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Comparison of emotional regulation rumination and paranoid thoughts in people with sleep problems

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Abstract

Introduction: Paranoid delusions are related to the occurrence of sleep problems and can cause all kinds of sleep problems. The present study was conducted with the aim of comparing emotional regulation and paranoid thoughts in people with sleep problems. The design of the present research was causal-comparative.

Research method: The research design was causal-comparative. The study population consisted of people with sleep problems who referred to sleep clinics in Tehran in the second half of the 2018 year. Research tools were Emotional Adjustment Questionnaire and Green's et al. Paranoid Thought Questionnaire. Univariate analysis of variance and t of two independent group's analysis of was used to analyze the data.

Findings: The results of the study showed that normal people in positive emotion regulation scored higher in clinical group and negative emotion regulation score in clinical group was significantly higher than normal group. At the same time, paranoid thoughts in people with sleep problems are far greater than in the normal group ($p<0.005$).

Conclusion: Therefore, it can be said that people who have less emotional regulation and more paranoid thoughts are more likely to have sleep problems.

Keywords: Emotional regulation, paranoid thoughts, sleep problems

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Introduction:

Sleep is one of the crucial elements in the circadian cycle, accompanied by the renewal of physical and mental faculties. Humans spend about one-third of their lives asleep. Research indicates that sleep disturbances and problems are among the most common issues affecting the general population, with 12% of individuals experiencing some form of sleep disturbance. In other words, these individuals struggle to fall asleep for at least an hour or experience this problem at least four times a month [1]. Sleep problems are often explained within the framework of vulnerability-stress model. Vulnerability predisposes individuals to experience sleep disturbances, while a stressful event may trigger the onset of sleep problems, with additional risk factors contributing to their persistence [2]. Psychosocial factors such as reactions and emotional regulation, psychological distress, perfectionism, paranoid thoughts, and cognitive rumination are among the factors that may be associated with sleep problems [3]. Emotional regulation is considered a set of processes that individuals may use to invoke, maintain, control, or change a positive or negative emotion [4]. In recent years, the prevalence of psychological disorders, including anxiety, depression, sleep disorders, and eating disorders, has increased due to the increase in the incidence of emotional regulation difficulties, emotional regulation strategies, emotional dysregulation, and mental rumination [5]. Consequently, some emotional regulation strategies have been identified as negative or ineffective emotional regulation strategies and associated with the onset of psychological problems. Besharapour, Attarad, and Aini demonstrated in another study that emotional regulation could play a mediating role in the occurrence of depression, sleep problems, and eating disorders among students [6]. In another study conducted by Karami and colleagues on a group of pregnant women, it was found that there is a relationship between sleep quality and cognitive emotion regulation strategies [7]. In such a way, cognitive rumination and catastrophizing lead to increased anxiety and depression, followed by sleep problems among pregnant women. Nourian Eqdam, Alamdari Soomeh, and Kazemi attributed sleep problems to negative emotional regulation in students with internet addiction disorder [8]. Abdii and colleagues also found that among emotion regulation styles, maladaptive cognitive emotion regulation, including cognitive rumination and self-blame, are significantly associated with mental health and its subscales, including the occurrence of sleep problems [9]. A study conducted by Borg, Williams, and Gross on cognitive emotion regulation concluded that cognitive emotion regulation is one of the most important tasks for physical and psychological health [10]. In such a way, problems in emotion regulation can lead to problems in sleep, nutrition, and other signs of physical illness.

The content and quality of individuals' thinking are other variables that can affect daily behaviors such as sleep. One of these variables is our thinking patterns, and paranoid thoughts can be one of these factors. Individuals with severe paranoid thoughts are highly suspicious of others, always in a defensive state, and constantly believe that they have been exploited by others. Moreover, they are unable to accept their own mistakes and instead, deflect their inappropriate actions onto others. Paranoid thoughts can be observable and examinable to some extent in individuals with various psychiatric disorders. In fact, paranoid thoughts are a way of thinking that every individual may

experience throughout their lives, but in paranoid individuals, this thinking pattern is not transient and is somewhat dominant compared to others. According to research, 5 to 10 percent of people experience paranoid thoughts [11]. Freeman and colleagues (2019) found in a study that paranoid delusions significantly affect sleep problems in individuals with paranoid thoughts compared to the general population and can lead to various sleep problems. Given what has been said about the impact of sleep problems on the occurrence of various injuries, diseases, and challenges in daily life, the need for a more accurate and comprehensive understanding of psychological variables with the potential for sleep problems is essential. The importance of the present study is justified by the researcher's emphasis on how emotional regulation and paranoid thoughts among individuals with sleep problems can be better understood through its findings, to design and implement intervention and preventive programs for preventing or improving sleep problems in individuals more accurately by identifying relevant components. Therefore, this study aims to answer the following question: Is there a difference between emotional regulation and paranoid thoughts in individuals with sleep problems compared to normal individuals?

Research Method:

Given the research aim, which is to compare emotional regulation and paranoid thoughts among individuals with normal sleep and those with sleep problems, the research design is retrospective-comparative or ex-post factor.

The research population consisted of normal individuals without sleep problems and individuals with sleep problems referred to sleep clinics in Tehran in the second half of 2018. Considering the research design, which is retrospective-comparative, and taking into account that a minimum sample size of 120 individuals is required for theoretical distribution to match empirical distribution in such designs [12], 60 individuals without sleep problems were selected opportunistically and 60 individuals with sleep problems were purposefully chosen and subjected to testing. The criteria for the inclusion of participants in the study were as follows: the individual has had sleep problems for at least 6 months, the participants are aged between 25 and 35 years, they do not have a history of physical, respiratory, or cardiac illness, the cause of their sleep problems is no other psychological disorders, and the participants have not participated in counseling or psychotherapy sessions. Research Tool:

Emotion Regulation Questionnaire: Garnefski, Kraaij, and Spinhoven (2001) developed a scale called the "Cognitive Emotion Regulation Questionnaire." This questionnaire consists of 36 items, which are scored on a five-point Likert scale. Nine emotion regulation strategies have been identified through the principles of component analysis. Factor analysis was performed to examine the factor structure of the cognitive emotion regulation scale for use in the Iranian culture by Garnefski and Samani (2011). The KMO index for factor analysis was 0.89, and the Bartlett's test of sphericity value for the correlation matrix of cognitive emotion regulation items was significant. Based on these two indices, factor analysis and varimax rotation were performed to extract factors. The results of factor analysis identified two main factors comprising positive emotion regulation and negative emotion regulation among the 36 items of the cognitive emotion regulation

questionnaire. These factors explained 50% of the variance of the cognitive emotion regulation variable together. Cronbach's alpha coefficient was used to assess the reliability of the factors, with alpha coefficients of 0.86 for positive emotion regulation and 0.73 for negative emotion regulation obtained. Test-retest reliability over one week was also calculated, with coefficients of 0.75 and 0.88 obtained, respectively. In the second-order factor analysis on the primary factors of the cognitive emotion regulation questionnaire, two overarching factors called positive cognitive emotion regulation strategies (positive reappraisal and positive refocusing/preplanning) and negative cognitive emotion regulation strategies (blaming others, blaming oneself, rumination, catastrophizing, and acceptance in emotion regulation) were obtained. It is worth mentioning that the reliability of the questionnaire in the present study was measured to be 0.82 using Cronbach's alpha.

Paranoid Thoughts Assessment Questionnaire: This tool was developed by Green et al. (2008) to measure paranoid thoughts, traits, and tendencies. The questionnaire consists of 16 questions that assess the presence of suspicious thoughts and distress in the past month. Each question is rated on a 5-point scale ranging from never to very much. This questionnaire has been evaluated in both clinical and non-clinical populations, reporting an internal consistency reliability coefficient of 0.77 and a test-retest reliability of 0.87. Abdolmohammadi et al. (6) reported internal consistency reliability of the tool as 0.71 and its reliability coefficient using Cronbach's alpha as 0.81. The reliability of the questionnaire in the present study was measured to be 0.79 using Cronbach's alpha. SPSS software was used for data analysis. Descriptive statistics, including measures of central tendency, dispersion, and distribution, were calculated at the descriptive statistical level. At the inferential statistical level, analysis of variance for single-variable analysis and independent samples t-test were used.

Findings:

In this section, first, the assumptions related to the multivariate analysis of variance are examined, followed by the use of the analysis of variance test to compare emotion regulation and independent samples t-test to compare paranoid thoughts in the groups. In this regard, the results obtained in Table 1 show that the significance level for the normality test of data for all research variables is greater than 0.05. Therefore, the assumption of normal distribution of scores is accepted. Consequently, the distribution of scores of the participants is free from skewness and kurtosis, and there are no outliers or outliers

Table 1. Normality Test Results of Research Data using Shapiro-Wilk and Kolmogorov-Smirnov Tests for Research Variables.

Assuming equality of variances	Sig	Variable
approved	0.31	**Positive excitement**
approved	0.50	**Negative emotion**
approved	0.42	**Paranoid thoughts**

According to Table 2, the obtained Levene's test statistic for the variables is not statistically significant at the 0.05 level. Therefore, it can be said that the assumption of homogeneity of variances is met, and the possibility of using analysis of variance and independent samples t-test exists.

Table 2. Levene's Test Examination in Emotion Regulation and Paranoid Thoughts

Significance level	Degree of freedom 2	Degree of freedom 1	F	Variable
0.27	28	1	2.47	**Positive excitement**
0.90	28	1	0.01	**Negative emotion**
0.12	28	1	0.61	**Paranoid thoughts**

Based on Table 3, since the F statistic is 87.1, it can be said that at the 0.05 level of significance, the assumption of homogeneity of covariance matrices is met. In other words, the population and sample covariance matrices are congruent in this case.

Table 3. Checking the homogeneity of the variance-covariance matrix

Sig	F	M BOX
0.44	1.87	**22.25**

Based on the results of the multivariate analysis of covariance (MANCOVA) presented in the table above, after controlling for the pretest effect, the F statistic is 4.26 for the Wilks' Lambda and 4.26 for the Pillai's trace, with significance levels of 0.05. Additionally, the Hotelling's T statistic is also significant at the 0.05 level. Therefore, it can be concluded that there is a significant difference among the dependent variables at least between the groups.

Table 4. Summary of multivariate tests in emotional regulation

Significance level	F	Statistical index
0.00	4.26	**Pillai's work**
0.00	4.26	**Wilks Lambda**
0.00	4.26	**T Hotling**

In Table 5, a multivariate analysis of variance (MANOVA) of the research variables is presented. With an F statistic of 11.40 for positive emotion regulation, it can be inferred that the observed difference between the two groups is significant at the 0.05 level. The normal group had higher scores in positive regulation or efficacy. Furthermore, since the F statistic is 8.37 for marital satisfaction, it is statistically significant, indicating that the research hypothesis is confirmed in this regard as well. Therefore, at the 0.05 level, the research hypothesis regarding negative

regulation is also confirmed, and it can be said that there is a significant difference between the two groups in this area.

Table 5. Multivariate analysis of variance to compare research variables in groups

Significance level	F	mean square	Df	sum of squares	Source of changes
0.00	11.40	414.31	1	414.31	**Positive excitement**
0.00	8.37	58.32	1	58.32	**Negative emotion**

Table 6 shows that the observed t value is 5.16, indicating that the difference between the group means is statistically significant at the 0.05 level. Therefore, there is a significant difference in paranoid thoughts between individuals with and without sleep problems. Thus, the null hypothesis in this regard is rejected, and the research hypothesis is accepted.

Table 6. Comparison of average paranoid thoughts

Sig	t	Df	The standard deviation	Average	Number	group
0.00	5.16	118	2.15	61.54	60	**People with sleep problems**
			3.01	54.13	60	**normal**

Discussion and Conclusion:

Several factors such as age, gender, physical illnesses, emotional problems, cognitive occupations, and other environmental and occupational variables have been known to contribute to the occurrence of sleep problems. Sleep is an essential element in the circadian cycle, accompanying the renewal of physical and mental faculties. Humans spend about one-third of their lives asleep, and according to research, sleep disturbances are one of the most common problems in the general population, with 12% of individuals experiencing some form of sleep disturbance. Among these individuals, some struggle for an hour or more to fall asleep, or this problem occurs at least four times a month for them. In this regard, the role of psychological factors such as emotional regulation and negative thoughts in the occurrence of sleep problems cannot be ignored. In line with this, the findings from the analysis of variance showed that normal individuals obtained higher scores in positive emotion regulation compared to the clinical group. Also, the observed difference between the two groups in negative emotion regulation was significant at the 0.05 level, indicating that the score of negative emotion regulation in the group of individuals with sleep problems was significantly higher than the normal group. These findings are consistent with other studies (6, 8, and 11). It is important to note that emotion regulation strategies are a set of methods or attitudes through which individuals regulate their emotions consciously and unconsciously,

helping individuals to adjust their emotions appropriately to environmental demands, social relationships, and internal needs. The significance of these strategies lies in helping individuals control and manage their emotions or emotional stimuli, allowing them to monitor and evaluate emotional reactions and adjust them if necessary. In some cases, these strategies help manage emotions and ultimately enhance the individual's resilience to negative emotional arousal, while in other cases, they enable individuals not only to manage their emotions but also to display them appropriately, thereby addressing the emotional needs of others. Emotional regulation difficulties are associated with various mental disorders and are linked to several models of psychological pathology. Therefore, the appropriate use of these strategies can be considered one of the indicators of individuals' mental, social, and emotional well-being, which can ultimately lead to improving individuals' mental well-being and quality of life. Particularly noteworthy is that, according to recent research, emotional dysregulation is a key feature in 75% of psychiatric disorders, including anxiety, mood disorders, and sleep problems. Therefore, emotional regulation can be considered one of the variables that, if properly and effectively managed, allows individuals to respond appropriately to emotions without avoiding them at the right time and place, thus avoiding disruption to individual and social functioning. Indeed, human performance in various psychological, cognitive, physiological, and behavioral dimensions is associated with emotional regulation. Desirable emotional regulation leads to the regulation of cognitive appraisals and mental responses, resulting in appropriate responses in various dimensions of life. Regarding sleep problems, it seems that when individuals are unable to manage their cognitive and emotional responses affected by emotions or suppress them at appropriate times, they will encounter these emotions during times of seeking relaxation and reducing daily stress, such as during sleep, and encounter difficulties in falling asleep. Even these emotional states and stressors can affect the content of individuals' dreams and exacerbate sleep problems by creating problems such as nightmares and disrupting sleep continuity. On the other hand, the present study's findings showed that paranoid thoughts are significantly higher in individuals with sleep problems than the normal group. Therefore, in this regard, the null hypothesis is also rejected, and the research hypothesis is confirmed. The results of the present study in this regard are consistent with other findings (5, 10, and 14). Individuals with paranoid thoughts are highly suspicious of others and environmental stimuli, always in a defensive state, and always believe they have been mistreated. They are unable to accept their own mistakes and instead blame others for their inappropriate actions. They exhibit a pattern of pervasive distrust and suspicion towards others, interpreting others' motivations as malicious and malicious. Studies show that 5 to 10 percent of people experience paranoid thoughts, and although these thoughts may not necessarily be perceived as a disorder, they are observed as a cognitive style throughout an individual's life and become the dominant mode of thinking for the individual. In this state, mental preoccupations with pessimism and negativity take shape in the individual, leading to disruption in the individual's thinking and subsequently their decision-making and behavior. If individuals cannot manage or divert these thoughts through efficient cognitive processing and information processing mechanisms, they will experience cognitive problems that, as Walsh has said before, trigger sympathetic physiological mechanisms in the

individual's body, launching the stress response system, such as cortisol and other stress-related neurotransmitter transporters, which do not allow individuals to experience favorable conditions before going to sleep or during sleep and exacerbate their sleep problems. In light of the research findings, it is recommended that appropriate training courses be held to enhance emotional regulation skills and control negative thoughts, especially paranoid thoughts, among individuals with sleep problems. In this way, by improving their sleep quality, a suitable platform can be provided for improving their mental health. It is also suggested that future research should focus on investigating other variables and factors related to the occurrence of sleep problems.

Research Limitations: This study was associated with limitations such as lack of access to a larger sample of individuals with sleep problems who have the necessary honesty and cooperation to answer questionnaire questions, which undermines the validity and reliability of the research.

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