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ACADEMIC BURNOUT AMONG HIGH SCHOOL STUDENTS WITH MIGRAINE: DO IRRATIONAL BELIEFS AND EMOTION REGULATION MATTER?

Parviz Molavi¹, Niloofar Mikaeili^{2*}, Sajjad Ghaffari³

1. *Associated Professor of Psychiatry, Subspecialty in Child and Adolescent Psychiatry, Ardabil University of Medical Sciences, Ardabil, Iran.*
2. *Associate professor of Psychology, School of Psychology and Educational Sciences, University of Mohaghegh Ardabili, Ardabil, Iran.*
3. *M.A. in clinical psychology, Department of Psychology, Ardabil Branch, Islamic Azad University, Ardabil, Iran.*

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ABSTRACT

The aim of present study was to determine the role of irrational beliefs and emotion regulation in predicting academic burnout among female high school students with migraine. Using a retrospective method, Participants were recruited among all female high school students in Khoy, Iran. As epidemiology was one of the research aims, number of 500 individuals was selected through randomized cluster sampling procedure. Among 500 subjects, 274 individuals had experienced headache in which 116 had tension headache and 158 had migraine headache. Participants were assessed by Ahvaz Migraine Questionnaire (AMQ), Irrational Beliefs Test (IBT), Emotion Regulation Questionnaire (ERQ) and Maslach-Burnout Inventory-Student Survey (MBI-SS). Data were analyzed using Pearson's correlation coefficients and multiple regression analyses. Findings revealed that the prevalence of migraine was 54/8% among female students. Irrational beliefs and emotion regulation were associated with migraine headache. Regression analysis indicated that academic burnout can be explained by irrational beliefs and emotion regulation.

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Introduction

Headache is one of the common complaints in children and adolescents and migraine is the commonest cause of chronic recurrent headaches. Migraine, a familial disease characterized by recurrent headaches, is often unilateral and pulsating and has been observed all over the world [7]. Based on Domingues et al. (2006) findings, the prevalence of migraine over 50 countries was estimated about 4-6% in male and 13-17% in female. Investigating migraine among high school students of Ahvaz, Iran, Ramroodi & Rigi (2012) found the overall prevalence of migraine about 8/37%. Considering research findings and clinical observations, a set of psychological characteristics have been mentioned for people with migraine including anxiety, depression, perfectionism, ambition and extreme thoroughness in lifestyle [36].

Students' academic achievement is a main factor in education system assessment of the country, and all efforts done by this system are to fulfill this aim as well. Academic burnout is a condition which affects academic performance. Burnout, the state of mental and emotional fatigue, is the result of chronic stress syndrome including role overload, time pressure, time limitation and lack of essential resources to fulfill duties [33, 11, 38, 59]. Burnout has attracted considerable attention in terms of managerial and professional background; nevertheless it has been extended into educational context referring as academic burnout [50]. Nowadays, researchers believe that burnout can be experienced by students as well [52].

Several studies have been allocated to this matter in universities [5, 10, 36, 61]. Schuafeli et al. (2002) suggested that consequences of academic burnout in educational environments (e.g. low motivation in learning, excessive absences, dropout, depression etc.) are like consequences of job burnout in industrial and organizational environments. Academic burnout among

Corresponding Author: Niloofar Milaeili, Associate professor of Psychology, School of Psychology and Educational Sciences, University of Mohaghegh Ardabili, Ardabil, Iran, email: nmikaeili uma.ac.ir

students refers to feeling exhausted because of study demands (exhaustion), having a cynical and detached attitude towards one's schoolwork (cynicism), and feeling incompetent as a student (reduced efficacy) [62]. Investigating the relationship between dimensions of learning experiences' quality and feelings of self-efficacy with academic burnout among students of Tehran University, Hayati et al. (2012) indicated that all research variables were interrelated significantly.

Irrational beliefs, one of the important and effective factors contributing to burnout, have been also taken into consideration in this study. Ellis's Rational-Emotive-Behavior theory is one of the well-known cognitive theories which identifies irrational beliefs about the world around as the main element of human being's mental and behavioral disorders and distress [18]. Studying the impact of irrational beliefs on individuals' mental health, Ellis & Harper (1970) suggested that the presence of irrational beliefs in long-term may result in anxiety and psychiatric disorders.

People with migraine represent a pattern of irrational beliefs, extreme blaming themselves and others, anger and aggression [28]. In this regard, Peinzen (2005) suggested that irrational beliefs are linked to migraine positively. According to Rahnamay, Bakhshayesh & Kaafi (2013), irrational beliefs are associated with quality of life of individuals suffering from migraine. Studying the impact of irrational thoughts on high school student's academic procrastination, Bridges et al. (1997) found that academic procrastination was related to the student's irrational thoughts; and after three weeks of reformation training, considerable improvement was observed in academic performance. Investigating the impact of irrational beliefs on students' academic achievement, Sapp (1996) proved that irrational beliefs are associated with academic failure. Giles & Berga (2000) claimed that women suffering from migraine are more perfectionist, have higher irrational beliefs and lower cognitive efficiency. Sullivan (2006) suggested that both gender and social background may change students' attitudes, and students' beliefs may influence their academic achievement. Investigating teachers' attitude and its impact on job burnout, Bermejo-Toro & Prieto-Ursua (2006) concluded that irrational beliefs can make individuals susceptible to burnout through putting their opinions into stressful condition. They found a significant link between types of irrational beliefs and symptoms of teachers' burnout.

Emotional development is one of the affective factors on academic performance and achievement [22]. One of the main aspects of emotional development is emotion regulation (Thompson, 1994). Hence, if we are to facilitate learning best and to understand the correlation between emotions and learning, this factor should be taken into consideration [22]. Based on Campos, Frankel & Camras' (2004) definition, emotion regulation is the modification of any process in the system that generates emotion or its manifestation in behavior. Emotion regulation is also associated with the capability of modifying negative emotions and removing their damaging effects on psychological adaptation and also the ability of maintaining positive hedonistic emotions.

Evidence show that emotion regulation is linked to the success or failure in various aspects of life (Jacobs et al., 2008). The impact of emotion regulation on psychiatric disorders and adolescents' capability in learning and performance has been taken into consideration nowadays [9].

Parker et al. (2004) examined the relationship between emotional intelligence and academic achievement and found strong correlation between dimensions of emotional intelligence and academic success. Again, studying emotional intelligence and student retention, Parker et al. (2006) suggested that persisting in education is significantly linked to high levels of emotional and social competences. Based on their research, high emotional intelligence can predict positive social and academic outcomes among students.

Mikaeili et al. (2014) examined the associations of positive and negative emotions and emotion regulation with academic performance and burnout among university students. They found that emotion regulation and positive emotion were positively associated with academic performance and negatively correlated with academic burnout. Negative emotion was also negatively linked to academic performance and positively linked to academic burnout in university students; with emotion regulation significantly higher in girls, relative to boys. Examining approaches of cognitive-behavioral and emotion regulation capability on self-efficacy and academic adjustment in students with test anxiety, Abolghasemi, Beigi & Narimani (2011) found both approaches to be effective in reducing test anxiety and improving self-efficacy and academic adjustment of students.

Many factors related to burnout have been introduced as independent or combinatory risk factors. Migraine relapse is associated with decreasing positive emotion regulation strategies and increasing negative emotion regulation strategies and also greater irrational beliefs. So it is worth demonstrating these factors. Again with regard to the significant role of irrational beliefs, emotion regulation and chronic diseases like migraine on academic burnout, the necessity of conducting this research is highlighted. Findings of this study may be important in terms of clinical interventions. In other words, findings can be taken into consideration as psychological assistance in treating and preventing complications of chronic disease on patient's life that are not of great attention in clinical centers. Since examining these variables on a wide range has not been carried out in Iran yet, performing such research is of great importance. Regarding the high prevalence of migraine among students, accurate identification of burnout and associated factors can be very helpful; in this case, clinical interventions will focus on these special factors and better clinical implications would be obtained as the result.

Hence, the aim of the current study is to determine the role of irrational beliefs and emotion regulation in predicting academic burnout among female students with migraine.

Method

Procedure

The study was a retrospective and descriptive-correlation research. Participants were recruited among all female high school students in Khoy, Iran. The total number of female high school students in Khoy has been estimated 7900 individuals based on the report of academic organization of Khoy in 2013. Sampling was done in two stages. First, regarding epidemiology, number of 360 individuals was determined as the study population based on Krejcie & Morgans’ table (1970). Since epidemiology was one of the research aims, and in order to increase external validity, number of 500 individuals was chosen through randomized cluster sampling procedure. Due to the difficulty accessing these subjects again, all research measures including Ahvaz Migraine Questionnaire (AMQ), Irrational Beliefs Test (IBT), Emotion Regulation Questionnaire (ERQ) and Maslach-Burnout Inventory-Student Survey (MBI-SS) were provided through the first stage; then in order to identify subjects of the second stage of research, AMQ was scored first and students with migraine were identified. As a whole, among 500 subjects, 274 individuals had experienced headache in which 116 had tension headache and 158 had migraine headache. After collecting data, descriptive data were analyzed using methods of descriptive statistics such as mean and standard deviation, and research hypotheses were analyzed by Pearson’s correlation coefficients as well. Finally, multivariate regression analysis was performed to clarify research questions.

Instruments

Irrational Beliefs Test [30] [is a 100-item 5-point rating scale designed to measure the degree to which respondents hold Ellis’s 10 principle irrational beliefs. Despite doubts canst on its properties [35], the IBT is widely used, both for clinical and research purposes- perhaps reflecting its status as the best established instrument to date for measuring adherence to Ellis’s irrational beliefs.

Smith & Zorax (2000) reported the total reliability of the test about 0/88 and reliability of subscales from 0/45 to 0/95. The validity of the Persian version of the test was estimated about 0/70 on a sample of 106 subjects in 1993. Content validity was also confirmed through various studies [57].

Emotion Regulation Questionnaire [24] is a 10-item, self-report measure of habitual expressive suppression (four items) and reappraisal (six items). The ERQ uses a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Example questions include “I control my emotions by changing the way I think about the situation I’m in” (reappraisal) and “I control my emotions by not expressing them” (suppression). Internal consistency has been adequate and consistent across studies [24, 60]. Gross & John (2003), reported a Cronbach’s alpha coefficient reliability value of 0.79 for reappraisal and 0.73 for suppression; and test–retest reliability across three months was 0.69 [23].

Maslach-Burnout Inventory- Student Survey (MBI-SS): In order to assess exhaustion, cynicism, and efficacy a modified version of the Maslach-Burnout Inventory-General Survey [51] was used that was slightly adapted for use in student samples: the MBI-SS [53]. For instance, the item “I feel emotionally drained from my work” was rephrased as “I feel emotionally drained from my studies”. The MBI-SS consists of 16 items that are grouped into three scales: Exhaustion (EX; five items), Cynicism (CY; five items), and academic Efficacy (EF; six items). All items were scored on a 7-point frequency rating scale ranging from “0” (never) to “6” (always). High scores on EX and CY, and low scores on EF are indicative of burnout (i.e. all EF items were reverse scored). As suggested by Schutte et al. (2000), one CY item (“When I’m in class or I’m studying I don’t want to be bothered”) was eliminated because it was shown to be ambivalent and thus unsound.

Ahvaz Migraine Questionnaire (AMQ): was developed by Najjarian (1997). Cronbach’s alpha coefficient was applied to assess the internal consistency of AMQ. Obtained coefficients were 0/91 for the whole sample, 0/81 for female and 0/89 for male subjects. Test-retest reliability coefficients were 0/80 for the whole sample, 0/47 for female and 0/75 for male subjects. With respect to the significant correlation between some psychological variables and migraine headache, three other scales were simultaneously performed with Migraine Questionnaire in order to evaluate the validity of the scale. AMQ was significantly ($P<0/05$) correlated with Hospital Anxiety and Depression Scale (HADS) ($r= 0/49$), Ahvaz Aggression Inventory (AAI) ($r= 0/46$), Hypochondriasis ($r=0/36$) and Hysteria ($r=-/34$) scales.

Results

Table1. Mean and standard deviation of migraine headache and academic burnout

| | Migraine headache | Exhaustion | Cynicism | Inefficacy | Burnout |
|-----------|--------------------------|-------------------|-----------------|-------------------|----------------|
| M | 39/68 | 14/45 | 12/99 | 10/76 | 38/20 |
| SD | 12/34 | 3/48 | 5/10 | 4/12 | 9/96 |

Table2. Mean and standard deviation of emotion regulation

| | Suppression | Reappraisal | Emotion Regulation |
|-----------|-------------|-------------|--------------------|
| M | 27/36 | 17/03 | 44/39 |
| SD | 7/60 | 4/78 | 10/48 |

Table3. Mean and standard deviation of irrational beliefs

| | Irrational Beliefs | Hopelessness Changes | Demand for Approval | Problem Avoiding | Emotional Irresponsibility |
|-----------|--------------------|----------------------|---------------------|------------------|----------------------------|
| M | 88/17 | 32/14 | 23/60 | 12/12 | 21/14 |
| SD | 35/74 | 12/14 | 9/63 | 7/20 | 10/39 |

Table4. Prevalence of headache

| headache | Frequency |
|-------------------|-------------|
| Without headache | 226 (45/2%) |
| Migraine headache | 274 (54/8%) |
| total | 500 (100%) |

Table5. Results of Pearson correlation coefficient between irrational beliefs and academic burnout

| Irrational Beliefs | Academic Burnout |
|--------------------|------------------|
| | r=0/560 |
| | P=0/001 |

As indicated in table 5, academic burnout is positively associated with irrational beliefs.

Table6. Results of Pearson correlation coefficient between components of irrational beliefs and academic burnout

| | Hopelessness Changes | Demand for Approval | Problem avoiding | Emotional irresponsibility |
|-------------------------|----------------------|---------------------|------------------|----------------------------|
| Academic burnout | r=0/482 | r=0/397 | r=0/511 | r=0/400 |
| | P=0/001 | P=0/001 | P=0/001 | P=0/001 |

According to table 6, academic burnout is positively correlated with components of irrational beliefs.

Table7. Results of Pearson’s correlation coefficient between emotion regulation and academic burnout

| Emotion Regulation | academic Burnout |
|--------------------|------------------|
| | r=-0/658 |
| | P=0/001 |

According to table 7, emotion regulation is negatively correlated with academic burnout in high school students with migraine.

Table8. Results of Pearson’s correlation coefficient between components of emotion regulation and academic burnout

| Suppression | Reappraisal |
|-------------|-------------|
|-------------|-------------|

| | | |
|-------------------------|----------|----------|
| Academic Burnout | r=-0/603 | r=-0/570 |
| | P= 0/001 | P=0/001 |

As indicated in table8, academic burnout is negatively correlated with components of emotion regulation.

Table9. Summary results of regression analysis

| predictors | T | B |
|---------------------------|----------|----------|
| Irrational Beliefs | 5/86*** | 0/289 |
| Emotion Regulation | 3/36*** | -0/503 |
| R | 0/702 | |
| R² | 0/493 | |
| F | 47/14 | |
| P | 0/001 | |

***.P<0/000

Regression analysis results indicate that both irrational beliefs and emotion regulation explain 49% of academic burnout among female high school students suffering from migraine.

Discussion

Academic achievement is a multidimensional matter affected by various factors. Regarding the importance of academic performance, identifying effective factors has been always of interest to educational researchers and higher education organizations.

In this study we investigated the role of irrational beliefs and emotion regulation in predicting academic burnout among female students with migraine.

Determining the prevalence of migraine, it is worth noting that students' absenteeism is the investigating matter which results in academic failure. As in America, throughout 3 months, 14% of female students and 8% of male students loose a day or a part of it because of headache in which 0/9 is related to migraine headache [34]. Another study performed in America by Durham (1998) revealed that 3-5% of school absences are because of migraine headache, and those who attend classes despite migraine, have 45% reduced work productivity. These findings are consistent with our result about the prevalence of migraine. Investigating headaches among men and women, Ayatollahi & Fardi (2004) found that male to female ratio was 1:1/4 in all kinds of headaches. Again, in a survey performed on the prevalence of migraine and tension headaches among students of Yazd city, the prevalence of migraine and tension headaches were 12/4% and 4/2%, respectively [17]. Based on Ghayeghran & Fath Sami (2004) findings, the prevalence of migraine was 1/9 times higher in girls, relative to boys. In Lauce & Goodsbey (1998) study on Danish adolescents, migraine was reported about 9% among 15 years old teenagers. Migraine has been reported in developing and also developed countries about 6-12% among adolescent students [4]. Differences are because of the diversity in age range of the study population and also the variety in method and measures applied. With regard to the achieved results and by considering the issue that migraine headache is generally severe and may results in school absenteeism and even patient's academic failure or loss of confidence, it is suggested to identify these students and refer them to physicians in order to be trained how to cope with migraine attacks, and if necessary, preventive or medical interventions would be done. The study results about the associations between irrational beliefs and academic burnout are consistent with findings of Sapp (1996), Moradi (2011) and Bridges et al. (1997). When irrational beliefs become the essential preferences of life, the natural process of life would be disturbed; irrational beliefs focus heavily on compulsion in which individuals consider themselves bound to a specific opinion so that it may affect the level of social performance including education [15, 37]. With respect to the studies of Maultsby, Kinpping & Garpenter (1974); DiGiuseppe, Miller & Trexler (1997) indicated that rational-emotive education is effective on non-clinical population including children and adolescents. They also found that children participating rational-emotive education program obtained the ability to learn assumptions of Rational-Emotive Therapy and modify their irrational beliefs. They stated that such educations would enhance the effective skills of these students in coping with emotional situations. Investigating the impact of irrational thinking on academic procrastination of high school students, Bridges et al. (1997) came to the conclusion that irrational thinking is linked to the academic procrastination of students; and after three weeks of reformation training, a considerable improvement was observed in academic performance. Hence it is possible to reduce the effect of irrational beliefs on students' body and mind by training them how to identify and modify irrational beliefs. Second finding of the study is based on the association between emotion regulation and academic achievement which was confirmed with a correlation coefficient of 0/65. It seems that individuals skilled in emotion regulation provide the necessary context to academic achievement through positive thoughts on duty in academic performance and tasks. This task-based effort makes the person devote his/her time and effort to educational purposes and identify ways of fulfilling his/her aims for choosing the best. This mechanism may increase the probability of students' academic achievement. Moreover, as adolescence is the time in which teenagers' internal capabilities of regulating emotions and behaviors decline, the teenage can be assisted to avoid the consequences of deficits in emotion regulation, which may affect individual's physical health as well, by modifying negative emotions since adolescence is the golden time to interact with the world of future. Emotion regulation is

not the only factor which results in performance improvement, but it is hoped to reduce disease complications through being in a rich familial context and learning environment. This finding is compatible with the results of Mikaeili et al. (2014), Parker et al. (2004), Haddadi Koohsar (2004) and Attari et al. (2004) on the significant association between emotion regulation and academic achievement. Emotion regulation, emotion control, not being discouraged, discipline and persevere may predict individual's function in various areas including academic status. Emotion regulation can prevent pointlessness, frustration, malaise and fatigue of students in classroom and prevent academic burnout consequently. On the other hand, high emotional instability is linked to poor academic performance [62]. It seems that deficits in emotion regulation may increase anxiety, distress and burnout through stressful situations such as school exams and result in poor academic performance. Since cognition, emotion and behavior interact fully with each other; emotion regulation causes change in function of cognitive systems, including memory, attention, consciousness and academic status improvement by controlling attention and cognitive consequences of emotion. Autonomous learners are those who are aware of efficacious strategies for coping with emotional problems and the time to apply them, for instance they know when to express their emotion and when to inhibit or manage it. Discussing study variables, it is worth noting that through determining the association between irrational beliefs and academic burnout among students with migraine, it was proved that among the four variables including hopelessness changes, emotional irresponsibility, problem avoiding and demand for approval, problem avoiding could predict academic burnout more significantly. Firstly, it is in line with Ellis's Rational-Emotive theory (1970) which claims that individuals' beliefs and thoughts affect their behavior, and people's types of beliefs are what determine their behavior. So, the findings confirm Ellis's theory representing that individual's behavior such as appropriate academic performance and consequently lack of academic burnout are the results of person's beliefs about the self like self-concept in education, school etc. what student think about the self (A) and about study and school (B), affects his/her behavior that is whether to study or not (C). This is in agreement with the preceding researchers' findings [8, 56]. In addition, common stereotypical and wrong thinking arises among some students about vague future and the uncertainty after graduation may be the reason of students' kind of irrational beliefs; and as a result of these beliefs, they behave irrationally about school and education in which suffering from burnout, apathy about education and irresponsibility towards performance may represent this fact.

Investigating subscales of emotion regulation, emotional inhibition could predict academic burnout in a greater percentage (60%) that is compatible with Gross's theory (1998) which claims that suppressing emotion expression declines cognitive resources. Emotion regulation skills improve the ability to understand emotions and to modify the experience and expression of emotions [23]. Ghodsi (2008) found that styles of emotion expression in female high school students predict the level of their test anxiety. Hence, by applying some short-term training programs, students' coping performance may increase and their negative attributes would decrease.

Implications for psychologists and counselors in schools

Academic burnout is one of the main factors that has become an important problem for educational system nowadays. Identifying effective factors on students' academic burnout including irrational beliefs and difficulty regulating emotions, psychologists and counselors in schools may help students to improve their academic status, motivation and efficacy. Since students suffering from migraine are more exposed to academic burnout, the study results may be effective in terms of investigating factors contributing to academic burnout in such students and assisting them in modifying irrational beliefs and strengthening emotional self-regulation.

Conclusion, study limitations and future directions for research

According to the present findings, it can be concluded that students' academic performance and burnout can be explained through irrational beliefs and emotion regulation. These results are compatible with the results of other researches performed in Iran [41]. So when the student wouldn't be able to fulfill and manage required homework, he/she will be susceptible to academic burnout. Migraine causes considerable changes in people's social, individual and job performance and life. Determining predisposing factors of substantial decline in youths' performances of great importance; and following it up may result in improving quality of life, decreasing migraine attacks and enhancing performance efficiency in academic environment of such students. Of note, this study has several limitations. First, this study utilized a sample of participants who were female school students of Khoy city which may reduce the generalizability of the results to other groups. Furthermore, lack of control for the severity of migraine and any medication are other limitations of the present study. It is suggested to carry out this research in other cities of Iran with different subcultures in order to improve the generalizability of the findings. Given the importance and role of psychological factors such as irrational beliefs and emotion regulation on migraine and consequently academic achievement and burnout of students, it is essential to train students in these skills using appropriate strategies and models.

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