, "Epidemiology of stuttering in the community across the entire life span," J. Speech, Lang. Hear. Res., vol. 45, no. 6, 2002.

[4]     R. E. Ham, Therapy of stuttering: Preschool through adolescence. 1990.

[5]     E. Yairi and N. G. Ambrose, "Early childhood stuttering I: Persistency and recovery rates," J. Speech, Lang. Hear. Res., vol. 42, no. 5, 1999.

[6]     S. E. Chang, "Research updates in neuroimaging studies of children who stutter," Seminars in Speech and Language, vol. 35, no. 2. 2014.

[7]     D. C. Forster and W. G. Webster, "Speech-motor control and interhemispheric relations in recovered and persistent stuttering," Dev. Neuropsychol., vol. 19, no. 2, 2001.

[8]     S. E. Chang and D. C. Zhu, "Neural network connectivity differences in children who stutter," Brain, vol. 136, no. 12, 2013.

[9]     W. J. Nowack, "Adult onset stuttering and seizures," Clin. EEG Electroencephalogr., vol. 17, no. 3, 1986.

[10]     E. Khedr, W. Abd El-Nasser, E. K. Abdel Haleem, M. Salama Bakr, and M. N. Trakhan, "Evoked potentials and electroencephalography in stuttering," Folia Phoniatr. Logop., vol. 52, no. 4, 2000.

[11]     A. Özge, F. Toros, and Ü. Çömelekoğlu, "The role of hemispheral asymmetry and regional activity of quantitative EEG in children with stuttering," Child Psychiatry Hum. Dev., vol. 34, no. 4, 2004.

[12]     N. Geschwind and I. Sherwin, "Language-Induced Epilepsy," Arch. Neurol., vol. 16, no. 1, 1967.

[13]     R. G. BICKFORD, J. L. WHELAN, D. W. KLASS, and K. B. CORBIN, "Reading epilepsy: clinical and electroencephalographic studies of a new syndrome.," Trans. Am. Neurol. Assoc., no. 81 st Meeting, 1956.

[14]     "Proposal for Revised Classification of Epilepsies and Epileptic Syndromes," Epilepsia, vol. 30, no. 4, 1989.

[15]     G. Dellatolas, I. Annesi, P. Jallon, M. Chavance, and J. Lellouch, "An Epidemiological Reconsideration of the Geschwind-Galaburda Theory of Cerebral Lateralization," Arch. Neurol., vol. 47, no. 7, 1990.

[16]     R. K. Lenroot et al., "Sexual dimorphism of brain developmental trajectories during childhood and adolescence," Neuroimage, vol. 36, no. 4, 2007.

[17]     M. Ingalhalikar et al., "Sex differences in the structural connectome of the human brain," Proc. Natl. Acad. Sci. U. S. A., vol. 111, no. 2, 2014.

[18]     W. S. Fleet and K. M. Heilman, "Acquired stuttering from a right hemisphere lesion in a right-hander," Neurology, vol. 35, no. 9, 1985.

## 0062 - Regressive Autism with Autoimmune Encephalitis

Orgül Yıldız Özşan1, Pınar Aydoğan Avşar2, Orhan Kocaman1

1Department of Child and Adolescent Psychiatry and Diseases,Alaaddin Keykubat University, Faculty of Medicine, Alanya, Antalya, Turkey
Department of Child and Adolescent Psychiatry and Diseases, Alanya Training and Research Hospital, Antalya, Turkey

**Background and Aim:** Autism spectrum disorder (ASD) typically starts in the early years of life and is characterized by severe impairments in mutual communication and social interaction and restricted and repetitive behaviors. In addition, two biological conditions with known etiologies also involve regression with some behaviors resembling autism behavioral phenotype: Rett syndrome and Landau–Kleffner syndrome, which involves a seizure disorder. Atypical features, which may suggest an alternative diagnosis, and warrant further investigations to exclude both congenital and acquired causes, include severe learning difficulties, the presence of an early onset epileptic syndrome or an associated movement disorder. [1]. A course manifested by the loss of previously acquired skills between 15 and 30 months of life was reported in 32.1% of ASD cases [2]. There is a sudden or gradual loss of acquired skills in this group of children who follow normal development in the first 1-2 years of life. The primary areas of loss were grouped into language skills, social interest, adaptive functioning, and motor skills. Epilepsy has been the most studied risk factor for the etiology of regression so far. It has been shown that there is a 40% association between ASD and familial autoimmune diseases [3]. These findings suggest that autoimmune mechanisms may play an important role in at least one subgroup of ASD. Autoimmune encephalitis is a clinical state that presents with acute or subacute-onset encephalopathy, seizures, cognitive impairment, and neuropsychiatric symptoms. We report here a patient with regressive autism who had a positive serum antibody (anti-CASPR2) for autoimmune encephalitis. . Of note, autism-like symptoms related to autoimmune encephalitis are extremely rare.

**Methods**: A 4-year-old boy was presented to the child and adolescent mental health and disease outpatient clinic by his parents with complaints of introversion, not playing with his peers, not establishing social relationships, decreased eye contact, aimless hand movements, and regression in speech. His parents noted that after his sister's birth at the age of 3, he started to repeat certain sentences and wanted to wear only certain clothes. Pre-illness videos revealed that before the age of 3, he was a cheerful child who could make eye contact, respond to his name consistently, play with his peers, speak spontaneously with his family and relatives, form sentences, imitate animals such as cats, and ask questions on topics that interested him. In the psychiatric evaluation, it was observed that he couldn't speak and only made meaningless sounds, didn't look at his name consistently, didn't engage in social interaction, and didn't follow simple commands. The patient's general physical examination was normal. The signs of meningeal irritation were negative. No significant lesions or contrast enhancements were observed on magnetic resonance imaging. In the light of the laboratory and clinical findings, the possibility of an autoimmune disease was considered in the first place, although viral infectious etiologies could not be ruled out. During the first psychiatric examination, the Childhood Autism Rating Scale (CARS) was completed, and the score was 52. The patient was diagnosed with ASD according to the DSM-5 criteria. Serum antibody tests for anti-NMDAR (N-MethylD-aspartate receptor), anti-AMPA 1, anti-AMPA 2, anti-CASPR 2, anti-LGI 1, anti-GABAR B1, and anti-GAD were conducted to rule out the possibility of autoimmune encephalitis, and anti-CASPR2 came back positive. There was considerable overlap in this child with NMDAR-Ab encephalitis. Expressive dysphasia and mutism are typically seen in patients with the full-blown anti-NMDAR encephalitis and can mimic an autistic regression particularly if present under the age of 3 year. . Dyskinesias, agitation, seizures, and insomnia were mostly dominant in anti-NMDAR-positive children, whereas parkinsonism and somnolence dominated in the anti-NMDAR-negative children. CSF (cerebrospinal fluid) electroimmunoassay revealed no IgG oligoclonal bands. Serum IgM and IgG for measles were also negative. And so was CSF bacterial culture. Polymerase chain reaction (PCR) assay of the CSF was negative for cytomegalovirus (CMV), herpes virus (HSV1, HSV2, HHV6), Epstein–Barr virus (EBV), and varicella zoster (VZV). EEG was in keeping with encephalopathy, with diffuse background slowing and disorganisation without epileptiform discharges, and abnormal sleep architecture with spikes in the right frontal region The pediatric neurology department administered 20 mg/kg IVIG after finding positive anti-CASPR2 antibodies in the autoimmune encephalitis panel. Therefore, detailed investigations were planned to help make a differential diagnosis, and IVIG treatment of 20 mg/kg was started on the 11th day of hospitalization and continued for 5 days. Anti-CASPR2 became negative in the patient's serum after 12 doses of IVIG treatment. A very partial improvement in clinical findings was observed. After IVIg administration, the clinical condition of the patient gradually improved. On the 24th day, when he was discharged, it was noted that he was able to make eye contact, speak and communicate with her family members. 6 months after discharge, his clinical status improved and he did not have any epileptic seizures. He made a good recovery after a relatively short period of hospitalization, in which, we think, IVIg has an important role.. Although the exact etiology of the symptoms was not clarified, he responded well to IVIg treatment as expected in autoimmune encephalitis.

**Results**: About 30% of ASD cases, which develop normally through the first 18 to 20 months of life, have a "setback" in development, characterized as the loss of some abilities attained, mainly in speech, before age 2. ASD is thought to be related to immune dysfunction. Autistic behaviors can be seen in patients with infectious or autoimmune encephalitis and in experimental animal models of autoimmune encephalitis [4]. In conclusion, NMDAR-Ab should be tested in cases of regression of social and communication skills. Unlike autism, early diagnosis and treatment of NMDAR-Ab encephalitis is associated with a much improved outcome. Akcakaya et al. reported a pediatric case of atypical enterovirus encephalitis causing autism-like clinical manifestations [5].

**Conclusions:** A differential diagnosis is crucial because immunotherapy may be beneficial for this subtype of autism. Early diagnosis and treatment of these patients is associated with a much-improved outcome. Discoveries of new antibodies resulting in autoimmune encephalitis make it possible to understand in what ways clinical presentations may differ. Further investigations are required to be carried out with more patients to identify the relationship.

**Keywords:** Autism Spectrum Disorder, Regressive Autism, Autoimmune Encephalitis, IVIG, Neurodevelopmental Disorders

**References:**
[1] Association AP. The Diagnostic and Statistical Manual of Mental Disorders: DSM 5, Washington DC, 2013.
[2] S. J. Rogers, "Developmental regression in autism spectrum disorders," Ment. Retard. Dev. Disabil. Res. Rev., vol. 10, no. 2, pp. 139–143, 2004, doi: 10.1002/MRDD.20027.
[3] H. Ó. Atladóttir et al., "Maternal infection requiring hospitalization during pregnancy and autism spectrum disorders," J. Autism Dev. Disord., vol. 40, no. 12, pp. 1423–1430, Dec. 2010, doi: 10.1007/S10803-010-1006-Y.
[4] Y. Hacohen et al., "N-methyl-d-aspartate (NMDA) receptor antibodies encephalitis mimicking an autistic regression," Dev. Med. Child Neurol., vol. 58, no. 10, pp. 1092–1094, Oct. 2016, doi: 10.1111/DMCN.13169.
[5] N. H. Akcakaya, P. Tekturk, A. Cagatay, E. K. Tur, and Z. Yapici, "Atypical enterovirus encephalitis causing behavioral changes and autism-like clinical manifestations: case report," Acta Neurol. Belg., vol. 116, no. 4, pp. 679–681, 2016, doi: 10.1007/s13760-016-0614-5.

## 0063 - Can Psychiatric Childhood Disorders Be Due to İnborn Errors of Metabolism: 3-Methylcrotonyl-Coa Carboxylase Deficiency and ADHD

Merve Sema Arslan[1], Pınar Aydoğan Avşar[2], Tayfun Kara[1]

[1]Department of Child and Adolescent Psychiatry an Diseases, Alaaddin Keykubat University, Faculty of Medicine, Alanya, Antalya, Turkey
[2]Department of Child and Adolescent Psychiatry an Diseases, Alanya Training and Research Hospital, Alanya, Antalya, Turkey

**Background and Objective:** Many patients who visit a center for hereditary metabolic diseases remarkably also suffer from a child psychiatric disorder. A lack of knowledge of metabolic disorders in child psychiatry may lead to diagnoses being missed. Attention deficit/hyperactivity disorder (ADHD) is a common neurodevelopmental disorder that affects approximately 5–10% of children and 2–5% of adults worldwide. While ADHD is highly heritable, its etiology is complex, and there is strong evidence for an interplay of inflammatory processes in brain with genetic risk in the development of (1).

Neurometabolic diseases (NMDs) are typically caused by genetic abnormalities that affect enzyme functions, which in turn interfere with the normal development and activity of the nervous system. Neuropsychiatric symptoms, including ADHD symptoms, are prominent in many NMDs. ADHD symptoms have been described in phenylketonuria, tyrosinemias, succinic semialdehyde dehydrogenase deficiency, maple syrup urine disease (MSUD) and various mitochondrial disorders (2). Isolated 3-methylcrotonyl-CoA carboxylase (MCC) deficiency is an autosomal recessive disorder of leucine metabolism. The mitochondrial enzyme MCC catalyzes the fourth step in the leucine catabolic pathway and belongs to the family of biotin-dependent carboxylases, including acetyl-CoA carboxylase, propionyl-CoA carboxylase and pyruvate carboxylase (3).

3-Methylcrotonyl-CoA carboxylase deficiency (3-MCCD) is caused by mutations in the MCCC1 gene or the MCCC2 gene. MCCC1 encodes the a-subunits of 3-methylcrotonyl-CoA carboxylase while MCCC2 encodes the b-subunits.

3-MCCD is one of the most common inborn errors of metabolisms diagnosed by newborn screening with a prevalence ranging from 1:2400 to 1:68,000 depending on the population . Surprisingly, MCC deficiency was found to be the most frequent organic aciduria detected in tandem mass spectrometry based newborn screening programs in North America , Europe and Australia (3). Manifestations of 3-MCCD range from asymptomatic to neonatal onset with extreme neurological symptoms and even fatal cases. Those with 3-MCCD typically display normal development until 6 months to 3 years old when patients present with an acute episode. These acute episodes are typically brought on by increased protein load or intercurrent infections. During a metabolic crisis, moderate hyperammonemia, hypoglycemia, and metabolic acidosis have been noted. There is a broad spectrum of clinical manifestations ranging from cardiomyopathy, developmental delays, leukodystrophy, necrotizing encephalopathy, respiratory failure, hypotonia, cerebral palsy , and failure to thrive (4). We report here a case of 3-MCCD with ADHD symptoms who was treated with methylphenidate successfully.

**Methods:** The patient, a seven-year-old first grade student, was admitted to the child and adolescent psychiatry outpatient clinic because of hyperactivity, inability to focus, talking to his friends in class and inability to control his anger. He had difficulties in learning also. According to the anamnesis taken from the family, it was learned that he was an IVF pregnancy and he was born by cesarean section at term. Due to postnatal jaundice, the newborn stayed in the neonatal intensive care unit for 21 days. Early psychomotor development was delayed: head control at more than 4 months, sitting alone without support at about 11 months and walking alone at 23 months. At the age of four, they were admitted to the hospital with acute crisis as a result of progression of pneumonia sepsis and metabolic investigations revealed increased 3-hydroxyisovaleric acid and 3-feethylcrotonylglycine in urine and increased 3-hydroxyisovalerylcarnitine in blood. Following these results, the mutations in the MCCC1 was detected in the genetic analysis and he was diagnosed with 3-MCCD. He was prescribed a low-protein diet to alleviate symptoms by avoiding leucine, and L-carnitine supplements were included in the diet. When the individual was 6 years old, he was referred to our clinic by his teacher in preschool with the complaint of mobility and inability to focus. In addition, his mother stated that he had difficulties in peer relations and was unable to maintain communication and often argued with his friends. These symptoms were consistent since childhood and persisted independently of metabolic control. The Schedule for Affective Disorders and Schizophrenia for School-Aged Children, Present and Lifetime Version (KSADS-PL) was applied for patient by a child psychiatrist . ADHD diagnosis was made on the basis of the DSM-5 criteria.

To assess the children's ADHD and disruptive behavior symptoms severity, parents and the teacher of the patient completed the Turgay DSM-IV-Based Child and Adolescent Behavioral Disorders Screening and Rating Scale.

Before starting ADHD treatment, urinary dopamine metabolites were examined, and the values were close to the lower limit within normal ranges. Methylphenidate treatment was initiated at a daily dose of 10 mg, and after monitoring for side effects, the dose was increased to 27 mg per day. Urinary levels of 3-hydroxyisovaleric acid and blood levels of 3-hydroxy isovalerylcarnitine were monitored, and there was no significant increase observed in the levels of these metabolites in the blood and urine, indicating the absence of any metabolic side effects. In addition, no known methylphenidate-related side effects occurred. After the treatment, the patient started reading and there were significant improvements in impulsivity, mobility and attention deficit symptoms, and significant improvements were observed in the KSADS-PL Scale administered by the child psychiatrist and the Turgay Scale administered by the teacher.

**Results:** The literature search found several studies concerning the prevalence of ADHD in individuals with a metabolic disorder. Knerr studied a population of 33 subjects with succinic semialdehyde dehydrogenase deficiency of which 28 % showed behavioral problems such as ADHD. Arnold et al. discovered that 26% of 38 phenylketonuria children take stimulants for attentional dysfunction, considerably higher than in an age- and sex-matched control group (5).

Muelly et al. showed that MSUD patients also have different comorbid neuropsychiatric conditions, including a high incidence of ADHD (6). In addition, Kraya et al. found executive function and attention deficits in Mitochondrial encephalomyopathy, lactic acidosis and stroke-like episodes (MELAS) syndrome (7). MCC is a mitochondrial enzyme and catalyzes the fourth step in the leucine catabolic pathway. Also, MCC deficiency affects leucine metabolism similarly to MSUD. In 3-MCCD, there is an increase in the amount of amino acids due to the inability to break down leucine amino acid. Leucine is one of the Branched-chain amino acids (BCAAs) and affects the levels of amino acids in the brain by influencing large amino acid transporters such as L-type amino acid transporter 1 (LAT1) at the blood-brain barrier. Leucine competes with aromatic amino acids including tyrosine and tryptophan on these carriers. Tyrosine is a precursor to dopamine and norepinephrine, and tryptophan is a precursor to serotonin. Therefore, increased plasma levels of BCAAs may lead to a decrease in tyrosine and tryptophan levels in the brain. This, in turn, can result in decreased synthesis of dopamine, norepinephrine, and serotonin (8). The metabolites of these neurotransmitters in urine are suggested to be used as biomarkers for neurotransmitter activity in the brain. Therefore, as shown in our case, decreased levels of dopamine and noradrenaline urinary metabolites have been demonstrated in ADHD patients. Based on this, it is suggested that there may be an imbalance between brain concentrations of BCAAs like leucine and aromatic amino acids like tyrosine in ADHD patients (9). The interaction between these amino acids in affecting each other's levels in the brain could explain the co-occurrence of MCCD with ADHD in our case.

Furthermore, increased leucine in the brain affects the levels of tyrosine amino acid, reducing DA and NE synthesis (8). In the treatment of ADHD symptoms in our case, methylphenidate, a medication that increases NE and DA levels in the synaptic cleft, was used, and a decrease in ADHD symptoms was observed after treatment. Another explanation for the relationship between 3-MCCD and ADHD in our case could be the effect of 3-MCCD on neurotransmitter levels. Our case supports that mitochondrial enzyme defects and their leucine metabolites may play a role in the etiology of ADHD, one of the neurodevelopmental diseases, due to their effects on the brain, and further research is needed on this subject.

When we examined the literature we found only one case report which described a female with isolated 3-MCCD and ADHD. He was diagnosed at 13 which is very late also had psychomotor retardation, in addition to ADHD (10). To contribute to the literature, we present a case of ADHD accompanying both metabolic diseases and MCCD. MCCD is a prevalent metabolic disorder in some populations and should be included in newborn screening. Our report highlights the significance of considering neurodevelopmental psychiatric disorders that co-occur with metabolic diseases. This is because these patients may derive therapeutic advantages from stimulant drug administration without compromising the safety of their metabolic disease treatment, as seen in our case.

Because in our case, increasing the dose of methylphenidate did not affect the levels of leucine metabolites (3-hydroxyisovaleric acid, 3-hydroxyisovalerylcarnitine) in blood and urine. The absence of any side effects due to methylphenidate supports that methylphenidate may be a safe option in ADHD, which is a comorbid metabolic disease.

**Keywords:** ADHD, 3-Methylcrotonyl-Coa Carboxylase Deficiency, Metabolic Disorders, methylphenidate, mitochondrial enzyme defects, leucine

**References:**

1-) Takahashi, N.; Nishimura, T.; Harada, T.; Okumura, A.; Iwabuchi, T.; Rahman, S.; Kuwabara, H.; Takagai, S.; Usui, N.; Makinodan, M.; et al. Interaction of genetic liability for attention deficit hyperactivity disorder (ADHD) and perinatal inflammation contributes to ADHD symptoms in children. Brain Behav. Immun. Health 2023, 30, 100630

2-) Cannon Homaei S, Barone H, Kleppe R, Betari N, Reif A, Haavik J. ADHD symptoms in neurometabolic diseases: Underlying mechanisms and clinical implications. Neurosci Biobehav Rev. 2022 Jan;132:838-856. doi: 10.1016/j.neubiorev.2021.11.012. Epub 2021 Nov 11. PMID: 34774900.

3-) Grünert SC, Stucki M, Morscher RJ, Suormala T, Bürer C, Burda P, Christensen E, Ficicioglu C, Herwig J, Kölker S, Möslinger D, Pasquini E, Santer R, Schwab KO, Wilcken B, Fowler B, Yue WW, Baumgartner MR. 3-methylcrotonyl-CoA carboxylase deficiency: clinical, biochemical, enzymatic and molecular studies in 88 individuals. Orphanet J Rare Dis. 2012 May 29;7:31. doi: 10.1186/1750-1172-7-31. PMID: 22642865; PMCID: PMC3495011.

4-) Oude Luttikhuis, H. G. M.; Touati, G.; Rabier, D.; Williams, M.; Jakobs, C.; Saudubray, J. M. (2005). "Severe hypoglycaemia in isolated 3-methylcrotonyl-CoA carboxylase deficiency; a rare, severe clinical presentation". Journal of Inherited Metabolic Disease. Wiley. 28 (6): 1136–1138.

5 -) Arnold G, Vladutiu C, Orlowski C, Blakely E, Deluca J (2004) Prevalence of stimulant use for attentional dysfunction in children with phenylketonuria. J Inherit Metab Dis 27:137–143

6-) Muelly ER, Moore GJ, Bunce SC, Mack J, Bigler DC, Morton DH, Strauss KA. Biochemical correlates of neuropsychiatric illness in maple syrup urine disease. J Clin Invest. 2013 Apr;123(4):1809-20. doi: 10.1172/JCI67217. Epub 2013 Mar 8. PMID: 23478409; PMCID: PMC3613932.

7-) Kraya T, Neumann L, Paelecke-Habermann Y, Deschauer M, Stoevesandt D, Zierz S, Watzke S. Cognitive impairment, clinical severity and MRI changes in MELAS syndrome. Mitochondrion. 2019 Jan;44:53-57. doi: 10.1016/j.mito.2017.12.012. Epub 2017 Dec 29. PMID: 29289801.

8-) Fernstrom JD. Branched-chain amino acids and brain function. J Nutr. 2005;135(6 Suppl):1539S-46S. doi:10.1093/jn/135.6.1539S

9-) Yamashita, M., Morinaga, M., & Yamamoto, T. (2018). Insight into neurodevelopmental disorders related to the imbalance of monoamine neuroactive metabolites and essential amino acids. Biomedical Journal of Scientific & Technical Research, 4(1), 3742-3745.

10-) Darin N, Andersen O, Wiklund L, Holmgren D, Holme E (2007) 3-methylcrotonyl-CoA carboxylase deficiency and severe multiple sclerosis. Pediatr Neurol 36:132–134

## 0085 - Autism Spectrum Disorders with Landau-Kleffner Syndrome

Aylin Esen1, Tayfun Kara2, Orhan Kocaman3

1Department of Child and Adolescent Psychiatry and Diseases, Alaaddin Keykubat University, Faculty of Medicine, Alanya, Antalya, Turkey
2Department of Child and Adolescent Psychiatry and Diseases, Alanya Training and Research Hospital, Antalya, Turkey

**Introduction**: Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder characterized by impairments in social interaction and language skills, restricted interests, and repetitive or stereotyped behaviors. Genetic factors are prominent in the pathogenesis of Autism Spectrum Disorder, although many factors such as neurological, environmental, and biochemical factors are also implicated. Despite this, the etiology of ASD is not well understood, and its pathogenesis remains unknown. The clinical presentation can vary over time, with core behavioral symptoms sometimes diminishing over time but certain behaviors persisting and becoming challenging in the long term.EEG abnormalities and epilepsy have long been known to be common in Autism Spectrum Disorders. Moreover, clinical similarities occasionally observed with epileptic phenomena, such as Convulsive Acquired Aphasia (Landau-Kleffner syndrome), particularly in relation to language development delays and interruptions, suggest a significant connection between these two clinical entities worth exploring.Cases of Landau-Kleffner syndrome, characterized by autistic-like movements, withdrawn behavior, responses to changes in daily activities, stereotypical echolalia, echopraxia, and hyperlexia, have been reported.Landau-Kleffner syndrome (LKS) is a convulsive disorder characterized by acquired aphasia, often starting between the ages of 3 and 8, initially presenting with verbal auditory agnosia and evolving into an expressive aphasic picture, sometimes accompanied by seizures, and characterized by typical paroxysmal EEG abnormalities with fluctuating clinical courses.Typically, children with Landau-Kleffner syndrome exhibit normal development initially but later lose language skills. While most affected individuals clinically experience seizures, some only exhibit seizures noticed during electroencephalography. The interval between the onset of seizures and the loss of speech can range from several months to two years; either may precede the other. The seizure pattern can be generalized, partial complex, or absence. It has been hypothesized that paroxysmal activity in the temporal regions, more evident during slow-wave sleep on EEG, may be associated with speech loss and functional ablation of the speech area. Between 1957 and 1995, approximately 200 cases were reported, with three-quarters of cases presenting with epileptic seizures, half of which manifested with seizures. Onset occurred between the ages of 3 and 8 in half of the cases. Emotional and behavioral disturbances are frequently observed in the months following the onset of speech loss, which tends to diminish as the child acquires alternative means of communication. Severe behavioral disorders were reported in three-quarters of cases, with long-term follow-up (>7 years) revealing hyperactivity, impulsivity, oppositional defiant disorder, language function impairment, and fluctuations correlated chronologically. According to the original description by Landau and Kleffner, it was noted that some children exhibited more widespread behavioral disorders and neurocognitive regression. Some researchers consider Landau-Kleffner syndrome as a variant of Pervasive Developmental Disorder and suggest that when Landau-Kleffner syndrome has an early onset, it may lead to the emergence of autistic-like behavioral characteristics.

**Case Presentation**: A 4-year-old boy, the first and only child of a 32-year-old lawyer mother and a 34-year-old police officer father, was brought to our clinic with complaints of increased withdrawal, loss of bladder and bowel control despite completing toilet training, refusal to play with peers, failure to establish social interactions, reduced eye contact, purposeless movements, inability to provide meaningful responses to questions, fixation on the washing machine, lack of interest in playing with toys, self-muttering, and regression in speech, particularly noted over the past month. His medical history revealed a diagnosis of epilepsy 1.5 years ago, for which he was taking 250 mg of levetiracetam twice daily. Information obtained indicated an uneventful pregnancy, timely birth, and breastfeeding for the first 7 months, with constant care provided by the mother. Developmental milestones included walking at 18 months, starting to speak single words at 30 months, and forming two-word sentences at 4 years. Toilet training was achieved by the age of 3. While previously able to communicate with peers and parents and engage in purposeful play with toys, over the past month, he appeared withdrawn, indifferent to his surroundings, showed decreased speech, made meaningless sounds, reduced eye contact, avoided playing with peers, and engaged in aimless activities at home. The family mentioned a previous diagnosis of speech delay at another clinic and were advised to enroll him in daycare. Psychiatric examination revealed absence of speech, lack of eye contact, absence of social communication and joint attention, and inconsistent response to his name. Considering the patient's history of epilepsy and clinical findings, consultation with the pediatric neurology department was sought, and a diagnosis of Landau-Kleffner Syndrome was made, leading to the initiation of appropriate treatment and referral for special education for Autism Spectrum Disorder.

**Conclusions:** Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder characterized by symptoms present from early developmental stages and persisting throughout life. While genetic factors are prominent in its pathogenesis,

various factors including neurological, environmental, and biochemical factors are also believed to be associated with Autism Spectrum Disorder, although the etiology remains poorly understood and the pathogenesis is still unknown. The clinical presentation can vary over time, with core behavioral symptoms sometimes improving while certain behaviors may remain persistent and become challenging in the long term. These individuals often have additional problems related to independent daily living skills, sensory sensitivities, sleep and feeding issues, mental health concerns, and behaviors that put themselves and others at risk. Early initiation of treatment is crucial upon diagnosis or identification of high-risk presence of Autism Spectrum Disorder. It has been reported in both domestic and foreign literature that symptoms of Autism Spectrum Disorder may be observed during the course of Landau-Kleffner Syndrome (LKS). Landau-Kleffner Syndrome has been commonly identified in children diagnosed with Autism Spectrum Disorder who exhibit a significant regression in language and social development during the first two years of life. The relationship between Landau-Kleffner Syndrome (LKS) and Autism Spectrum Disorder (ASD) is extensively debated in medical literature. There are claims suggesting that symptoms of Autism Spectrum Disorder and Landau-Kleffner Syndrome may share similarities, especially in children diagnosed with Autism Spectrum Disorder, where symptoms of Landau-Kleffner Syndrome have been reported. While Landau-Kleffner Syndrome is characterized by a combination of language regression and epileptic seizures, Autism Spectrum Disorder is characterized by difficulties in social interaction, repetitive behaviors, and restricted interests. However, in some cases, children diagnosed with Autism Spectrum Disorder have exhibited symptoms resembling those of Landau-Kleffner Syndrome. This indicates that the boundaries between these two conditions may be blurred, making diagnosis challenging. Nevertheless, the relationship between Landau-Kleffner Syndrome and Autism Spectrum Disorder is not fully understood. Some researchers suggest that these conditions arise from the same neurodevelopmental process, while others argue that Landau-Kleffner Syndrome has an epileptic origin and differs in etiology from autism. In conclusion, children presenting with symptoms of Autism Spectrum Disorder, such as restricted interests, repetitive behaviors, regression in social interaction, and decreased speech, should be carefully evaluated. Neurological, audiological, and psychiatric examinations should be conducted to investigate for Landau-Kleffner Syndrome and similar epileptic syndromes.

**Keywords:** Autism spectrum disorders, Landau-Kleffner syndrome, Neurodevelopmental disorders, Acquired aphasia, Regressive autism

**References:**

1-)American Psychiatric Association (2013) Diagnostic and statistical manual for mental disorders, text revision (DSM-5).

2-)National Institutes of Health (2008) Landau-Kleffner syndrome. Office of Rare Diseases Research Washington DC. National Institutes of Health (2008) Landau-Kleffner syndrome.

3-)Landau WM, Kleffner FR. Syndrome of acquired aphasia with convulsive disorder in children. 1957. Neurology. 1998

4-)Alyanak B, Motavallı Mukaddes N (2002) Cases in which pervasive developmental disorders and Landau Kleffner syndrome overlap (5 Case Reports). Düşünen Adam 15:113-6.

5-)Lord C, Shulman C, DiLavore P (2004) Regression and word loss in autistic spectrum disorders. J Child Psychol Psyc 45:936–55.

## 0089 – BDNF Levels in the Students with Internet Addiction and Effects of Childhood Traumas on These Levels

Fatma Akalın[1], Eser Kılıç[2], Ertuğrul Eşel[2], Gülüstan Eşel[2]

[1]Department of Psychiatry, Kayseri Public Hospital, Kayseri, Turkey; [2]Department of Psychiatry, Erciyes University, Kayseri, Turkey

**Objective:** The Internet is a communication and information sharing tool that is becoming widespread day by day, used by everyone and renewed every day. Internet use has become one of the escape routes used to prevent focusing on trauma or stressful life events. Research shows that severe stress experiences such as childhood traumas may decrease BDNF levels and thus cause a predisposition to psychiatric diseases, including addictions. Although the relationships between childhood trauma and internet addiction, between BDNF and internet addiction, and between childhood trauma and BDNF have been studied separately, there are few studies investigating the relationships between these three variables. In this study, BDNF levels and the effects of childhood traumas on BDNF levels were investigated in internet addicts. Therefore, it is aimed to clarify whether the effects of childhood traumas on the development of internet addiction are mediated by BDNF, and thus to contribute to explain the etiopathogenesis of internet addiction.

**Methods:** A total of 84 university students, 41 with problematic internet use (PIU) and 43 with normal internet use (NIU), studying at Erciyes University in 2021-2022 were included in the study. The sample group was formed by visiting the students in the classrooms. 84 students voluntarily agreed to participate and the students who agreed to participate in the study were given detailed information about the research and their informed consent was obtained. Young Internet Addiction Test (YIAT), Childhood Trauma Questionnaire (CTQ), Hamilton Depression Rating Scale (HAM-D), Hamilton Anxiety Rating Scale (HAM-A) were applied to both groups, and serum BDNF levels were measured.

Young Internet Addiction Test (YIAT): The criteria presented by Young were taken into consideration to evaluate the results of the internet addiction scale. In the Internet Addiction Scale, the participant is asked to select one of the options "Never", "Rarely", "Occasionally", "Mostly", "Very often" and "Constantly". These options are given 0, 1, 2, 3, 4 and 5 points respectively. In our study, those who scored 0- 49 points from the internet addiction test were defined in the NIU group, while those who scored 50-100 points were defined in the PIU group.

Childhood Trauma Questionnaire (CTQ): The childhood trauma scale was developed by Bernstein and it consists of 28 questions. 25 of the 28 questions are used to calculate the total score, the remaining 3 questions are used to calculate the denial of trauma (minimization).

Measurement of serum BDNF: For the measurement of BDNF serum levels a total of 10 cc blood sample from the antecubital vein has been taken. Serum samples were evaluated with Enzyme-linked immunosorbent assay (ELISA) device at Erciyes University Faculty of Medicine Department of Biochemistry Laboratory.

**Statistical Analysis**: The Shapiro-Wilk test, skewness and kurtosis values, q-q plot graph, histogram and boxplot graph were used to evaluate whether the distribution of the obtained continuous data was normal or not. Since the distributions are not normal, the double group comparisons of the data were performed with the Mann-Whitney U test and correlation analyses were performed by nonparametric Spearman correlation test (rs).

**Results:** No statistically significant difference was found between the groups in the minimization, physical abuse, emotional neglect, sexual abuse sub-dimensions of the childhood trauma scale (p = 0,054, p = 0,75, p = 0,07, p=0,77, respectively).

CTQ emotional abuse, physical neglect sub-dimensions scores and childhood trauma total scores (CTQTS) were found to be significantly higher in the PIU group compared to those in the NIU group (p<0,001, p<0,001, p<0,001, respectively). No statistically significant difference was found between those with PIU and NIU in terms of BDNF levels (p = 0,219).

The correlations of PIU group were evaluated by Spearman correlation test. A negative correlation was found between serum BDNF levels and CTQ emotional neglect scores (rs = 0,313). A statistically significant positive correlation was found between the Young internet addiction scale and physical abuse scores in the NIU group (rs = 0.334).

**Discussion:** There aren't enough studies in the literature about the relationship between internet addiction and BDNF, but there are studies investigating the relationship between serum BDNF and gambling, which is a behavioral addiction as internet addiction. As a result of these studies, a positive relationship was found between gambling addiction and BDNF levels (1). It has been thought that the increase in BDNF in gambling addiction may be a compensatory mechanism for normalizing dopaminergic transmission associated with midbrain dopamine release. Although there are common neural mechanisms between internet addiction and behavioral addictions, the lack of relationship between internet addiction and BDNF suggests that there may be different etiological mechanisms underlying internet addiction.

Aas et al. found a negative relationship between sexual abuse and serum BDNF levels (2). Researchers have interpreted this situation as that severe stress experiences, such as childhood traumas, reduce BDNF, worsen the effects of trauma on brain development, and therefore may cause a predisposition to psychiatric diseases. It is thought that high BDNF level protects the brain from the toxic effect of glucocorticoids and supports neurogenesis.

Carver et al. examined the relationship between childhood trauma and Val66Met polymorphism of BDNF and stated that people with childhood trauma with this polymorphism are more susceptible to mental illnesses (3). The studies in the literature are based on general society and none of them were conducted with internet users in a similar way to our study.

There are two studies that we can find in the literature that investigate the relationship between internet addiction and BDNF. One of these studies studied Val6225Met polymorphisms, while the other is Val158Met polymorphisms of BDNF. It has been found that people with Val6225Met polymorphism and a history of childhood trauma have an increased susceptibility to internet addiction, while the Val158Met polymorphism CC Val Val genotype may reduce the risk of internet addiction in those with a history of childhood trauma (4, 5). It has been thought that traumatic experiences in childhood may cause a decrease in BDNF levels with their negative effects on brain development, and low BDNF may also increase the predisposition to psychiatric diseases, including internet addiction.

However in our study, there was no difference between problematic internet users and normal users in terms of BDNF levels, and there was no correlation between YIAT scores and scores of CTQ or BDNF levels in those with PIU. So it was concluded that the possible effects of childhood traumas on the development of PIU were not through its effects on BDNF levels.

**Keywords**: Internet addiction, BDNF, childhood traumas

**References:**

1.      Geisel O, Banas R, Hellweg R, et al. Altered serum levels of brain-derived neurotrophic factor in patients with pathological gambling. Eur Addict Res 2012;18:297-301.

2.      Aas M, Dieset I, Mørch R, et al. Reduced brain-derived neurotrophic factor is associated with childhood trauma experiences and number of depressive episodes in severe mental disorders. Schizophr Res 2019;205:45-50.

3.      Carver CS, Johnson SL, Joormann J, et al. Childhood adversity interacts separately with 5-HTTLPR and BDNF to predict lifetime depression diagnosis. J Affect Disord 2011;132:89-93.

4.      Kibitov A, Trusova A, Chuprova N, et al. An associations of possible genetic risk markers for Internet addiction with childhood trauma experience and personality traits in young adults: preliminary results. Zh. Nevrol. *Psikhiatr*. 2021;121:77-83.

5.      Chuprova N, Merkulova T, Solovieva M, et al. Childhood violence experience interacts with BDNF Val158Met polymorphism and modify internet addiction risk [poster]. Eur Psychiatry 2022;65:128

**Table 1. Childhood trauma scale and BDNF levels of PIU and NIU groups**

| | PIU (N=41) Median (min-max) | NIU (N=43) Median (min-max) | Comparison |
|---|---|---|---|
| Minimization | 0 (0-3) | 0 (0-3) | U = 1065 $p = 0,054$ |
| Physical Abuse | 5 (5-12) | 5 (5-6) | U = 907,5 $p = 0,750$ |
| Emotional Abuse | 7 (5-21) | 5 (5-13) | U = 376 $p < 0,001$ |
| Emotional Neglect | 7 (4-14) | 5 (4-8) | U = 203,5 $p < 0,001$ |
| Physical Neglect | 9 (5-25) | 8 (5-15) | U = 681 $p = 0,075$ |
| Sexual Abuse | 5 (5-19) | 5 (5-8) | U = 765,5 $p = 0,771$ |
| CTSTS | 36 (24-67) | 29 (26-42) | U = 433,5 $p < 0,001$ |
| BDNF | 3,57 (1,02-11,58) | 6 (0,17-11,51) | U = 1019 $p = 0,219$ |

U: Mann-Whitney U Test, PIU: Problematic Internet Use, NIU: Normal Internet Use, CTSTS: Childhood Trauma Scale Total Score

## KLİNİK ARAŞTIRMALAR ETİK KURULU KARAR FORMU (2011 - KAEK-80)

### KLİNİK ARAŞTIRMALAR ETİK KURULU KARAR FORMU

| ARAŞTIRMANIN AÇIK ADI | İnternet bağımlılarında serum brain derived neurotrophic factor (BDNF) düzeyleri ve çocukluk çağı travmalarının bu düzeylere etkisi |
|---|---|

VARSA ARAŞTIRMANIN PROTOKOL KODU

**DEĞERLENDİRİLEN BELGELER**

| BELGE ADI | Tarihi | Versiyon Numarası | Dili | | |
|---|---|---|---|---|---|
| ARAŞTIRMA PROTOKOLÜ | | | Türkçe | İngilizce | Diğer |
| BİLGİLENDİRİLMİŞ GÖNÜLLÜ OLUR FORMU | | | Türkçe | İngilizce | Diğer |
| OLGU RAPOR FORMU | | | Türkçe | İngilizce | Diğer |
| ARAŞTIRMA BROŞÜRÜ | | | Türkçe | İngilizce | Diğer |

**DEĞERLENDİRİLEN DİĞER BELGELER**

| BELGE ADI | | Açıklama |
|---|---|---|
| SİGORTA | | |
| ARAŞTIRMA BÜTÇESİ | | |
| BİYOLOJİK MATERYEL TRANSFER FORMU | | |
| İLAN | | |
| YILLIK BİLDİRİM | | |
| SONUÇ RAPORU | | |
| GÜVENLİK BİLDİRİMLERİ | | |
| DİĞER | | |

**KARAR BİLGİLERİ**

Karar No : 2022/256    Tarih : 23.03.2022

Yukarıda bilgileri verilen prospektif başvuru dosyası ile ilgili belgeler araştırmanın/çalışmanın gerekçe, amaç, yaklaşım ve yöntemleri dikkate alınarak incelenmiş ve uygun bulunmuş olup araştırmanın/ çalışmanın başvuru dosyasında belirtilen merkezlerde gerçekleştirilmesinde etik ve bilimsel sakınca bulunmadığına toplantıya katılan etik kurul üye tam sayısının salt çoğunluğu ile karar verilmiştir.

### KLİNİK ARAŞTIRMALARI ETİK KURULU

| ETİK KURULUN ÇALIŞMA ESASI | Klinik Araştırmalar Hakkında Yönetmelik, İyi Klinik Uygulamalar Kılavuzu |
|---|---|
| ETİK KURUL BAŞKANI UNVANI/ADI/SOYADI | Prof. Dr. Sema Kader KÖSE |

| Unvanı / Adı Soyadı | Uzmanlık Alanı | Kurumu | Cinsiyeti E | K | Araştırma İle İlişki E | H | Katılım (*) E | H | İmza |
|---|---|---|---|---|---|---|---|---|---|
| Prof. Dr. Sema Kader KÖSE | Tıbbi Biyokimya | E.Ü. Tıp Fak. | E | K x | E | H x | E x | H | |
| Prof. Dr. Selma GÖKAHMETOĞLU | Mikrobiyoloji | E.Ü. Tıp Fak. | E | K x | E | H x | E x | H | |
| Prof. Dr. Zuhal HAMURCU | Tıbbi Biyoloji | E.Ü. Tıp Fak. | E | K x | E | H x | E x | H | |
| Prof. Dr. Hüseyin Sinan TOPÇUOĞLU | Endonti | E.Ü. Diş Hek.Fak. | E x | K | E | H x | E x | H | |
| Prof. Dr. Adnan BAYRAM | Anest ve Rean. | E.Ü. Tıp Fak. | E x | K | E | H x | E x | H | |
| Prof. Dr. Fatih KARDAŞ | Çocuk Sağ. ve Hast. | E.Ü. Tıp Fak. | E x | K | E | H x | E x | H | |
| Doç. Dr. Mehmet DOLANBAY | Kadın Hast. ve Doğum | E.Ü. Tıp Fak.. | E x | K | E | H x | E x | H | |
| Doç. Dr. Zafer SEZER | Farmakoloji | E.Ü. Tıp Fak. | E x | K | E | H x | E x | H | |
| Doç. Dr. Hakan İMAMOĞLU | Radyoloji | E.Ü. Tıp Fak. | E x | K | E | H x | E x | H | |
| Doç. Dr. Oktay BOZKURT | İç Hastalıkları | E.Ü. Tıp Fak. | E x | K | E | H x | E x | H | |
| Dr.Öğr.Üyesi Kemal Erdem BAŞARAN | Fizyoloji | E.Ü. Tıp Fak. | E x | K | E | H x | E x | H | |
| Dr.Öğr.Üyesi Gözde E. ZARARSIZ | Biyoistatistik | E.Ü. Tıp Fak. | E | K x | E | H x | E | H x | |
| Uzm. Dr. Uğur AYDEMİR | Genel Cerrahi | Bünyan Dev. Hst | E x | K | E | H x | E | H x | |
| Av. Haluk Korkusuz | Avukat | Kayseri Barosu | E x | K | E | H x | E x | H. | |
| Sevtap KOÇER | Sivil Üye | Serbest | E | K x | E | H x | E x | H | |

*: Toplantıda Bulunma

Etik Kurul Başkanının
Ünvanı/Adı/Soyadı: Prof. Dr. Sema Kader KÖSE
İmza:

*Not: Etik kurul başkanı, imzasının yer almadığı her sayfaya imza atmalıdır*

## KLİNİK ARAŞTIRMALAR ETİK KURULU KARAR FORMU (2011 - KAEK-80)

| | | |
|---|---|---|
| ARAŞTIRMANIN AÇIK ADI | | İnternet bağımlılarında serum brain derived neurotrophic factor (BDNF) düzeyleri ve çocukluk çağı travmalarının bu düzeylere etkisi |
| VARSA ARAŞTIRMANIN PROTOKOL KODU | | |

### ETİK KURUL BİLGİLERİ

| | |
|---|---|
| ETİK KURULUN ADI | ERCİYES ÜNİVERSİTESİ KLİNİK ARAŞTIRMALAR ETİK KURULU |
| AÇIK ADRES | Erciyes Üniversitesi Tıp Fakültesi Dekanlığı Melikgazi/KAYSERİ |
| TELEFON | 0 352 437 49 10 - 11 |
| FAKS | 0 352 437 52 85 |
| E-POSTA | serifeserim@erciyes.edu.tr |

### BAŞVURU BİLGİLERİ

| | |
|---|---|
| KOORDİNATÖR / SORUMLU ARAŞTIRMACI UNVANI / ADI / SOYADI | Prof. Dr. Ertuğrul Eşel |
| KOORDİNATÖR SORUMLU ARAŞTIRMACININ UZMANLIK ALANI | Ruh Sağlığı ve Hastalıkları |
| KOORDİNATÖR / SORUMLU ARAŞTIRMACININ BULUNDUĞU MERKEZ | Erciyes Üniversitesi Tıp Fakültesi, Ruh Sağlığı ve Hastalıkları AD., Kayseri |
| VARSA İDARİ SORUMLU ÜNVANI/ ADI SOYADI | |
| DESTEKLEYİCİ | |
| PROJE YÜRÜTÜCÜSÜ UNVANI/ADI/SOYADI (TÜBİTAK vb. gibi kaynaklardan destek alanlar için) | |
| DESTEKLEYİCİNİN YASAL TEMCİLCİSİ | |

| ARAŞTIRMANIN FAZI VE TÜRÜ | | |
|---|---|---|
| | FAZ 1 | |
| | FAZ 2 | |
| | FAZ 3 | |
| | FAZ 4 | |
| | Gözlemsel ilaç çalışması | |
| | Tıbbi cihaz klinik araştırması | |
| | İn vitro tıbbi tanı cihazları ile yapılan performans değerlendirme çalışmaları | |
| | İlaç dışı klinik araştırma | x |
| | Diğer ise belirtiniz | Uzmanlık Tezi |

| ARAŞTIRMAYA KATILAN MERKEZLER | TEKMERKEZ | x | ÇOKMERKEZ | | ULUSAL | x | ULUSLARARASI | |
|---|---|---|---|---|---|---|---|---|

Etik Kurul Başkanının
Ünvanı/Adı/Soyadı: Prof. Dr. Sema Kader Köse
İmza:

*Not: Etik kurul başkanı, imzasının yer almadığı her sayfaya imza atmalıdır*

## 0188 - The Aripiprazole Treatment in a Patient Diagnosed with Mitochondrial Disorder Containing OPA1, DHX37, and PAX2 Genetic Mutations Accompanied by Psychotic Disorder

Merve Gül Açıkgöz[1], Hasan Gökçay[2], Talha Ağaç[1], Mustafa Solmaz[1]

[1]Department of Psychiatry, University of Health Sciences, Bagcilar Training and Research Hospital, Istanbul, Turkey

[2]Psychiatry unit, Şarkışla State Hospital, Sivas, Turkey

**Introduction**: Mitochondria are regarded as the metabolic powerhouse of the cell. (1) Dysfunction of this organelle due to the mutation in mtDNA affects mostly the brain which has a high energy demand in terms of neurodevelopment, neurotransmission, and synaptic plasticity. (2) After mitochondrial dysfunction, mitochondrial diseases, including various systemic disorders, are associated with psychiatric illnesses. (3) Although there have been numerous mitochondrial diseases linked to psychiatric conditions to date, as in our case, very few are specifically associated with the diagnosis of Psychotic Disorder Due to Another Medical Condition. In our case, we present a 23-year-old patient diagnosed with non-specific mitochondrial disorder with mutations in OPA1, DHX37, and PAX2.

**Case presentation:** A 23-year-old male patient presents with uncontrollable anxiety, restlessness, irritability, and difficulty in concentration. Initially diagnosed with generalized anxiety disorder, the patient was started on escitalopram 5 mg per day. The patient, whose symptoms regressed after one month of medication use, discontinued it due to non-adherence to treatment. However, one year later, the patient returned to the clinic with grandiose delusions and persecutory ideation. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), the diagnosis of Psychotic Disorder Due to Another Medical Condition was considered. The patient was prescribed risperidone 2 mg per day but experienced akathisia. Switching to aripiprazole 5 mg per day, the patient's symptoms regressed after three weeks. Despite being in remission with aripiprazole, the patient returned to our clinic after one year due to non-compliance with treatment, presenting with auditory hallucinations, persecutory delusions, and social withdrawal. The patient was prescribed Aripiprazole once-monthly 400 mg IM During the follow-up appointment, the patient demonstrated a cooperative attitude and his symptoms regressed. After this treatment, there was a significant decrease in PANSS scores.

The patient was diagnosed with type 1 diabetes six years ago following a hyperglycemic coma, during which the first psychiatric symptoms emerged. With the diagnoses of retinitis pigmentosa and hypogonadotropic hypogonadism added to type 1 diabetes, it was decided to conduct genetic analysis for mitochondrial disorder in the patient. Genetic analysis through complete exon sequencing revealed heterozygous mutations in the Opa1, Dhx37, and Pax2 genes. The Human Mitochondrial Genome Database showed no molecularly significant findings, but biochemically and clinically, the condition was consistent with mitochondrial disease.

**Conclusion:** In patients with mitochondrial disorders, a mechanism through mitochondrial dysfunction causing neuronal impairment can lead to psychotic disorders, as observed in our patient. (3) One of the most important lessons to be drawn is that psychiatric symptoms should be thoroughly investigated in patients with mitochondrial disorders; patients may not be prone to mention them unless specifically asked. Additionally, it is crucial not to forget to rule out organic causes in patients presenting with psychiatric symptoms, especially at a young age. Another outcome to consider during the treatment phase is that aripiprazole is a favorable option for individuals with mitochondrial dysfunction and psychotic disorders attributed to this organic cause.

**Keywords:** aripiprazole, dhyx, mitochondrial disorder, opa1, psychosis, pax2

**References:**

(1)     Cuperfain AB, Zhang ZL, Kennedy JL, Gonçalves VF. The Complex Interaction of Mitochondrial Genetics and Mitochondrial Pathways in Psychiatric Disease. Molecular Neuropsychiatry. 2018;4(1):52–69. doi:10.1159/000488031.

(2)     Cheng A, Hou Y, Mattson MP. Mitochondria and neuroplasticity. ASN Neuro. 2010 Oct 4;2(5):e00045. doi:10.1042/AN20100019.

(3)     Sequeira A, Martin MV, Rollins B, Moon EA, Bunney WE, Macciardi F, Lupoli S, Smith EN, Kelsoe J, Magnan CN, van Oven M, Baldi P, Wallace DC, Vawter MP. Mitochondrial mutations and polymorphisms in psychiatric disorders. Frontiers in Genetics. 2012 Jun 20;3:103. doi:10.3389/fgene.2012.00103. eCollection 2012.

## 0189 - Treatment Resistant Depression in Individual with Mega Cisterna Magna and Cavum Septum Pellucidum Variation

Hatice Kübra Mete, Talha Agac, Mustafa Solmaz

Department of Psychiatry, University of Health Sciences, Bagcilar Training and Research Hospital, Istanbul, Turkey

**Introduction:** Septum pellucidum is a thin plate composed of two laminae that form the medial walls of lateral ventricule .The cavity between two laminae is called Cavum septum pellucidum[1].Cavum septum pellucidum is present in all fetuses but over 85% of them fuse around 3-6 months after birth.This structure may persist in up to 20% of adults. Mega cisterna magna is a cystic posterior fossa malformation characterized by focal enlargement of subarachnoid space[2].

Refractory psychosis and prominent cognitive deficits have been reported in patients with Mega cisterna magna variations[3].It has been also reported that manic episodes occur with the expansion of structures associated with behavior and consciousness under the cerebellum[4].We report a case of 57-year- old male who had cavum septum pellucidum and mega cisterna magna variations with depressive manifestations.

**Case Presentation:** A 57-year- old male patient, presented with complaints about the symptoms of anhedionia ,loss of appetite,insomnia, psychomotor retardation, depressive mood accompanied by the thoughts of worthlessness, suicidal ideations, and guilt upon waking in the morning. He experienced a weight loss of 5 kg over the previous few months. According to DSM-5 criteria, he was diagnosed with major depression. Over a four-week screening period, the escitalopram dose was gradually increased to 20 mg. Patient's depressive complaints did not regress. Beck Depression Inventory score of 40, indicating a high severity level of depression.

Patient was brought to emergency service due to suicide attempt by hanging. He was hospitalized in our clinic because of the continuation of suicidal thoughts. Escitalopram was  gradually decreased and discontinued, venlafaxine PO was initiated .The dose was increased gradually to 150 mg during four weeks. Depressive symptoms did not damped and dose was gradually decreased and discontinued. He did not respond after two trials of antidepressant monotherapy given adequate doses and duration, therefore diagnosed with treatment-resistant depression. To find out the underlying causes of treatment-resistant depression, Brain MRI was done to ensure whether patient had organic comorbities. Brain MRI showed Cavum septum pellusidum variations and Mega cisterna magna. Venlafaxine switched to Duloxetine 30 mg and gradually increased to 60 mg.

Moreover due to the persistent risk of suicide, 8 sessions of ECT were administered within 17 days. ECT was beneficial hence his suicidal thoughts resolved, depressive symptoms regressed. Following ECT, Beck depression inventory score was 20, indicating mild depression. Patient was discharged with Duloxetine 60 mg.

During six months of follow-up on Duloxetine 60 mg, he regained his energy and appetite. His Beck depression inventory score decreased to 12, indicating a minimal level of depression.

Written consent was obtained from concerned patient of the case report.

**Conclusion:** Many studies underscore Mega cisterna magna and middle brain abnormalites like Cavum septum pellusidum are associated with neuropsychiatric disorders.

Treatment-resistant depression without life stressors might be related to these structural variations. In this case, ECT proved to be safe moreover is an efficient treatment modality. Duloxetine (SNRIs) may be a better option for maintenance treatment.

**Keywords:** Cavum septum pellucidum, Mega cisterna magna, Treatment resistant depression, ECT

**References:**

1.Das JM, Dossani RH. Cavum Septum Pellucidum. In:StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan. Available from: https://www.statpearls.com/point-of-care/19037

2.Weisbrod LJ, Thorell W. Mega Cisterna Magna. In:StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan.Available from: https://www.statpearls.com/point-of-care/143686

3.Turan T, Besirli A, Asdemir A, Özsoy S, Esel E. Manic episode associated with mega cisterna magna.Psychiatry Investig. 2010 Dec;7(4):305-7. doi: 10.4306/pi.2010.7.4.305. Epub 2010 Nov 9. PMID: 21253417

4. Ferentinos PP, Kontaxakis VP, Havaki-Kontaxaki BJ, Paplos KG, Pappa DA, Soldatos CR. Refractory psychosis and

prominent cognitive deficits in a patient with mega-cisterna magna. Prog Neuropsychopharmacol Biol Psychiatry. 2007 Mar 30;31(2):561-3. doi: 10.1016/j.pnpbp.2006.10.013. Epub 2006 Dec 5. PMID: 17150294

## 0331 - Sleep Quality in Adolescents with Borderline Personality Disorder

Esra Kaygısız*, Mehmet Fatih Ceylan, Selma Tural Hesapçıoğlu

Department of Child and Adolescent Psychiatry, Ankara Yıldırım Beyazıt University Yenimahalle Training and Research Hospital, Ankara, Turkey

**Objective:** The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), allows for the diagnosis of personality disorders in children and adolescents without additional diagnostic criteria. Symptoms of personality disorders in this group must persist for at least one year (1). However, there is a limited number of studies on borderline personality disorder (PD) among adolescents in our country. Sleep quality is known to play a significant role in psychiatric disorders, and sleep disturbances in patients diagnosed with borderline PD can lead to decreased functionality and a lower quality of life. Therefore, sleep disturbances are associated with a worse prognosis in patients diagnosed with borderline PD (2,3). In this study, our aim was to describe the sleep profile of borderline PD and to make a cross-sectional comparison with major depressive disorder (MDD) cases.

**Methods:** We conducted a cross-sectional comparison of adolescents aged 13-18 diagnosed with borderline PD using the Borderline Personality Features Scale for Children (BPFSC) and clinical interview (n=88) with adolescents diagnosed with MDD of similar age and gender (n=88) who presented to the Child and Adolescent Psychiatry Clinic at Ankara Yıldırım Beyazıt University Yenimahalle Training and Research Hospital. The cases in our borderline PD group were accompanied by comorbid depressive symptoms. In this way, we aimed to compare the sleep quality of our borderline PD group with the MDD group independently of depressive symptoms.

We applied our scales to our subjects who agreed to participate in the study. The Children's Depression Inventory (CDI), the Borderline Personality Features Scale for Children (BPFSC), the Epworth Sleepiness Scale (ESS), and the Pittsburgh Sleep Quality Index (PSQI) were used as reliable and valid assessment instruments. The validity and reliability of the Turkish version of the Borderline Personality Features Scale for Children (BPFS-C) was proven by Coşğun and Cakiroglu in 2020 (4). Those who scored 69 or more on the scale total score should be evaluated more comprehensively in terms of borderline PD. Total CDI scores of 19 or above can indicate possession of clinical depressive symptoms. The total score of ESS over 10 are considered to reflect excessive daytime sleepiness. The global score of PSQI ranges from 0 to 21, with the higher total score indicating worse sleep quality.

The data were evaluated with SPSS for Windows, version 25.0. In addition to descriptive definitions, the chi-square test was used to compare between groups in qualitative variables. The data were examined for normality assumptions. Independent sample t-tests were used for comparisons between two groups of normally distributed variables. Comparisons between two groups of quantitative variables that did not show normal distribution were made with the Mann-Whitney U test. Correlation between quantitative variables was examined with Pearson correlation coefficient for variables with normal distribution, and with Spearman correlation coefficient for variables without normal distribution. "p<0.05" was accepted as the significance level for all analyses.

**Results:** PSQI and Epworth scales were compared in the borderline PD (n=88) and MDD (n=88) groups. For the PSQI scale, the mean ± standard deviations in the borderline PD and MDD groups were found to be 11.51 ± 4.22 and 8.13 ± 3.7, respectively. A significant increase was found in the scale total score in the Borderline PD group compared to the MDD group (p<0.0001). For the ESS, the mean ± standard deviations in the borderline PD and MDD groups were found to be 15.22 ± 4.82 and 11.22 ± 5.11, respectively. A significant increase was found in the scale total score in the Borderline PD group compared to the MDD group (p<0.0001) (Figure 1).
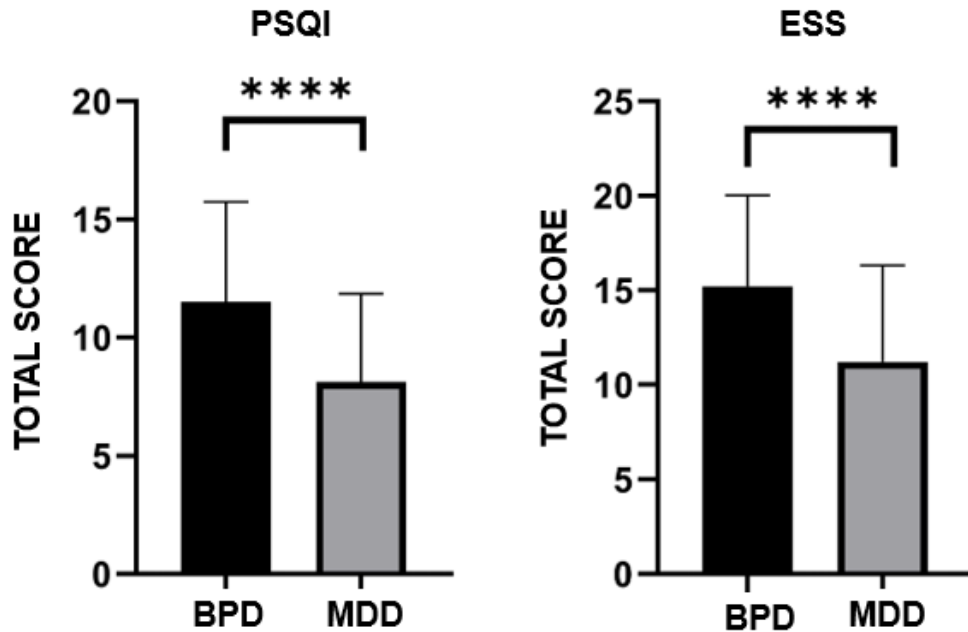
Figure1: Pittsburgh Sleep Quality Index (PSQI) and Epworth Sleepiness Scale (ESS) score of the Borderline Personality Disorder (BPD) and Major Depressive Disorder (MDD) groups
****p<0,0001

The total score of ESS was higher in the borderline PD group compared to the MDD group. The median (25th-75th percent range) of ESS score was 15 (12-19) in the borderline PD group and 11 (7-15) in the MDD group (p < 0.0001). Similarly, the total score of the PSQI was higher in the borderline PD group compared to the MDD group. The median (25th-75th percent range) of PSQI total score was 12 (9-15) in the borderline PD group and 8 (5-11) in the MDD group (p < 0.0001). An increase in the ESS total score was observed as the total score of the BPFSC increased. Correlation analysis revealed a positive and significant correlation between the BPFSC score and the ESS score (r = 0.507, p = 0.0001). Similarly, there was a positive and significant correlation between the BPFSC score and the PSQI score (r = 0.350, p = 0.0001) Also, correlation analysis revealed a positive and significant correlation between the ESS and the PSQI score (r = 0.472, p = 0.000).

**Conclusions:** This study is the first to compare sleep quality in adolescents with borderline PD to depression in our country. The cases in our borderline PD group were accompanied by comorbid depressive symptoms. In this way, we compared our borderline PD group with the MDD group and examined the accompanying sleep quality regardless of depressive symptoms. Our most significant finding was that adolescents with borderline PD had lower nighttime sleep quality compared to the MDD group. Additionally, daytime sleepiness was significantly higher in the borderline PD group. The decreased sleep quality and duration may cause mood instability. Therefore, the decreased nighttime sleep quality in borderline PD may predispose to mood disorders. Indeed, studies have shown a higher prevalence of comorbid Bipolar II disorder in these patients (5). Also, we can say that this disease impairs functionality more significantly than depressive disorder. The second finding of our study is that daytime sleepiness is significantly higher in borderline PD. The low nighttime sleep quality may contribute to this condition. As a result, it shows that sleep disturbances are also observed in adolescents with borderline PD, independent of depressive symptoms. We believe that improving disrupted sleep quality in adolescents with borderline PD will contribute to the treatment of the disease and improving functionality of the people. Further studies focusing on improving sleep quality through treatment are warranted. We believe that our study, which evaluates sleep quality in adolescents with borderline PD and compares it with the MDD group, will contribute to the literature in our country.

**Keywords:** borderline personality disorder, child and adolescence, sleep disturbance, sleep quality

**References:**

1.      Association, A.P., Diagnostic and statistical manual of mental disorders (5th ed.). 2013: American Psychiatric Association.

2.      Adams, R.J., et al., Sleep health of Australian adults in 2016: results of the 2016 Sleep Health Foundation national survey. Sleep Health, 2017. 3(1): p. 35-42.

3.      Plante, D.T., et al., Relationship between maladaptive cognitions about sleep and recovery in patients with borderline personality disorder. Psychiatry Res, 2013. 210(3): p. 975-9.

4.      Cosgun, S. and S. Cakiroglu, Sınır Kişilik Özellikleri Ölçeği Çocuk ve Ergen Formunun Türkçeye uyarlanması: Geçerlilik ve güvenilirlik çalışması. 2020.

5.      Frías, Á., I. Baltasar, and B. Birmaher, Comorbidity between bipolar disorder and borderline personality disorder: Prevalence, explanatory theories, and clinical impact. Journal of Affective Disorders, 2016. 202: p. 210-219.