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ABSTRACT This cross-sectional study investigated the mediatory role of experiential

0.19 (β = 0.19; SE = 0.09; P = 0.001)

0.09 (β = 0.09; SE = 0.43; P = 0.01).

avoidance in the relationship between perceived stress and alexithymia with mental health. We enrolled 440 students (age 18–30 years) at Kermanshah University of Medical Sciences through stratified random sampling method. The study tools were demographic checklist, GHQ-28, Toronto Alexithymia Scale-20 and Perceived Stress Scale. Data were analysed by SPSS-18 and AMOS-18 using Pearson correlation, hierarchical regression analysis and structural equation modelling (SEM). There was a significant positive correlation between perceived stress and experiential avoidance, and alexithymia and mental health problems (P

Rôle de médiation de l’évitement expérientiel dans le rapport entre stress perçu, alexithymie et santé mentale

RÉSUMÉ La présente étude transversale a examiné le rôle de médiation de l’évitement expérientiel dans le rapport entre le stress perçu, l’alexithymie et la santé mentale. Nous avons inscrit dans cette étude 440 étudiants (âge compris entre 18 et 30 ans) de l’Université des Sciences médicales de Kermanshah par la méthode d’échantillonnage aléatoire stratifié. Les instruments utilisés dans l’étude étaient la liste de contrôle démographique, le questionnaire sur la santé générale en 28 items, l’échelle d’Alexithymie de Toronto à 20 items et l’échelle de mesure du stress perçu. Les données ont été analysées au moyen des logiciels SPSS-18 et AMOS-18 en recourant à la corrélation de Pearson, l’analyse de régression hiérarchique et la modélisation par équation structurelle. Il y avait une corrélation positive significative entre le stress perçu et l’évitement expérientiel, et l’alexithymie et les problèmes de santé mentale (p

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Introduction

Poor mental health is one of the most important chronic health problems, and disorders such as depression, alcohol-related disorders, and psychoses are among the 20 leading causes of disability (1). In the Islamic Republic of Iran, the prevalence of mental disorders in the general population has been reported as ~21% (2). The wide range of mental health problems in society makes research in this area an attractive option. Results of studies about determining factors of mental health are varied and wide-ranging. One of the relevant factors in this regard is perceived stress. Subjective perception of stress is related to a broad continuum of

psychological injuries (3). Perceived stress is a psychological state or process through which an individual perceives his/her physical and psychological well-being as threatening. Chronic perceived stress causes neurobiological changes in the brain structures that are related to increased conditional fear (4) and emotional regulation (3). Also, perceived stress predicts some negative consequences associated with health (5).

Alexithymia is a known risk factor for many psychiatric disorders such as emotional exhaustion (6), post-traumatic stress disorder (7), chronic pain (8) and substance abuse disorder (9). Alexithymia is also a known pathological correlate of mental disorders, especially depression and unexplained medical symptoms (10). This emphasizes the difficulty of identifying and describing the feelings and clear externally oriented thinking, and indicates the deficiencies in cognitive processing and emotional regulation (11). Individuals with alexithymia suffer from many physical and emotional correlates that cannot be expressed in words. Therefore, this disorder suppresses emotional regulation and makes successful adaptability difficult (12).

One of the constructs that can play a determining role in the relationship of perceived stress and alexithymia with mental health is experiential avoidance. Experiential avoidance means avoiding unintended or unfavourable thoughts or feelings (13), or in other words, lack of willingness to stay in touch with unwanted internal experiences (14). Since experiential avoidance includes a group of processes, such as unintended severe negative evaluation of thoughts and feelings, reluctance to experience these events is personal (15). Empirical studies have highlighted the mediatory role of experiential avoidance in the relationship between the fear of cognitive dyscontrol and disordered eating (16), or the relationship between anxiety sensitivity and depression (17). Panayiotou and colleagues found that clinical improvement in depression was correlated with a decrease in alexithymia, mediated by decreased experiential avoidance (18). It has been shown that experiential avoidance has the potential to act as a mediating factor among different psychological variables (19). Therefore, studying this role in the relationship between perceived stress and alexithymia with mental health could be useful for better recognition and determination of this relationship. Students were selected as the target group in this study because they are exposed to stressful situations (20); their prevalence of mental disorders is higher than in the general population in the Islamic Republic of Iran (21); and they have an elite status in society. The main objective of this study was to investigate the mediatory role of experiential avoidance in the relationship of perceived stress and alexithymia with mental health.

Methods

Study participants

In this cross-sectional study, the target community included all students aged 18–31 years from Kermanshah University of Medical Sciences (KUMS) from all majors (medicine, dentistry, pharmacy, public health, nursing and paramedical) who were enrolled in the academic year of

2013–2014. The study protocol was approved by a suitably constituted research ethics committee of KUMS. Cochran's formula was used to determine sample size. Using stratified random sampling, 500 students were selected from different colleges, who completed the research questionnaires. The students were briefed on how to respond to the questionnaires and presented extra explanations if anyone needed them.

Study tools

The study questionnaires comprised 5 sections.

1. The first part was about demographic characteristics, including age, sex, and whether the respondents used sedatives, as well as the dose of these drugs.
2. General Health Questionnaire (GHQ). GHQ-28 is a popular 28-item questionnaire specially designed to detect a wide range of psychiatric symptoms. GHQ-28 has 4 subscales including: somatic symptoms (items 1–7), anxiety/insomnia (items 8–14), social dysfunction (items 15–21) and severe depression (items 22–28) (22). GHQ-28 scored 0–3 with a total possible score of 0–84. Lower scores indicated better mental health status and higher scores indicated greater risk of psychiatric disorder. This questionnaire has been used in >38 languages as a powerful screening test (22). In the Islamic Republic of Iran, Taghavi validated GHQ-28 in university students (23). Cronbach's Alpha for this study was 0.91.
3. Farsi version of Toronto Alexithymia Scale-20 (FTAS-20). Alexithymia was assessed by the 20-item Toronto Alexithymia Scale (TAS-20) (24, 25). It is a self-report instrument rated on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). Total scores ranged from 20 to 100, with higher scores indicating higher level of alexithymia. The TAS-20 consisted of 3 factors: difficulty identifying feelings (DIF); difficulty describing feelings (DDF); and externally oriented cognitive style of thinking (EOT). The psychometric features of the FTAS-20 have been confirmed in numerous studies (24). In FTAS-20, Cronbach's Alpha coefficients for general alexithymia and its subscales of DIF, DDF and EOT were calculated as 0.85, 0.82, 0.75 and 0.72, respectively, which denoted proper internal consistency of the scale (26). Ghorbani et al. estimated the validity of the scale among Iranian and American samples and calculated coefficients for the subscales of DIF, DDF and EOT as 0.50, 0.74 and 0.61 respectively, for the Iranian samples, and 0.60, 0.82 and 0.77, respectively for the American group (27). In the present study, Cronbach's Alpha was 0.76 for this questionnaire.
4. Perceived Stress Scale (PSS). This scale was invented by Cohen et al. in 1993 and is used for perceived normal stress in the past month. This scale is designed for people who at least hold a diploma degree. Cohen et al. reported Cronbach's Alpha of 0.84 and 0.86 for this scale. In a study by Ghorbani et al., Cronbach's Alpha in an American sample was 0.86 and 0.81 in an Iranian sample (27). In the present study, the Cronbach's Alpha was 0.91.
5. Acceptance and Action Questionnaire (AAQ)-II: This questionnaire was constructed by Hayes et al. in 2004 for measuring experiential avoidance (28). The early version consists of 32 items and is scored on a 7-point Likert scale; later versions include 16 and 9 items. However, the latest version of the questionnaire (AAQ- II) (which was used in the present study) had 10 items on a 7-point Likert scale (29). Questions 1 and 3–7 should be recoded in reverse. Higher scores in this scale indicate more experiential avoidance. In one study, a single-factor structure

was reported for this scale, with Cronbach's Alpha of 0.84 (30). In 2013, the reliability of the questionnaire was assessed and its Cronbach's Alpha was 0.82 (31). In the present study, Cronbach's Alpha of the questionnaire was 0.76.

Statistical analysis

We used SPSS version 18 and AMOS version 18 for data analysis. To assess descriptive statistics, mean and standard deviation (SD) were used. For examining the relationship between alexithymia, perceived stress and experiential avoidance with mental health and its subscales, Pearson correlation tests were used. For predicting mental health based on alexithymia, perceived stress and experiential avoidance, hierarchical regression tests were used. These analyses were done using SPSS version 18. AMOS version 18 was used to examine the mediating role of experiential avoidance and to perform structural equation modelling (SEM).

Results

There were 153 (35%) male and 287 (65%) female respondents, with an average age of 21.77 ± 2.76 years. Table 1 shows the mean and standard deviation (SD) of the study variables.

Table 2 shows to the correlation coefficients between perceived stress, alexithymia and its subscales and experiential avoidance, and mental health problems (or risk of psychiatric disorder) and their subscales. The correlation coefficients between perceived stress and risk of psychiatric disorder, alexithymia and risk of psychiatric disorder, and experiential avoidance and risk of psychiatric disorder were r = 0.63, 0.39, and 0.65, respectively, which were significant at P

To predict risk of psychiatric disorder in terms of perceived stress, alexithymia and experiential avoidance, simultaneous regression analysis was performed (Table 3). Hierarchical regression analysis showed that a model with perceived stress and alexithymia, without experiential avoidance, accounted for 41% of variance in risk of psychiatric disorder (R2 = 0.41). Addition of experiential avoidance to the model accounted for an additional 9% of variance in risk of psychiatric disorder (R2 = 0.50). Also, perceived stress was not significantly associated with risk of psychiatric disorder and the beta coefficient of alexithymia decreased from 0.56 to 0.34. This pattern suggested that experiential avoidance fully mediated the association between perceived stress and risk of psychiatric disorder, and partially mediated the association between alexithymia and risk of psychiatric disorder.

To evaluate the mediation further, we constructed a set of SEM models using AMOS version 18. First, a model was tested in the absence of experiential avoidance. In this model, which included unobserved variables, perceived stress (beta = 0.62, P Table 4). Perceived stress and

alexithymia accounted for 69% of variance in experiential avoidance (R2 = 0.69), and perceived stress, experiential avoidance and alexithymia accounted for 62% of variance in risk of psychiatric disorder (R2 = 0.62) (
Figure 1
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The indirect effect of perceived stress on risk of psychiatric disorder through experiential avoidance was significant (beta = 0.19; P = 0.01), as was the indirect effect of alexithymia on risk of psychiatric disorder through experiential avoidance (beta = 0.09; P Figure 1).

Given the values of 2 and RAMSE, comparing the 2 models (with and without experiential avoidance) showed that the model with the mediating variable of experiential avoidance had a better fit (P

Discussion

The present study investigated the relationship of perceived stress and alexithymia with mental health problems (risk of psychiatric disorder). There was a positive significant relationship between perceived stress and alexithymia, and risk of psychiatric disorder. Our results are consistent with previous research; for example, some studies have suggested that a decrease in alexithymia can predict a reduction in symptoms of depression (32). Other studies have pointed out that mental disorders are related to alexithymia (33,34).

The results of the present study showed that among the components of mental health problems (GHQ-28), alexithymia has the strongest relationship with anxiety, while in some studies it had the highest association with depression (32–34).

Other results of our research showed that experiential avoidance had a significant correlation with risk of psychiatric disorder and its subscales. Similar studies have shown that experiential avoidance can be a risk factor for a range of mental disorders such as depression and somatization (35). People who have problems in describing and identifying their emotions may avoid experiencing those emotions or they may sometimes learn to avoid experiencing emotions as an emotional regulation strategy.

We showed that perceived stress and mental health problems and its components (somatic

symptoms, anxiety/insomnia, social dysfunction and severe depression) are positively correlated. The stress of everyday life is inevitable but the important thing is how people deal with the crisis. The study of human responses to stressful situations suggests that stress is a human reaction against threats and risky situations. However, the intensity of human reactions (stress) fluctuates depending on the extent to which a situation is perceived to be stressful. The important point about stress is that there is a significant relationship between perceived stress and general health, and this was confirmed in the present study.

We investigated the mediator role of experiential avoidance in the relationship between alexithymia and perceived stress, and risk of psychiatric disorder. The relationship between perceived stress and risk of psychiatric disorder through experiential avoidance was 0.19, and between alexithymia and risk of psychiatric disorder through experiential avoidance was 0.09. This means that, in the presence of experiential avoidance, the effect of alexithymia decreases.

This indicates that if therapists reduce the amount of experiential avoidance, the effects of perceived stress on alexithymia and risk of psychiatric disorder would be reduced. This was confirmed by the present study, in which the relationship of perceived stress and alexithymia with risk of psychiatric disorder was partly mediated through experiential avoidance.

Bardeen et al. explored the mediation role of experiential avoidance in the relationship between perceived stress and sensitivity to anxiety, and their results suggested the existence of such a relationship (3). They suggested that more studies on experiential avoidance could help us to understand better the perceived stress. Tull and Gratz demonstrated a relationship between anxiety sensitivity and depression through experiential avoidance (17). Panayiotou et al. found that improvement in depression was correlated with a decrease in alexithymia, and experiential avoidance played a significant mediator role in this regard (18).

The results showed that of the subscales of alexithymia, EOT had the greatest weight in factorial analysis. This finding may have been due to the study sample because this subscale can be most affected by social relations. The sample in our study was a collegiate group; the age range of which meant that social relations were of particular importance.

The present study had some limitations. We used a student sample and generalizations to wider society should be treated with caution. Also, the study had a nonexperimental design.

Conclusions

We conclude that individuals with more alexithymia, perceived stress and experiential avoidance will also have more depression, social dysfunction, anxiety and somatic problems. Experiential avoidance has a mediatory role in the relationship between alexithymia and perceived stress, and risk of psychiatric disorder. We make the following recommendations on the basis of our results: (1) psychotherapists should focus on decreasing experiential avoidance because this can neutralize the destructive effect of stress and alexithymia; (2) future research should consider the causal relationship between these variables in the context of experimental models; (3) since our study was conducted on students, future research should be conducted on other samples; (4) according to the results of this study it can be said that psychotherapists who are involved in clinical mental disorders can consider the role of perceived stress, alexithymia and experiential avoidance in the treatment process; and (5) attention should be paid to an individual's ability to express and describe his/her emotions during treatment of mental disorders.

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