A comparison of early maladaptive schemas between students with poor and good sleep quality

Nazanin behdadfar[1]

Bachelor of Psychology, Islamic Azad University, Boin Zahra Branch, Iran

ABSTRACT

***Background**: Poor sleep is common problem among students. This problem leads to several social and psychological consequences.*

***Aim**: The aim of this study was to compare the early maladaptive schemas in two groups of students with poor and good sleep quality.*

***Methods**: In this descriptive – comparative study a statistical sample were selected among students of Islamic Azad University branch of Buin Zahra (N = 1009). Sampling method was multi-stage cluster. By this method 182 participants were selected (poor sleep quality =119 and good sleep quality=63). The participants completed basic scale on insomnia complaints and quality of sleep (BaSIQS) and Yang maladaptive schemas questionnaires (YSQ). Data analyzed through multivariate variance (MANOVA).*

***Results**: comparing two groups of good and poor sleep quality indicate higher level of maladaptive schemata domains i.e. Emotional deprivation, mistrust/mistreatment, and social isolation/alienation, vulnerability to harm and illness, entitlement/grandiosity, arrogance /insufficient self-discipline, obedience, negativity/pessimism among students with poor sleep quality.*

***Discussion**: Based on findings of this study it is concluded that the early maladaptive schemas plays a role in the quality of sleep. They may experience different sleep quality depending on the mental state of students.*

Keywords: quality of sleep, students, early maladaptive schemas

INTRODUCTION

Sleep quality is important at all ages. Poor sleep quality especially at a young age may lead to serious psychological conditions (1-4). Approximately 60% of students suffer from poor sleep quality and 27% of them are at risk of at least one sleep disorder. Estimated about 7.7% and 24.3% of students suffer from insomnia and nightmares, respectively (5, 6). In fact, students at the age of university start (adolescence to adulthood) are one of age groups with lowest sleep duration (7). Because they experience several important changes . academic or non-academic factors and activities (9-10). Beyond academic considerations, sleep problems in college students are often linked to mental health issues. Sleep quality and mental health affect each other. The poor sleep pattern disturb academic life (11,12-13), mood disorder, fatigue and academic performance (14,15-16). Deprivation of good sleep increases the secretion of catecholamine, blood pressure, the amount of oxygen required by the heart

Young Researchers and Elite Club, Buinzahra Branch, Islamic Azad University, Buinzahra, Iran[1]

and ultimately increases the burden on the heart and causes systematic disease (17, 18). On the other hand, adverse childhood experiences are associated with self-reported sleep disorders in adulthood (19).

Maladaptive schemas are stable relational patterns that develop through harmful childhood experiences and primary caregivers. The early maladaptive schemas are structure related to personality and interpersonal processes, which are defined as "a broad and pervasive pattern, consisting of memories, emotions, cognitions, bodily sensations, regarding the individual's relationships with others(20). They are developed during childhood or adolescence. Early maladaptive schemas are significantly inefficient trait-like characteristics that develop through the interaction between temperament and adverse childhood experiences, when one or more basic emotional needs in childhood (secure attachment to others, freedom in expressing needs, and healthy emotions, self-management and spontaneity) are not satisfied(19). The schemes proposed by Yang developed based on unsatisfied emotional needs consisted five domains i.e. disconnection and rejection, impaired autonomy and performance, impaired limits, other-directedness over vigilance and inhibition (20). Schemas are active at the deepest level of cognition, usually are unconscious and they make a person vulnerable to psychological diseases such as anxiety and depression, ineffective communication and unhealthy behavior patterns (21,22-23). The schemas formed during childhood is related to healthy and unhealthy behaviors such as eating behavior (24) or tendency to abuse substances (25).

Many researches confirmed mental illnesses related to the early maladaptive schemas such as: depression (27), eating disorder (28), psychotic symptoms (29), bipolar (30), anxiety disorders (31,32,33-34), and paranoia (35). Meanwhile, sleep quality found in relationship with paranoia and psychosis (36,37,38,39-40), depression (41,42-43), anxiety (44, 45) and stress (46, 47). Rodrigues et al. reported higher level of the early maladaptive schemas in students with poor sleep quality compared to students with high sleep quality (48).

Considering the importance of sleep disorders, students should be aware of the consequences of poor sleep quality and proceed to change their unhealthy behaviors (1). The students are vulnerable to various risk factors of sleep quality (49) and over time the quality of their sleep is getting worse (50). However, there are only a limited number of studies about relationship of sleep quality and early maladaptive schemas. Due to the limited background, the aim of the present study was to compare between early maladaptive schemas based on poor and good sleep quality of Iranian students.

According to previous studies, clinical practice and experimental evidence regarding role of personality characteristics (51,52-53) and adverse childhood conditions (54) in sleep problems. In this study, it is assumed that students with poor sleep quality will show more maladaptive schemas. Therefore this study aimed to compare the early maladaptive schemas between students with poor and good sleep quality.

Methods

This descriptive study was conducted through comparative causal method.

3.1 Statistical population, sample and sampling method

The statistical population includes all undergraduate students humanities faculty of the Islamic Azad University, branch of Buin Zahra, during 2022 year. The samples was selected by multi-stage cluster sampling method. Among all undergraduate students humanities faculty of the Islamic Azad University, branch of Buin Zahra. The

psychology, law, physical education, accounting and foreign language subjects selected randomly (N=1009). The online form link including demographic information, basic scale on insomnia complaints and quality of sleep (BaSIQS) and Yang maladaptive schemas questionnaires (YSQ) sent for students. A total of 721 participants completed the questionnaires, 182 of them were selected based on criteria. They were free from drug abuse and health problems. The selected cases divided into two groups of poor sleep quality (N=119) and good sleep quality (N=63).

3.2 Demographic information

Participants of this study were adults with no children, free from health problems and no medication use. The mean age of the participants was 25.38. Approximately 68% were female and all were undergraduate student. 5% were living in a hostel with a shared room and 27% were married.

3.3 Tools

Questionnaire of demographic characteristics: It included questions about the degree and field of study, marital status, age, gender, health problems, drug use, and place of residence.

Pittsburgh Sleep Quality Questionnaire: This questionnaire was developed in 1989 by Boyce and his colleagues at the Pittsburgh Psychiatric Institute. This questionnaire includes 19 statements. The answers of these items are four-point Likert from 0 to 3 in 7 subscales i.e. Subjective Sleep Quality, Sleep Latency, Sleep Duration, Habitual Sleep Efficiency, Sleep Disturbances, Use of Sleep Medication, and Daytime Drowsiness. The Pittsburgh questionnaire showed reported validity was 0.83. This scale showed high reliability and validity in several studies (55). In this study, the instrument showed good internal consistency (Cronbach's alpha = 0.81).

Early Maladaptive Schemas Questionnaire (YSQ-SF): This self-report questionnaire was developed by Young. YSQ-SF includes 90 items with five domains of early maladaptive schemas i.e. disconnection and rejection (abandonment/instability, mistrust/misbehavior, emotional deprivation, deficiency/shame, social isolation/alienation), impaired autonomy and performance (dependence/incompetence, vulnerability to injury or illness, entrapment/underdeveloped self, and failure), impaired limits(entitlement / high-handedness / insufficient self-discipline), other-directedness(obedience, sacrifice and attention-seeking), hypervigilance and inhibition (negativity/cynicism, emotional inhibition, stubbornness/extreme blameworthiness, and punishment) (56). In this study, the validity of the questionnaire according to Cronbach's alpha method for the whole test was 0.93 and subscales were between 0.44 - 0.82.

3.4 Information analysis method

The data was analyzed in spss26 software by multivariate analysis of variance (MANOVA). The sleep quality groups was independent variables and schema domains considered as dependent variables.

RESUITS

In order to evaluate the relationship between sleep quality and schemas in the domain of disconnection and rejection (abandonment/instability, mistrust/misbehavior, emotional deprivation, deficiency/shame, social isolation/alienation) MANOVA was performed. Results showed a statistically significant difference between groups of poor and good sleep quality (Wilks' Lambda = 0.881, F (5.176) = 4.576, p = 0.001, r^2 = 0.119). Table 1)

Table 1. *Disconnection and rejection domain schemas in groups of sleep quality (poor sleep quality versus good sleep quality)*

Sleep group(quality)	**Poor N=119**		**Good N=63**				
YSQ-S3	**M**	**SD**	**M**	**SD**	**F**	**P**	**η2**
Emotional deprivation	**13.9239**	**5.24146**	**10.4514**	**5.15600**	**18.283***	**0.000**	**0.092**
abandonment/instability	**13.3128**	**5.79434**	**10.9672**	**5.66567**	**6.854**	**0.010**	**0.037**
mistrust/misbehavior	**13.4013**	**5.08886**	**10.7079**	**4.70449**	**12.148***	**0.001**	**0.063**
social isolation/alienation	**12.6237**	**4.98084**	**9.7723**	**4.52258**	**14.369***	**0.000**	**0.074**
deficiency/shame	**13.7850**	**4.73828**	**12.0667**	**5.29619**	**4.989**	**0.027**	**0.027**

***p<0.005**

In Table 2 the results for impaired autonomy and performance (dependence/incompetence, vulnerability to injury or illness, entrapment/underdeveloped self, and failure) showed a statistically significant difference between groups of poor and good sleep quality {Wilks' Lambda = 0.923, F (5.177) = 3.668, p = 0.007, r2 = 0.077} (Table 2)

Table 2. *Impaired autonomy and performance in groups of sleep quality (poor sleep quality versus good sleep quality)*

Sleep group(quality)	**Poor**		**Good**				
	N=119		**N=63**				
YSQ-S3	**M**	**SD**	**M**	**SD**	**F**	**P**	**η2**
failure	**13.5271**	**4.12208**	**11.9669**	**4.73231**	**5.319**	**0.022**	**0.029**
Dependence/ incompetence	**11.8967**	**4.53457**	**10.6596**	**4.09452**	**3.274**	**0.072**	**0.018**
vulnerability to injury or illness	**12.1003**	**4.96779**	**9.8795**	**4.39739**	**8.895***	**0.003**	**0.047**
entrapment/underdeveloped self	**11.5812**	**4.77807**	**9.8977**	**4.93268**	**5.001**	**0.027**	**0.027**

***p<0.005**

A MANOVA was performed to evaluate impaired limits (entitlement / high-handedness / insufficient self-discipline) in poor and good sleep quality groups and results showed significant difference in impaired limits of two groups{Wilks' Lambda = 0.934, F (2.179) = 6.292, p = 0.002, r2 = 0.066} (Table 3).

Table 3. *Impaired limits in groups of sleep quality (poor sleep quality versus good sleep quality)*

Sleep group(quality)	**Poor**		**Good**				
	N=119		**N=63**				
YSQ-S3	**M**	**SD**	**M**	**SD**	**F**	**P**	**η2**
entitlement	**16.7620**	**5.30877**	**14.2301**	**5.98822**	**8.566***	**0.004**	**0.045**
high-handedness /insufficient self-discipline	**14.8317**	**4.94204**	**12.1753**	**5.35056**	**11.234***	**0.001**	**0.059**

***p<0.005**

In order to analyze the difference of other-directedness (obedience, sacrifice and attention-seeking) in poor and good sleep quality groups a multivariate MANOVA test revealed statistically significant difference {Wilks' Lambda = 0.939, F (3.178) = 3.884, p = 0.010, r2 = 0.061} (Table 4).

Table 4. *Other-directedness in groups of sleep quality (poor sleep quality versus good sleep quality)*

Sleep group(quality)	**Poor**		**Good**				
	N=119		**N=63**				
YSQ-S3	**M**	**SD**	**M**	**SD**	**F**	**P**	**η2**
obedience	**14.0352**	**5.65995**	**11.3486**	**5.79424**	**9.13***	**0.03**	**0.048**
sacrifice	**17.9426**	**5.84564**	**16.5120**	**5.92795**	**2.44***	**0.120**	**0.013**
attention-seeking	**15.0723**	**6.23980**	**13.4017**	**5.30433**	**3.26**	**0.072**	**0.018**

***p<0.005**

A MANOVA was conducted to evaluate the difference of hypervigilance and inhibition (negativity/cynicism, emotional inhibition, stubbornness/extreme blameworthiness, and punishment) in groups with poor and good sleep quality. The results showed a statistically significant difference between groups {Wilks' Lambda = 0.927, F (4.177) = 3.488, p = 0.09, r2 = 0.073}}. (Table 5)

Table 5. *Hypervigilance and inhabitation in groups of sleep quality (poor sleep quality versus good sleep quality)*

Sleep group(quality)	**Poor**		**Good**				
	N=119		**N=63**				
YSQ-S3	**M**	**SD**	**M**	**SD**	**F**	**P**	**η2**
Emotional inhabitation	**13.4233**	**6.17575**	**12.1554**	**5.65691**	**1.838**	**0.177**	**0.010**
stubbornness/extreme blameworthiness	**19.8290**	**5.94364**	**17.7595**	**6.44650**	**4.708**	**0.031**	**0.025**
negativity/cynicism	**16.2825**	**6.22510**	**13.2588**	**5.23555**	**10.808***	**0.001**	**0.057**
punishment	**13.8014**	**5.92435**	**12.5607**	**6.50641**	**1.687**	**0.196**	**0.009**

***p<0.005**

DISCUSSION

The purpose of this study was to investigate the difference of the early maladaptive schemas based on sleep quality. The students with poor self-reported sleep quality were expected to report higher maladaptive schemas. Overall, the results confirmed the study hypotheses.

Students with poor sleep quality presented higher scores in the early maladaptive schemas. There was observed difference between eight early maladaptive schemas of students with poor and good sleep quality. However, some maladaptive schemas (punishment, emotional inhabitation, attention seeking, and dependence/incompetence) does not showed difference in sleep quality groups. The scores of early maladaptive schemas in domain of disconnection and rejection (abandonment/instability, mistrust/misbehavior, emotional deprivation, deficiency/shame, social isolation/alienation), impaired autonomy and performance (vulnerability to injury or illness, entrapment/underdeveloped self, and failure), impaired limits(entitlement / high-handedness / insufficient self-discipline), other-directedness(obedience and sacrifice), hypervigilance and inhibition (negativity/cynicism and stubbornness/extreme blameworthiness) significantly was higher among students with poor sleep quality comparing good sleep quality.

Emotional deprivation is one of the most common schemas seen in clinical work and it is related to rejection and cutting. Emotional deprivation categorized to deprivation of affection, lack of affection or attention, deprivation of empathy (not being understood by others) and deprivation of support (no source of power and guidance). People with these schema are unaware and often referee to therapist due to depression, hopelessness and loneliness. On the other hand, sleep disorders are one of the most common symptoms of depression (41, 42)(43), feelings of sadness(57) and loneliness (58).

One of the main schemas of early maladaptive schemas is the mistrust. People with this schema unconsciously expect others to betray them (59), steal their property, humiliate, insult, or abuse them. They believe that no one can be trusted unless proven. They are suspicious of others and always keep distance with peoples (59). In their most optimistic state, they believe that everyone is thinking of themselves. In their negative state, they think that people are annoying and evil (60). As a result, people with mistrust and abuse schemas do not have close relationships with others, and they do not express their feelings to others (61). They do not share their thoughts and opinions because they believe that they will deceive others before they deceive others(62). They think that this strategy is preventive (63). Those with mistrust and abuse schemas constantly they assess the trustworthiness of others and shows paranoid traits. This means that pessimism (64) and doubt (65) are an integral part of their relationship (66). Mistrust/misbehavior alone can explain many of the problems of paranoid personality disorder. The expectations of this schema are completely consistent with the main characteristic of paranoid patients, which is long-lasting skepticism and mistrust of all people. Because people with paranoid personality disorder believe that others are intentionally not meeting their needs(67,68-69). It should be noted that paranoid is not limited to psychosis illness and is reported in more than 30% of the general population (70-71). Also, research shows a strong relationship between sleep disorders, insomnia and paranoia (37,38,39-40).

Social isolation is the belief that a person is different from others(19), and does not belong to a group. Also, poor sleep quality is related to feelings of loneliness (58) and social isolation (72). In the domains of autonomy and impaired functioning, as expected, was higher in poor sleep quality cases. Individuals with an injury and illness

vulnerability schema believe that they lack internal control to cope with an impending health disaster, which is experienced with stress and anxiety. Meanwhile studies have shown, stress (44, 45) and anxiety (46,47) are related to sleep quality.

In the field of impaired limitations entitlement and high-handedness /insufficient self-discipline they were significantly higher in the group with poor sleep quality. People with entitlement/secretary grandeur schema believe that they are special and better than others and feel they have special privileges. It is common to try to impose one's point of view or control the behavior, without empathy or concerning needs of others. This schema is often an overcompensation for emotional deprivation and defect/shame schemas (73). The high entitlement in poor sleep quality can be explained by the overcompensation schema of emotional deprivation. Also, data referring to entitlement/grandiose schemas showed link between aggression (74, 75) and low conscientiousness (52, 76, 77,78-79) with sleep variables (i.e., sleep problems, insomnia, sound sleep, and sleep quality).

People with high self-control/insufficient self-discipline schema get tired early, don't feel doing special work, don't have a specific plan and can't continue their plans as they feel insufficient self-control. In order to achieve success in life, one must put aside short-term pleasures and goals in order to achieve long-term goals. These people are not able to ignore immediate enjoyable activities. They do not follow a regular routine in their lives and cannot regulate their emotions (19).The sleep deprivation can have a negative effect on self-control (80) and impulsivity. There a relationship with sleep quality (77,81-82).

No significant difference was found between attention-seeking and self-sacrifice of students with good and poor sleep quality. However, other orientation was associated with poor sleep quality. In order to avoid being punished by others, people with a submissive schema let others to dominance them (19). These people ignore their needs and emotions to take care of the needs and emotions of others. They think that their desires have no value and needs of others are important.in explaining higher schema of other orientation in participants with poor sleep quality found association between sleep quality and anger (76-77) and internalization (83).

Hypervigilance and inhibition schema was higher in students with poor sleep quality, however, in punishment no significant difference was found in high and low sleep quality cases. When a person has a schema of pessimism, he only emphasizes the negative aspects. Even when his life is going well, he still emphasizes the negative aspects. They spends a lot of time in worry, rumination, and trying to avoid mistakes that could have disastrous consequences (19). Findings related to this schema are consistent with previous research on the relationship between rumination (83-84), worry (84-85) and harm avoidance (82)with sleep disturbances and insomnia.

Limitation

This study has limitations and should be considered in the interpretation of the results. As this study was cross-sectional, results dose not means there is certain relationship between early maladaptive schemas and sleep quality. Although schemas can be considered as vulnerability factors for poor sleep quality. Second, in psychological research using internet for data collection (86) involves risks such as multiple submissions and self-selection biases. Although the high number of reports containing poor sleep quality rejects the hypothesis of the existence of social desirability biases. However, considering the scope of the questionnaire limited probability of multiple submission. The participants in group with good quality sleep reported appropriate sleep through questionnaire. This cannot reject the probability of sleep disorders exist. There is need for further examinations to

found sleep disorders. Third, majority of participants were females this may limit the generalizability of the findings to male. Although we should consider domination of female gender frequency in universities of Iran (87-88)

Conflict of interest

There is no conflict of interest in this study

Acknowledgment

Authors are thankful from staff of Islamic Azad University branch of Buin zahra and students who cooperated in this study.

Ethical Approval: This study was approved by the Ethics Committee of Islamic Azad University branch of Buinzahra.

Funding/Support: The authors received no financial support for this research.

Informed Consent: Informed consent was obtained before the study.

REFERENCES

[1] Li Y, Bai W, Zhu B, Duan R, Yu X, Xu W, et al. Prevalence and correlates of poor sleep quality among college students: a cross-sectional survey. Health and quality of life outcomes. 2020;18(1):1-11.
[2] Herawati K, Gayatri D. The correlation between sleep quality and levels of stress among students in Universitas Indonesia. 2019;29(2):357-361.
[3] Alsaggaf MA, Wali SO, Merdad RA, Merdad LA. Sleep quantity, quality, and insomnia symptoms of medical students during clinical years. Relationship with stress and academic performance. Saudi Med J. 2016;37(2):173-182.
[4] Farzaneh F, Momayyezi M, Lotfi MH. Relationship between quality of sleep and mental health in female students of Shahid Sadoughi University of Medical Sciences (2015). Journal of Fundamentals of Mental Health. 2018;20(2):167-71.
[5] Schlarb AA, Kulessa D, Gulewitsch MD. Sleep characteristics, sleep problems, and associations of self-efficacy among German university students. Nature and science of sleep. 2012;4:1.
[6] Schlarb AA, Bihlmaier I, Hautzinger M, Gulewitsch MD, Schwerdtle B. Nightmares and associations with sleep quality and self-efficacy among university students. Journal of Sleep Disorders and Management. 2015;1.
[7] Pilcher JJ, Ginter DR, Sadowsky B. Sleep quality versus sleep quantity: relationships between sleep and measures of health, well-being and sleepiness in college students. Journal of psychosomatic research. 1997;42(6):583-96.
[8] Taylor DJ, Bramoweth AD, Grieser EA, Tatum JI, Roane BM. Epidemiology of insomnia in college students: relationship with mental health, quality of life, and substance use difficulties. Behavior therapy. 2013;44(3):339-48.
[9] Scott AJ, Webb TL, Martyn-St James M, Rowse G, Weich S. Improving sleep quality leads to better mental health: A meta-analysis of randomised controlled trials. Sleep Med Rev. 2021;60:101556.
[10] Gaultney JF. The prevalence of sleep disorders in college students: impact on academic performance. J Am Coll Health. 2010;59(2):91-97. doi:10.1080/07448481.2010.483708
[11] Lemma S, Berhane Y, Worku A, Gelaye B, Williams MA. Good quality sleep is associated with better academic performance among university students in Ethiopia. Sleep Breath. 2014;18(2):257-263. doi:10.1007/s11325-013-0874-8.

[12] Mao Y, Xie B, Chen B, Cai Y, Wu J, Zhang J, et al. Mediating Effect of Sleep Quality on the Relationship Between Electronic Screen Media Use and Academic Performance Among College Students. Nature and Science of Sleep. 2022;14:323.
[13] Ho GW, Yang Z, Xing L, Tsang KK-T, Ruan HD, Li Y. Nighttime sleep awakening frequency and its consistency predict future academic performance in college students. International Journal of Environmental Research and Public Health. 2022;19(5):2933.
[14] Fogel SM, Smith CT, Cote KA. Dissociable learning-dependent changes in REM and non-REM sleep in declarative and procedural memory systems. Behavioural brain research. 2007;180(1):48-61.
[15] Walker MP, Stickgold R. Sleep, memory, and plasticity. Annu Rev Psychol. 2006;57:139-66.
[16] Arjmandi-Rad S, Ebrahimnejad M, Zarrindast M-R, Vaseghi S. Do Sleep Disturbances have a Dual Effect on Alzheimer's Disease? Cellular and Molecular Neurobiology. 2022:1-17.
[17] Medic G, Wille M, Hemels ME. Short-and long-term health consequences of sleep disruption. Nature and science of sleep. 2017;9:151.
[18] Kamdar BB, Needham DM, Collop NA. Sleep deprivation in critical illness: its role in physical and psychological recovery. Journal of intensive care medicine. 2012;27(2):97-111.
[19] Young JE, Klosko JS, Weishaar ME. Schema therapy: A practitioner's guide: guilford press; 2006
[20] Chapman DP, Wheaton AG, Anda RF, Croft JB, Edwards VJ, Liu Y, et al. Adverse childhood experiences and sleep disturbances in adults. Sleep medicine. 2011;12(8):773-9.
[21] van Wijk-Herbrink MF, Bernstein DP, Broers NJ, Roelofs J, Rijkeboer MM, Arntz A. Internalizing and externalizing behaviors share a common predictor: The effects of early maladaptive schemas are mediated by coping responses and schema modes. Journal of abnormal child psychology. 2018;46(5):907-20.
[22] Imperatori C, Innamorati M, Lester D, et al. The Association between Food Addiction and Early Maladaptive Schemas in Overweight and Obese Women: A Preliminary Investigation. Nutrients. 2017;9(11):1259. Published 2017 Nov 17. doi:10.3390/nu9111259
[23] Cudo A, Mącik D, Griffiths MD, Kuss DJ. The relationship between problematic Facebook use and early maladaptive schemas. Journal of Clinical Medicine. 2020;9(12):3921.
[24] Legenbauer T, Radix AK, Augustat N, Schütt-Strömel S. Power of Cognition: How Dysfunctional Cognitions and Schemas Influence Eating Behavior in Daily Life Among Individuals With Eating Disorders. Front Psychol. 2018;9:2138. Published 2018 Nov 13. doi:10.3389/fpsyg.2018.02138
[25] Albal E, Buzlu S. The effect of maladaptive schemas and psychological flexibility approaches on the addiction severity of drug addicts. Archives of psychiatric nursing. 2021;35(6):617-24.
[26] Labrague LJ, McEnroe-Petitte DM, Gloe D, Thomas L, Papathanasiou IV, Tsaras K. A literature review on stress and coping strategies in nursing students. Journal of Mental Health. 2017;26(5):471-80.
[27] Bishop A, Younan R, Low J, Pilkington PD. Early maladaptive schemas and depression in adulthood: A systematic review and meta-analysis. Clinical Psychology & Psychotherapy. 2022;29(1):111-30.
[28] Goddard H, Hammersley R, Reid M. Schema Modes, Trauma, and Disordered Eating. J Cogn Psychother. 2022;36(1):70-95. Doi:10.1891/JCPSY-D-20-00050
[29] Khosravani V, Mohammadzadeh A, Oskouyi LS. Early maladaptive schemas in patients with schizophrenia and non-patients with high and low schizotypal traits and their differences based on depression severity. Comprehensive psychiatry. 2019;88:1-8.
[30] Ociskova M, Prasko J, Kantor K, Hodny F, Kasyanik P, Holubova M, et al. Schema Therapy for Patients with Bipolar Disorder: Theoretical Framework and Application. Neuropsychiatric Disease and Treatment. 2022;18:29.
[31] Calvete E, Orue I, Hankin BL. Early maladaptive schemas and social anxiety in adolescents: The mediating role of anxious automatic thoughts. Journal of anxiety disorders. 2013;27(3):278-88.
[32] Tariq A, Quayle E, Lawrie SM, Reid C, Chan SW. Relationship between Early Maladaptive Schemas and Anxiety in Adolescence and Young Adulthood: A systematic review and meta-analysis. Journal of affective disorders. 2021;295:1462-73.
[33] Yoosefi A, RajeziEsfahani S, Pourshahbaz A, Dolatshahee B, Assadi A, Maleki F, et al. Early maladaptive schemas in obsessive-compulsive disorder and anxiety disorders. Global journal of health science. 2016;8(10):167.
[34] Cockram DM, Drummond PD, Lee CW. Role and treatment of early maladaptive schemas in Vietnam veterans with PTSD. Clinical Psychology & Psychotherapy: An International Journal of Theory & Practice. 2010;17(3):165-82.
[35] Humphrey C, Bucci S, Varese F, Degnan A, Berry K. Paranoia and negative schema about the self and others: A systematic review and meta-analysis. Clinical psychology review. 2021;90:102081.
[36] Reeve S, Emsley R, Sheaves B, Freeman D. Disrupting sleep: the effects of sleep loss on psychotic experiences tested in an experimental study with mediation analysis. Schizophrenia bulletin. 2018;44(3):662-71.

[37] Freeman D, Brugha T, Meltzer H, Jenkins R, Stahl D, Bebbington P. Persecutory ideation and insomnia: findings from the second British National Survey of Psychiatric Morbidity. Journal of psychiatric research. 2010;44(15):1021-6.
[38] Freeman D, Stahl D, McManus S, Meltzer H, Brugha T, Wiles N, et al. Insomnia, worry, anxiety and depression as predictors of the occurrence and persistence of paranoid thinking. Social psychiatry and psychiatric epidemiology. 2012;47(8):1195-203.
[39] Freeman D, Waite F, Startup H, Myers E, Lister R, McInerney J, et al. Efficacy of cognitive behavioural therapy for sleep improvement in patients with persistent delusions and hallucinations (BEST): a prospective, assessor-blind, randomised controlled pilot trial. The Lancet Psychiatry. 2015;2(11):975-83.
[40] Freeman D, Sheaves B, Goodwin GM, Yu L-M, Nickless A, Harrison PJ, et al. The effects of improving sleep on mental health (OASIS): a randomised controlled trial with mediation analysis. The Lancet Psychiatry. 2017;4(10):749-58.
[41] Geoffroy PA, Hoertel N, Etain B, Bellivier F, Delorme R, Limosin F, et al. Insomnia and hypersomnia in major depressive episode: prevalence, sociodemographic characteristics and psychiatric comorbidity in a population-based study. Journal of affective disorders. 2018;226:132-41.
[42] Melhuish Beaupre LM, Tiwari AK, Gonçalves VF, et al. Potential Genetic Overlap Between Insomnia and Sleep Symptoms in Major Depressive Disorder: A Polygenic Risk Score Analysis. Front Psychiatry. 2021;12:734077. Published 2021 Dec 3. doi:10.3389/fpsyt.2021.734077
[43] Zhao J, Liu H, Wu Z, Wang Y, Cao T, Lyu D, et al. Clinical features of the patients with major depressive disorder co-occurring insomnia and hypersomnia symptoms: a report of NSSD study. Sleep Medicine. 2021;81:375-81.
[44] Pires GN, Bezerra AG, Tufik S, Andersen ML. Effects of acute sleep deprivation on state anxiety levels: a systematic review and meta-analysis. Sleep Med.2016;24:109-118. doi:10.1016/j.sleep.2016.07.019
[45] Choueiry N, Salamoun T, Jabbour H, El Osta N, Hajj A, Rabbaa Khabbaz L. Insomnia and relationship with anxiety in university students: a cross-sectional designed study. PloS one. 2016;11(2):e0149643.
[46] Carrión-Pantoja S, Prados G, Chouchou F, Holguín M, Mendoza-Vinces Á, Expósito-Ruiz M, et al. Insomnia Symptoms, Sleep Hygiene, Mental Health, and Academic Performance in Spanish University Students: A Cross-Sectional Study. Journal of Clinical Medicine. 2022;11(7):1989.
[47] Nollet M, Wisden W, Franks NP. Sleep deprivation and stress: a reciprocal relationship. Interface focus. 2020;10(3):20190092.
[48] Rodrigues PM, Marques DR, Gomes AA. Differences in early maladaptive schemas between young adults displaying poor versus good sleep quality. Psychiatric Quarterly. 2019;90(4):733-46.
[49] Wang F, Bíró É. Determinants of sleep quality in college students: A literature review. Explore (NY). 2021;17(2):170-177. doi:10.1016/j.explore.2020.11.003
[50] Zochil ML, Thorsteinsson EB. Exploring poor sleep, mental health, and help-seeking intention in university students. Australian journal of psychology. 2018;70(1):41-7.
[51] Khani F, Samsam Shariat SM, Atashpour SH. A Study of the relationship between personality traits with occupational accidents and quality of sleep among road drivers in Isfahan city (Year 1390). Strategic Research on Social Problems in Iran University of Isfahan. 2012;1(4):75-88.
[52] Baharloo S, Moosazadeh M, Setareh J. Relationship between Personality Characteristics and Sleep Quality, Daily Sleepiness and Quality of Life in University Students. Journal of Mazandaran University of Medical Sciences. 2021;31(198):144-58.
[53] Gurtman CG, McNicol R, McGillivray JA. The role of neuroticism in insomnia. Clinical Psychologist. 2014;18(3):116-24.
[54] April-Sanders A, Duarte CS, Wang S, McGlinchey E, Alcántara C, Bird H, et al. Childhood adversity and sleep disturbances: longitudinal results in Puerto Rican children. International journal of behavioral medicine. 2021;28(1):107-15.
[55] Buysse DJ, Reynolds III CF, Monk TH, Berman SR, Kupfer DJ. The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. Psychiatry research. 1989;28(2):193-213.
[56] Ahi Q, Mohammadi Far M, Basharat Mohammad A. Reliability and validity of the short form of Young's Schemas Questionnaire. Psychology and educational sciences. 2016;37(3):5-20. Available from: ttps://sid.ir/paper/55767/fa.
[57] Babson K, Feldner M. Sleep and affect: Assessment, theory, and clinical implications: Academic Press; 2015.
[58] Melanei A, Hom MA, Chu C, Rogers ML, Joiner TE. A meta-analysis of the relationship between sleep problems and loneliness. Clinical Psychological Science. 2020;8(5):799-824.
[59] Camara M, Calvete E. P-122-Cognitive schemas predicting anxiety and depressive symptoms: the role of dysfunctional coping strategies. European Psychiatry. 2012;27(S1):1-.
[60] Dane AV, Marini ZA. Overt and relational forms of reactive aggression in adolescents: Relations with temperamental reactivity and self-regulation. Personality and Individual Differences. 2014;60:60-6.

[61] Flynn EB. Emotional and Behavioral Problems in Development: The Role of Implicit Theories of Emotion: University of California, Irvine; 2016.
[62] Ozer EA, Akgun OE. The effects of irrational beliefs on academic motivation and academic self-efficacy of candidate teachers of computer and instructional technologies education department. Procedia-Social and Behavioral Sciences. 2015;197:1287-92.
[63] Staats S, Van Der Valk IE, Meeus WH, Branje SJ. Longitudinal transmission of conflict management styles across inter-parental and adolescent relationships. Journal of Research on Adolescence. 2018;28(1):169-85.
[64] Şenormancı Ö, Yılmaz AE, Saraçlı Ö, Atasoy N, Şenormancı G, Atik L. The mediator role of ruminative thinking style in the relationship between dysfunctional attitudes and depression. Comprehensive psychiatry. 2014;55(7):1556-60.
[65] Moed A, Gershoff ET, Eisenberg N, Hofer C, Losoya S, Spinrad TL, et al. Parent–adolescent conflict as sequences of reciprocal negative emotion: Links with conflict resolution and adolescents' behavior problems. Journal of youth and adolescence. 2015;44(8):1607-22.
[66] Kiel EJ, Kalomiris AE. Current themes in understanding children's emotion regulation as developing from within the parent–child relationship. Current opinion in psychology. 2015;3:11-6.
[67] Corral C, Calvete E. Early maladaptive schemas and personality disorder traits in perpetrators of intimate partner violence. The Spanish journal of psychology. 2014;17.
[68] Nordahl HM, Nysæter TE. Schema therapy for patients with borderline personality disorder: A single case series. Journal of Behavior Therapy and Experimental Psychiatry. 2005;36(3):254-64.
[69] Kalharnia Golkar, M. Investigating the effectiveness of schema therapy on reducing symptoms and modulating maladaptive schemas of prisoners with borderline, dependent and paranoid personality disorder. Master's thesis. Mohaghegh Ardabili University,2017.
[70] Freeman D, Garety PA, Bebbington PE, Smith B, Rollinson R, Fowler D, et al. Psychological investigation of the structure of paranoia in a non-clinical population. The British Journal of Psychiatry. 2005;186(5):427-35.
[71] Freeman D. Suspicious minds: the psychology of persecutory delusions. Clinical psychology review. 2007;27(4):425-57.
[72] Li W, Wang Z, Syed S, Lyu C, Lincoln S, O'Neil J, et al. Chronic social isolation signals starvation and reduces sleep in Drosophila. Nature. 2021;597(7875):239-44.
[73] Komada Y. Effects of loneliness and social isolation on sleep health. Sleep Biol Rhythms. 2022;20(2):149. doi:10.1007/s41105-022-00378-5

[74] Zhang D, Lin Z, Chen F, Li S. What Could Interfere with a Good Night's Sleep? The Risks of Social Isolation, Poor Physical and Psychological Health among Older Adults in China [published online ahead of print, 2022 Jan 7]. Res Aging. 2022;1640275211065103. doi:10.1177/01640275211065103
[75] Camryn Wellman, Samantha Jankowski, Michael Grandner, Deva Reign, Natalie Dailey, William Killgore, 0053 The Role of Social Isolation on Sleep Problems Interfering with Daily Functioning, Sleep, Volume 45, Issue Supplement_1, June 2022, Page A24, https://doi.org/10.1093/sleep/zsac079.051 *
[76] Kamphuis J, Meerlo P, Koolhaas JM, Lancel M. Poor sleep as a potential causal factor in aggression and violence. Sleep Med. 2012;13(4):327-334. doi:10.1016/j.sleep.2011.12.006
[77] Ireland JL, Culpin V. The relationship between sleeping problems and aggression, anger, and impulsivity in a population of juvenile and young offenders. J Adolesc Health. 2006;38(6):649-655. doi:10.1016/j.jadohealth.2005.05.027.
[78] Kim H-N, Cho J, Chang Y, Ryu S, Shin H, Kim H-L. Association between personality traits and sleep quality in young Korean women. PLoS One. 2015;10(6):e0129599.
[79] Duggan KA, Friedman HS, McDevitt EA, Mednick SC. Personality and healthy sleep: the importance of conscientiousness and neuroticism. PloS one. 2014;9(3):e90628.
[80] Pilcher JJ, Morris DM, Donnelly J, Feigl HB. Interactions between sleep habits and self-control. Frontiers in human neuroscience. 2015;9:284.
[81] Bauducco SV, Salihovic S, Boersma K. Bidirectional associations between adolescents' sleep problems and impulsive behavior over time. Sleep medicine: X. 2019;1:100009.
[82] Park Jh, An H, sook Jang E, Chung S. The influence of personality and dysfunctional sleep-related cognitions on the severity of insomnia. Psychiatry research. 2012;197(3):275-9.
[83] Tutek J, Gunn HE, Lichstein KL. Worry and Rumination Have Distinct Associations with Nighttime versus Daytime Sleep Symptomology. Behavioural Sleep Medicine.2021;19(2):192-207. doi:10.1080/15402002.2020.1725012
[84] Slavish DC, Sliwinski MJ, Smyth JM, et al. Neuroticism, rumination, negative affect, and sleep: Examining between- and within-person associations. Pers Individual Diffirence. 2018;123:217-222. doi:10.1016/j.paid.2017.11.023
[85] Kalmbach DA, Anderson JR, Drake CL. The impact of stress on sleep: Pathogenic sleep reactivity as a

vulnerability to insomnia and circadian disorders. Journal Sleep Research. 2018;27(6):e12710. doi:10.1111/jsr.12710
[86] Ramsey SR, Thompson KL, McKenzie M, Rosenbaum A. Psychological research in the internet age: the quality of web-based data. Computer Human Behaviour. 2016;58:354–60. https://doi.org/10.1016/j.chb.2015.12.049.
[87] Fatehi, A, Adibi, M, Yazdakhasi, B, Saeedi, H. Why the relative increase in girls entering the university (case study of Ahvaz University) Women's Strategic Studies, 2009; 11(44): 173-204.
[88] Safarhidari H, Salehi I, Montazeri Joybari A. Contextualizing the increase of women's participation in higher education (a case study of Mazandaran University). Higher Education Association, 2009, 1(4), 85-106