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The Relationship Between Academic Motivation and General Health and the Effective Factors on This Relationship in Female High School Students

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Abstract

Background: Motivation is among factors that drive humans' behavior and since many years ago, psychologists have paid much attention to its role in educational and academic development. Besides, students mental health is influential on the success of any country's educational system.

Objectives: The present study aimed to investigate the relationship between academic motivation and general health of female junior high school students in Jahrom city of Iran.

Methods: This cross-sectional, descriptive-analytical study was done on 464 students studying in female junior high schools of Jahrom in the second semester of 2015. Multistage random sampling was used. In order to study academic motivation, Harter academic motivation scale and to study general health, goldberg general health questionnaire (GHQ-28) was used, the validity and reliability of which have been approved. The data were entered in the SPSS statistical software (version 21) and were analyzed using Pearson's correlation, independent two-samples T-test, and linear regression modeling method.

Results: The results of the correlation test indicated that academic motivation was associated with general health. Accordingly, lower GHQ scores were associated with higher academic motivation scores. In other words, healthier students had higher academic motivation ($P < 0.001$). However, no significant difference was found between seventh grade and eighth grade students regarding academic motivation and general health. Overall, the findings of this research showed the students' high motivation, and that general health was at risk in some academic majors.

Conclusions: According to this study, healthier students had higher academic motivation. Therefore, more attention needs to be paid to students' general health and academic motivation, which could lead to their educational achievement.

Keywords: General Health, Academic Motivation, Junior High School Student

1. Background

Training human resources is one of the most important principles in political, cultural, social and economic development (1). In the process of learning, different variables, such as motivational orientation, self-respect and learning styles, can influence the learners and make their learning difficult (2, 3). Among these factors, the importance of motivation in education is inevitable. Research in the last decade has emphasized that motivation is one of the important and permanent factors in improvement of students' performance (4). Tella (2007) conducted a research on the effect of motivation on high school students' educational development and learning of math in Nigeria and showed that highly motivated students did better in math. On the contrary, students with lower motivation had poorer performance in this subject (5). In fact, motivation is the most important factor in learning. Motivation is the heart of learning and learning is the goal of education (6). Academic motivation is a set of behaviors, which are related to learning and improvement in education. In general, academic motivation, is an internal power, which leads the learner to an overall evaluation of performance according to the highest criterions, effort to success in performance, and the joy of success in performance (7). Internal motivation is an innate tendency to search and overcome challenges involving individual goals and personal interests. In return, people with external motivation do not consider themselves self-determined. Their behaviors are dictated from the outside. This means outer factors and other people have a great role on their decisions. Therefore, people with external motivation are waiting for some

kind of social reward or punishment for performing or not performing an action instead of focusing on the task it self and feeling satisfied in the process (8, 9).

Spaulding (2000) also considered motivation to be the key to students' learning (10). Hagger and Hinn (2007) believed that high levels of accomplishment resulted from high levels of motivation (11).

According to Shidker and Freeman (2008), motivation is one of the most complicated challenges for today's teachers. In fact, its variety and complexity have made it an interesting and challenging issue in educational sciences (12). Furthermore, Macleland (2000), a pioneer in motivation studies, believes that the future of every society depends on its students' level of motivation for progress (13). Ames (2007) also stated that high motivation levels reduced dropout and increased achievement among students (14).

Van Petegum et al. (2008) performed a study entitled "the influence of students' characteristics and teacher's interpersonal behavior in the classroom on students' well-being" and demonstrated a positive and direct correlation between motivation and students' goal of studying and socio-emotional health. These findings showed that the students, who attended school and found school subjects interesting and desirable, were healthier than other students. On the other hand, those who thought they were forced to go to school gained lower scores of emotional and mental health because they were not self-determinant (15). In the same line, Shakib et al. (2014) reported that academic motivation and all its subscales were related to mental health. In other words, an increase in motivation led to development of mental health (16). In previous studies, the relationship between academic motivation and general health was not examined directly and separately. For example, Shakib only examined effective factors on mental health, not general health.

It should be noted that different dimensions of health and illness affect each other. In 1948, the world health organization (WHO) defined health as the complete state of physical, mental, and social well-being, and not merely the absence of disease or disability (17).

2. Objectives

The present study aimed to assess the relationship between academic motivation and general health and the factors affecting them among female junior-high school students in Jahrom city of Iran.

3. Methods

3.1. Research Population

This cross-sectional, descriptive-analytical study aimed to examine the relationship between academic motivation and general health among female junior high school students in Jahrom. The study population included all female junior high school students in Jahrom. The study participants were selected through multi-stage random sampling. In doing so, according to experts' views, Jahrom was first divided to four regions (strata in the first stage) and a school was chosen randomly from each region. In each school (stratum in the second stage), some classes were chosen randomly, considering the total number of students. All of the students in these classes, who agreed to participate and had the inclusion criteria, were entered in the study. Overall, the sample included 464 female students in the 7th and 8th grades of junior high school. According to statistics specialist and according to the paper "The relationship between academic motivation and psychological well being in high school students in Shiraz 2011", the sample number on the basis of correlation coefficient of 0.2 and with study effect of 1.8, was specified as 464.

C(r) = 0/2

$Z_{1-\alpha/2}$ = 1/96

Z_{1-B} = 1/04

$$n = \frac{\left(Z1 - \frac{\alpha}{2} + Z1 - \beta\right)2}{C\,(r)\,2} + 3 \quad (1)$$

$$C\,(r) = \frac{1}{2} ln \left(\frac{1+r}{1-r}\right) \quad (2)$$

In the year when this study was performed, junior high school included only grades 7 and 8.

3.2. Data Collection

In this research, Harter academic motivation scale was used to study academic motivation. In addition, goldberg general health questionnaire (GHQ-28) was applied in order to study general health. The researchers also prepared a questionnaire to collect demographic data, such as age, education level, parents' education level and occupation, family's monthly income, birth rank, and students' and their families' illness and hospital admission history.

3.2.1. Harter Academic Motivation Scale

In this study, the modified version of Harter scale (1980/1981) was utilized to evaluate academic motivation (18). The original version of Harter scale evaluates academic motivation by bipolar questions involving internal

and external motivations. Thus, the answer to each question includes an external or internal reason. Due to the fact that both external and internal motivations play a role in many educational subjects, Laper et al. (2005) changed the Harter scale to a usual scale, so that each question would examine one of the reasons for external or internal motivation (19). The items of this questionnaire were scored through a Likert scale ranging from one (never) to five (almost always). Of course, this scoring system was reversed for questions 3, 4, 5, 9, 10, 15, 16, 19, 21, 27 and 31. The total score of this questionnaire was calculated by summing up the scores of the items. This score indicated the test takers' level of academic motivation, with higher scores representing higher academic motivation. The range of the score was 33 to 165. Harter motivation questionnaire contains 33 questions, which evaluate academic motivation by bipolar questions; one polar is internal motivation and the other polar is external motivation. The answer to the questions can have an internal or external reason.

3.2.1.1. Reliability and Validity

In one study, Bahrani (20) examined reliability and validity of Harter questionnaire to evaluate academic motivation of Iranian junior high school students. The internal coefficient was 0.30 to 0.78 by calculating correlation of each question with total score of scales. Analyzing acquired factors in questions of the scale specified four factors, which showed the internal motivation dimension. Subscales of external motivation were weakly distinguishable. The results of this analysis correlate with scale's authors analysis. Bahrani (2008) reported that the two dimensions of Harter scale were related to each other and students' educational improvement, which confirms its validity. In addition, test-retest reliability and Cronbach's alpha of the subscales of this instrument were satisfactory, which shows its consistency in evaluating Iranian students' academic motivation. Accordingly, Cronbach's alpha and test-retested coefficients of the internal motivation scale were 0.85 and 0.86, respectively. These measures were respectively obtained as 0.69 and 0.72 for the external motivation scale. In a sample of 3000 individuals, Harter calculated Coder Richardson reliability coefficient of 0.78 for the main copy of the motivation scale. Shacher and Fisher (1994) calculated motivation subscales alpha coefficient between 0.68 and 0.73. By studying social rank differences of schools where he had performed the sampling and also by teacher's ranking of the students, Harter examined validity of his scale and achieved positive results. Furthermore, he examined construct validity of this scale on the basis of perceived competence forecast. He found a positive relationship between competence and subscales of challenge (r = 0.58), curiosity (0.33), independent dominance (r = 0.54), and independent judgment (r = 0.26). However, the correlation with the intrinsic criterion was very low (r = 0.26) (21).

3.2.2. General Health Questionnaire

In this study, the standard general health questionnaire was used in order to evaluate the students' general health. The GHQ-28 was first devised by Goldberg in 1972 (22) and has been widely used to distinguish mild mental symptoms, such as depression, anxiety, physical symptoms and social function in different situations. The reliability of this questionnaire was reported to be 91% by Palahang et al. Furthermore its correlation coefficient in relation with clinical disorders was reported to be 80% (23). Studies done in Iran have also reported this questionnaire's validity. Studying the correlation between subscales of general health questionnaire showed that all of these correlations are meaningful. This shows that in general this questionnaire measures the related structures with each other. Also in order to study concurrent validity, correlation of the general scale of general health and Petersburg sleep quality index was examined. The result showed that these two variables have significant correlations with each other. This provides evidence of concurrent validity for general health questionnaire (24). In order to examine reliability of the GHQ-28 questionnaire, Taghavi used two methods: Cronbach's Alpha and test-retest. This study showed that according to the mentioned methods, validity coefficient of 0.70 and 0.90 was acquired, respectively. The correlation between subscales of this questionnaire with total score was between 0.72 and 0.87 (25). This questionnaire deals with mental disorders and general health with emphasis on the present social, physical, and psychological issues. This questionnaire is available in various versions including 28, 30, 60 and 12 items. The GHQ-28, which was used in this study, included four subscales starting with physical symptoms followed by anxiety symptom, social function disorder and depression symptoms. Social performance is the individual's ability in daily activities, feeling satisfied while performing the duties, learning power, and enjoyment from usual daily activities. In this questionnaire, each item received a score of 0 to 3. Thus, the maximum and minimum scores of each subscale were 0 and 21, respectively and the total score could range from 0 to 84. Accordingly, scores 0-21, 22-42, 43-63 and 64-84 represented very satisfactory general health, some threats to general health in some areas, threatened general health in many areas, and serious general health situation and need for visiting a specialist, respectively. It should be mentioned that this questionnaire examined the individuals' general health in the previous month. According to the general health question-

naire, four dimensions, physical symptoms, anxiety, social performance and depression, were evaluated.

The aim of this study was to examine general health, not only mental health. This questionnaire has also been used to examine students' general health in other studies such as Musavimoghaddam et al. (2012 - 2013) that examined general health of male and female junior high school students in Ilam (26) or Hedayat Omidvar et al., that examined the effects of teaching time management approaches in students' mental health and academic motivation (27).

3.3. Statistical Analysis

All data analyses were performed using the SPSS statistical software, version 21. In order to investigate the relationship between academic motivation and general health, Pearson's correlation test was used. Besides, linear regression analysis was applied to determine the effective factors in academic motivation and general health. Independent T-test was also used to compare the scores between seventh and eighth graders. P values of < 0.05 were considered statistically significant.

4. Results

This study was conducted on 465 female junior high school students in Jahrom during year 2015. The students' frequency was almost equal in both 7th and 8th grades. The students' age ranged from 12 to 18 years. Additionally, the highest frequency was related to ages 13 and 14 years. Most of the students' fathers were self-employed and most of their mothers were housewives. In addition, the highest frequency of education level was junior high school among the fathers and diploma among the mothers. Moreover, the highest frequency of family income was 5-10 million Rials per month. The highest frequency of the number of siblings was 0 and 1. The highest frequency of birth rank was also 1 and 2. Most of the students did not have any history of illness (93.3%), hospital admission (80%) and positive family history (76.9%).

The mean scores of academic motivation and general health and its dimensions have been presented in Table 1.

The results of comparison of 7th and 8th graders regarding academic motivation and general health scores are shown in Table 2. It should be mentioned that in the year this study was done, junior high school only included 7th and 8th grades.

Independent T-test was used to compare 7th and 8th graders regarding academic motivation and general health scores. The results showed no significant difference between the two groups with respect to academic motivation ($P = 0.093$) and general health ($P = 0.31$) (Table 2).

The correlation between academic motivation, and general health and its dimensions is presented in Table 3. The results of Pearson's correlation test were statistically significant. In other words, lower scores of general health and its dimensions represented higher academic motivation scores and healthier individuals.

Forward linear regression was applied for modeling general health and academic motivation scores based on demographic information. The results are shown in Tables 4 and 5. As Table 4 depicts, academic motivation score of the students whose mothers had A.D. was about 8 points higher than that of the students whose mothers had Master's degree or above. Additionally, academic motivation score of the students whose mothers had primary school degrees was 4.25 points lower than the score of those whose mothers had Master's degree or above. According to Table 5, general health score of the students, who had hospital admission history, was 7.04 points lower than the score of those, who did not have this history. Besides, general health score of the students, who had illness history, was 9.6 points lower than that of the students who did not. Finally, general health score of the students, who had positive family history, was 4.08 points lower than the score of those who did not. In other words, these individuals were healthier than others. Also, the general health score of the students whose families' monthly income was 10 to 20 million Rials was 5.08 points lower than that of the students whose families earned 30 million Rials or more per month.

5. Discussion

The present study aimed to examine the relationship between general health and academic motivation of female junior high school students in Jahrom city. The findings of this study showed that the mean score of academic motivation was about 113, which indicates higher-than-average motivation among students. These findings were in agreement with those of the study by Bahrani (2006), which indicated that students' academic motivation scores were higher than average. This implies that enthusiasm for learning and gaining knowledge is higher than average in our students (28).

In the current study, the mean score of general health was about 30, which shows that general health is at risk in some areas. Similarly, Shakib et al. reported that the mean score of mental health was the sign of average level of mental health in students (16). Omidvar et al. also carried out a research to determine the effectiveness of time management guideline for students' mental health and academic motivation in Ardabil during year 2013. In this study, the mean scores of the subscales of general health

Table 1. Mean Scores of Academic Motivation and General Health and its Dimensions

Variables	Number	Minimum	Maximum	Mean	SD
Physical symptoms	462	0	20	5.91	4.07
Anxiety and insomnia	463	0	21	7.24	4.62
Social function disorder	465	0	21	7.72	3.79
Depression	461	0	21	5.98	6.21
General health	457	1	73	26.9	15.25
Academic motivation	462	56	151	112.71	15.91

Table 2. Comparison of 7th and 8th Graders Regarding Academic Motivation and General Health Scores

Variables	7th Graders' Score (Mean ± SD)	8th Graders' Score (Mean ± SD)	P Value[a]
Academic motivation score	113.9 ± 15.2	111.4 ± 16.5	0.093
General health score	26.2 ± 15.5	27.6 ± 14.9	0.312

[a] Independent two-samples T-test.

Table 3. The Correlation Between the Students' Academic Motivation and General Health Scores

Variables	Number	Pearson's Correlation Coefficient	P Value[a]
Academic motivation score vs. General health score	464	- 0.252	< 0.001
Academic motivation score vs. Physical scale score	460	- 0.194	< 0.001
Academic motivation score vs. Anxiety scale score	460	- 0.186	< 0.001
Academic motivation score vs. Social function score	462	- 0.114	0.014
Academic motivation score vs. Depression scale score	458	- 0/278	< 0.001

[a] Pearson's correlation test.

were lower compared to the present study. In this study, the mean scores of physical symptoms, anxiety, social function and depression were 3.79, 3.89, 4.75 and 3.81, respectively. In other words, the students in Omidvar's study were in a better general health condition compared to those in our study (27). However, in both studies, the highest mean score was related to social function disorder subscale. Therefore, more attention should be paid to this area. Moreover, the findings of the study by Noorbala et al. (2005) demonstrated that the prevalence of mental disorders in females indicated the low level of mental health among them, which specifies the importance of placing emphasis on females' mental health (29).

The results of the current study showed no significant difference between different grades regarding academic motivation score (P = 0.093) and general health score (P = 0.31). Academic motivation score and general health score were compared between 7th and 8th grade. There were no significant differences. In other words, as the students moved to higher grades, the level of academic motivation and general health did not change a great deal. However, Bahrani's study showed that as the high school students went to higher grades, the level of academic motivation decreased by a small degree (28). This difference might be due to the fact that Bahrani's study was done in senior high school. Gottfried and Fleming (2001) also conducted a longitudinal study to examine academic motivation of a group of students (from primary school to high school) and found that the mean of academic motivation decreased by increase in age (30). Moreover, Rezaei et al. (2008) showed that senior nursing students had lower mental health in comparison to freshmen, which could be because of the nature of this field (31).

The findings of our study demonstrated a significant correlation between the mean scores of academic motivation and general health among female junior high school students in Jahrom. Accordingly, the lower the general health score, the higher the academic motivation score. In other words, as the students were in a better general health condition, they had a higher academic motivation.

Table 4. Linear Regression Analysis of Academic Motivation Scale Based on Demographic Variables[a]

Model	Regression Coefficient B	Std. Error of Regression Coefficient	Statistic Index of Significance (t)	P Value[b]
Constant	113.643	0.87	130.714	< 0.001
Mother's education level (A.D.)	8.08	3.225	2.505	0.013
Mother's education level (Primary school)	- 4.25	1.84	- 2.314	0.021

[a] R square: (0.025).
[b] Significant at 0.05 level.

Table 5. Linear Regression Analysis of General Health Scale Based on Demographic Variables[a]

Model	Regression Coefficient B	Std. Error	t	P Value[b]
Constant	45.49	2.86	15.88	0.001
Hospital admission	- 7.04	1.74	- 4.03	0.001
Illness history	- 9.6	2.86	- 3.36	0.001
Income level (10 - 20 million Rials)	- 5.09	1.59	- 3.2	0.001
Family history	- 4.08	1.66	- 2.45	0.015

[a] R square: (0.114).
[b] Significant at 0.05 level.

The results also indicated that lower general health scores in each subscale were accompanied with higher academic motivation scores. This means, better physical health condition, lower anxiety, better social function, and lack of depression increased academic motivation. These results were consistent with those obtained by Shakib, which revealed that academic motivation was related to internal health and increasing motivation promoted mental health in students (17). Velki (2011) also disclosed a significant relationship among autonomous motivation, mental health and general health. Accordingly, the students with autonomous motivation had better mental health and general health than those with controlled motivation, which is in line with the results of the present study (32).

Petegom et al. (2008) performed a study entitled "The influence of students' characteristics and interpersonal teacher behavior in the classroom on students' well-being" and showed a direct and positive relationship between the students' purpose of education and their social and emotional health. These findings implied that the students, who found school subjects interesting, were in a better health condition. On the other hand, the students, who thought they were forced to go to school, as they were not the ones who decided, received lower scores in emotional and mental health subscales. These results were in accordance with those of the present study (15).

The results of the research by Hambri cited by Najmi (2009) (33), Zitnagova (2007) (34), Packrun et al. (2011) (35), Lavasani (2003) (36), Abedi et al. (2006) (37) and Atapour (38) showed that the students with high achievement motivation had lower anxiety levels in exams. These results were in line with the findings of our investigation. In this study, higher levels of motivation were accompanied with lower anxiety scores and better health status. Similarly, Ezheie et al. (2012) studied the relationship between anxiety and academic motivation and showed that motivation affected the students' anxiety both directly and indirectly (39). Based on the results, when the students had high internal and self-determinant motivation, they experienced lower anxiety, which is consistent with the results of the present study. Shahiri (2012) also reported a significant and positive correlation between mental health and academic achievement. In other words, the higher the students' mental health, the higher their academic achievement. Besides, Korotkove (2004) revealed a significant and negative relationship between neuroticism and academic motivation, which agrees with the results of the present study (40). Moghimian (2012) demonstrated stability and low anxiety on one side of neuroticism, and instability and high anxiety on the other side. Individuals with high neuroticism could not achieve motivation in education if they had high anxiety levels (41). This is in accordance with the results of the current study.

The results of most of the studies done on academic motivation and anxiety showed that internal motivation was positively related to characteristics of mental health,

such as confidence, peace, accountability, creativity, and self-actualization. They also indicated that external motivation and lack of motivation were positively associated with indexes of adverse behaviors, such as dropout, anxiety and indifference towards accountability (42, 43). Some studies revealed that students' mental health improved by stimulating academic motivation through educational programs (44). Therefore, considering the importance of motivation and its role in improving mental health, low level of motivation among students should receive special attention. In the present study, higher academic motivation was accompanied with better general health.

Tables 4 and 5 present information acquired from researcher-made demographic information questionnaire, which was filled by the students. In Table 4, only mothers' education was meaningful. Mothers' education was classified as:

1. Illiterate, 2. Primary school degree, 3. Junior high school degree, 4. Diploma, 5. Associate degree, 6. Bachelor of art/Bachelor of science, 7. Master of art/Master of science and higher. Regarding regression modeling of academic motivation on the basis of demographic information, only the amount of education of mothers with associate degree and primary school degree were meaningful. The amount of monthly salary was defined as follows: 500000 Tomans per month, 500 000 to 1 000 000 Tomans per month, 1 000 000 to 2 000 000 Tomans, 3 000 000 Tomans and more. Of these salaries, only 1 000 000 to 2 000 000 Tomans was meaningful.

In Table 5, which presents regression modeling of general health score on the basis of demographic information, students' hospital admission history, students' illness history, family history and monthly salary were meaningful.

According to the results of regression analysis, only mother's education was significantly effective on the students' academic motivation score. In this regard, only primary school degree and AD were significant. This could be justified by the fact that because of job affairs, mothers with Master's degree or above have less time for their children compared to those with AD. On the other hand, mothers with low education levels could not help their children with their lessons. In Bahrani's study (28), parents' education index showed a negative coefficient in regression analysis. In other words, the higher the parents' education level, the lower their academic motivation.

However, income level and economic situation were not significant in regression analysis in the current study, which is in line with the findings of researches by Moghimian et al. (2012) (41) and Zaree (2009) (45). In these studies, no significant relationships were found between the mean scores of students' academic motivation and economic situation. Generally, there is a hidden internal force in human beings to develop their abilities and innate talent towards improvement, and changes in life conditions only effect the speed of this improvement.

According to the results presented in Table 5, general health scores of the students, who had hospital admission history, were lower compared to those who did not. Considering the fact that lower general health scores were related to more satisfactory health conditions, the students with hospital admission history were healthier compared to others. This might result from the fact that when children are admitted to a hospital for any reason, their parents will pay increased attention to them, causing them to be healthier in the rest of their lives.

This was also the case regarding the students with illness history and positive family history of a specific illness. Based on the results, general health score of the students, who had illness history, was 10 points lower than the score of those who did not. Also, the general health score of the students, who had positive family history was four points lower compared to those who did not.

The amount of monthly salary was defined as follows: 5 000 000 Rials per month, 5 000 000 to 10 000 000 Rials per month, 10 000 000 to 20 000 000 Rials, 30 000 000 Rials and more. Of these salaries, only 10 000 000 to 20 000 000 Rials was meaningful.

Monthly income of 10 - 20 million Rials was also significant in this analysis. Accordingly, the general health score of the students whose families' monthly income was 10 - 20 million Rials was lower compared to those whose families earned 30 million Rials or more per month. Higher welfare status resulting from higher income levels might have led to lack of parents' attention to children's general health.

5.1. Conclusion

In summary, academic motivation was correlated with general health. Based on the results, the better the students' general health condition, the higher the academic motivation. On the other hand, because junior high school is simultaneous with females' puberty period, more attention should be paid to these two important factors; i.e., motivation and general health, in this critical period.

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Footnotes

Authors' Contribution: Mitra Edraki was the thesis advisor and Sedighe Montaseri was the consultant of the article. Saeedeh Pourahmad was the statistical consultant; Narges Parvizi wrote and prepared the manuscript.

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