

The Relationship between Psychological Hardiness and Academic Enthusiasm and Vitality in Students of Arak University of Medical Sciences

Hassan Jafaripour¹, Mahin Qomi², Zahra Moslemi^{3*}, Seyed Abdullah Mahmoudi¹, Azam Moslemi⁴

¹Department of Internal Medicine, Arak University of Medical Sciences, Arak, Iran.

²Educational Sciences Department, Educational Sciences & Psychology Faculty, Allameh Tabatabaiee University, Tehran, Iran.

³Educational Sciences & Psychology Department, Human Sciences Faculty, Arak University, Arak, Iran.

⁴Biostatistics Department, School of Medicine, Arak University of Medical Sciences, Arak, Iran.

Received: 2019 May 07

Revised: 2019 November 08

Accepted: 2019 November 24

Published online: 2020 December 29

***Corresponding author:**

Educational Sciences and Psychology Department, Human Sciences Faculty, Arak University, Arak, Iran.

Email: zmoslemi75@yahoo.com

Citation:

Jafaripour H, Qomi M, Moslemi Z, Mahmoudi SA, Moslemi A. The Relationship between Psychological Hardiness and Academic Enthusiasm and Vitality in Students of Arak University of Medical Sciences. *Strides Dev Med Educ.* 2020 December; 17(1):e91546. doi: 10.22062/sdme.2020.91546

Abstract

Background: Psychological hardiness as a protective factor plays an essential role in how students face academic challenges. Paying attention to academic enthusiasm and vitality due to their strong impact on various aspects of students' academic life is of great importance.

Objectives: The aim of this study was to investigate the relationship between psychological hardiness and academic enthusiasm and vitality in students of Arak University of Medical Sciences.

Methods: This descriptive-correlational study was conducted in 2017-2018 on 341 students of Arak University of Medical Sciences selected by stratified random sampling based on gender. Data were collected using the Ahvaz Hardiness Inventory (AHI), Academic Enthusiasm Inventory developed by Fredricks et al., and Academic Vitality Scale. Data were analyzed using SPSS software.

Results: There was a negative and significant relationship between psychological hardiness and academic enthusiasm ($r=-0.17$, $P=0.002$) and vitality ($r=-0.38$, $P=0.001$). Also, a positive and significant relationship was observed between academic enthusiasm and academic vitality ($r=0.15$, $P=0.008$). There was a significant difference between the mean scores of academic vitality of male and female students.

Conclusion: In order to increase the quality of academic life of medical students, it is essential to teach the components of psychological hardiness, academic enthusiasm, and academic vitality to students.

Keywords: Psychological Hardiness, Academic Enthusiasm, Academic Vitality

Background

Academic life is one of the most important periods of a person's life that affect an effective education and learning (1). Psychological hardiness is one of the personality traits that is considered as a moderator of stress (2). It is derived from existential psychology (3). Kobasa believes that psychological hardiness is a personality trait, by which a person can effectively solve individual challenges and stresses and is used as a source of resistance and as a protective shield in the face of stressful life events (4). Psychological hardiness consists of three components: commitment (the opposite of self-alienation), control (the opposite of helplessness), and struggle (the opposite of feeling threatened

or feared). Psychological hardiness is a protective factor that affects how learners face academic challenges, lack of preparation, and other traumatic experiences (5).

Academic enthusiasm is one of the key factors that affect students' success (6) and reflects the quality of the effort a learner makes regarding purposeful educational activities to directly play a role in achieving the desired results (4).

Linking student behaviors (including study habits, participation with peers, interaction with faculty members, time spent on activities, and enthusiasm) and the university condition (including experiences by the first-year students, academic support, the university environment, peer support, educational approaches, etc.) are factors that

result in enthusiasm in students and success (7). Academic enthusiasm is a multidimensional structure. It involves the use of cognitive and metacognitive strategies in learning. Motivational enthusiasm (emotional) consists of three components of feeling, value, and emotion and includes loving the educational environment and interest in university-related activities. Behavioral enthusiasm includes active presence with enthusiasm in the educational environment (4).

The results reported by Safari et al. showed that there is a significant relationship between psychological hardiness and academic enthusiasm. Therefore, it can be assumed that by an increase in psychological hardiness, the desire to study also increases (4). Jalilian et al. also concluded that there is a positive and significant relationship between academic enthusiasm and psychological hardiness (5). Although no international (outside Iran) studies were found to examine the relationship between psychological hardiness and academic enthusiasm, numerous studies on psychological hardiness have confirmed its impact on various academic subjects. Crust et al. found that psychological hardiness has a positive effect on academic achievement and increases the level of education (8). According to Kamtsios and Karagiannopoulou, components of psychological hardiness have positive effects on doing assigned tasks, purposeful learning of learners, and coping with academic failures (9).

Academic vitality is another factor influencing academic achievement, which reflects academic resilience in the context of positive psychology (1). Martin and Marsh defined academic vitality as the pervasive ability to deal with academic barriers and challenges (10). Academic vitality is a simple and useful way to understand and conceptualize students' mental health during education (11). Psychological factors are predictors of vitality, of which academic enthusiasm can be mentioned (12). Azimi et al. concluded that academic enthusiasm can positively predict academic vitality (13). Jalilian et al. also showed that both psychological hardiness and academic enthusiasm can predict academic vitality (5). Also, Sadri Damirchi et al. indicated that psychological hardiness has a positive and significant effect on the predictive power of students' academic vitality and the commitment dimension has more predictive power (14). Gasiewski et al. concluded that academic enthusiasm improves academic performance and increases learners' participation in positive academic activities (15). Also, Baker et al. found that there is a positive and significant relationship between academic enthusiasm and academic performance (16). According to Yarahmadi et al., the educational vitality training program is effective on academic performance, academic enthusiasm, and academic vitality. In other words, the implementation of this program can increase the mean score of these three dependent variables (17).

Objectives

Medical students face several academic and job stresses daily that endangers their mental and physical health

and also affects their academic performance. Therefore, Different dimensions of students' educational status should be examined. Identifying the factors affecting the academic achievement and performance of students creates a suitable approach for planning, development, and evolution of educational programs, by which the best possible results can be obtained for both the desired educational development as well as for the students. The aim of this study was to investigate the relationship between psychological hardiness and academic enthusiasm and academic vitality among students of Arak University of Medical Sciences.

Methods

This descriptive-correlational study was conducted in 2017-18 on students of Arak University of Medical Sciences. Sampling was done by stratified random sampling. After coordination with the Vice-Chancellor for Education, the total number of students studying (3055 students) was obtained. Then, the total number of students in each faculty was determined based on gender (Faculty of Medicine: 1136 students, Faculty of dentistry: 210 students, Faculty of Paramedical Sciences: 322 students, Faculty of Rehabilitation: 187 students, Faculty of Health: 407 students, and Faculty of Nursing and Midwifery: 793 students). Using Morgan and Krejcie formula, the number of questionnaires that should be distributed in each faculty and according to gender among students was determined. (Faculty of Medicine: 127 questionnaires, Faculty of dentistry: 23 questionnaires, Faculty of Paramedical Sciences: 36 questionnaires, Faculty of Rehabilitation: 21 questionnaires, Faculty of Health: 45 questionnaires, and Faculty of Nursing and Midwifery: 89 questionnaires). Finally, 341 students from six faculties (medicine, dentistry, nursing and midwifery, paramedical sciences, health, and rehabilitation) were selected according to gender. The inclusion criteria were willingness to complete the questionnaire voluntarily and with complete satisfaction. Reluctance to continue cooperation and failure to complete the questionnaire were also considered as exclusion criteria.

Three questionnaires were used to collect data as follows:

Ahvaz Hardiness Inventory (AHI): This questionnaire has 20 items and each item has four options (never: zero, rarely: 1, sometimes: 2, most of the time: 3) and was designed and validated by Kiamarsi et al. (18). The scores range from zero to 60, which is obtained from the sum of the total scores. A score of 0 to 20 indicates high psychological hardiness, a score of 20-40 indicates moderate psychological hardiness, and a score of 41-60 was considered low-level psychological hardiness. It should be noted that those who obtain a lower score or a score close to zero, have higher psychological hardiness and higher scores or scores close to 60 reflects a lower level of psychological hardiness. Therefore, the maximum score of the questionnaire is 60 (minimum psychological hardiness) and the minimum score is zero (maximum psychological hardiness). In the AHI questionnaire, questions 1 to 9 as-

sess commitment, questions 10 to 16 assess control, and questions 17 to 20 measure fighting. The designers of the scale reported the reliability coefficients using test-retest and Cronbach's alpha as 0.84 and 0.76, respectively. The validity of the scale was calculated by concurrent validity using the general anxiety scale, depression questionnaire, and Maslow self-efficacy questionnaire and the obtained coefficients were 0.65, 0.67, and 0.62, respectively (18). Safari et al. also reported a total reliability of 0.69 (4).

Academic Enthusiasm Scale: This scale was first developed by Fredricks et al. and has 15 items, which measures the subscales of behavioral (questions 1 to 4), emotional (questions 5 to 10), and cognitive (questions 11 to 15) enthusiasm. The answers are scored between 1 and 5 (never to forever). The minimum and maximum scores and the cut-off point of the whole scale are 15, 45, and 75, respectively, and the higher the subject's score, the greater the academic enthusiasm. The designers of the scale reported its reliability coefficient as 0.86 (19). The validity of this questionnaire was confirmed in the research by Abbasi et al. and the total reliability was 0.66 (7).

Academic Vitality Questionnaire: Dehghanizadeh and Hossein Chari developed this questionnaire according to the Academic Vitality Scale designed by Martin and Marsh (4 items) with 9 items. This questionnaire is scored on a five-point Likert scale (from strongly disagree (1) to strongly agree (5) and its score is obtained by summing the scores of the items. Therefore, scores range between 9 and 45. A score of 9-21 indicates low academic vitality, a score of 22-33 indicates moderate academic vitality, and a score of 34-45 indicates high academic vitality. The validity of the scale was confirmed by the confirmatory factor analysis and reliability was obtained by Cronbach's alpha coefficient (0.80) and test-retest (0.73) (20). The reliability of the Academic Vitality Questionnaire was reported to be 0.83 in the study by Veiskarami and Yousefvand (21).

The present study approved by the ethics committee of Arak University of Medical Sciences (Ethics code: IR.ARAKMU.REC.1396.66). The schedule of classes was obtained from the officials of the Education Administration of the six faculties to distribute the questionnaires at the appropriate time. The questionnaires were then distributed by the researchers among the students of the

faculties and in the classroom (the classes were randomly selected and necessary coordination was made with professors). First, the purpose of the research was explained and after obtaining their consent and assuring the students to keep personal information confidential, they participated in the study voluntarily and with full consent. In order to comply with ethical considerations, the student's name and surname were not asked.

Pearson correlation coefficient test was used to determine the degree of correlation between research variables and the Independent t-test was used to determine the difference between mean scores (between both genders). Finally, the data were analyzed by SPSS software version 23 (version 23, IBM Corporation, Armonk, NY).

Results:

Out of 341 questionnaires distributed, 320 questionnaires were analyzed and 21 questionnaires were discarded due to no complete responses (response rate: 93.84%). Of students who entered the analysis, 185 students (57.9%) were female and 135 students (42.1%) were male. Demographic characteristics of the participants, including gender, marital status, residence status, and faculty are presented in Table 1. Most of the participants were in the age group of 18 to 20 years.

The mean score of psychological hardiness of students was 25.99 ± 13.21 and was at a moderate level. The mean score of students' academic enthusiasm was 40.52 ± 8.66 and below the average. Also, the mean score of participants' academic vitality was 29.13 ± 8.69 , and at a moderate level. The mean score of psychological hardiness, academic enthusiasm, and academic vitality by subgroups are presented in Table 2.

There was a significant negative correlation between the mean score of psychological hardiness and academic enthusiasm and academic vitality so that by an increase in psychological hardiness, students' academic enthusiasm increased. There was a poor positive correlation between the mean score of academic enthusiasm and academic vitality so that by an increase in students' academic enthusiasm, their academic vitality also increased (Table 3).

Table 1. Demographic characteristics of the participants

Variable	Groups	No. (%)
Gender	Female	185 (57.9)
	Male	135 (42.1)
Marital status	Single	284 (89.0)
	Married	36 (11.0)
Residence status	Dormitory	183 (57.1)
	Inhabitant	137 (42.9)
Faculty	Medical	105 (32.9)
	Dentistry	28 (8.8)
	Nursing and Midwifery	95 (29.7)
	Paramedical Sciences	34 (10.6)
	Health	37 (11.5)
	Rehabilitation	21 (6.5)
Total		320 (100)

According to Table 4, there was only a significant difference between the mean score of academic vitality according to gender; thus, male students had higher academic vitality than females.

According to the multiple linear regression model, there was no significant relationship between psychological hardiness (dependent variable) and academic enthusiasm, gender, and age ($P < 0.05$), however, there was a significant relationship between psychological hardiness and academic vitality ($P < 0.05$). According to Table 5, by an increase in academic vitality, psychological hardiness score decreased by 0.6. Accordingly, by increasing psychological hardiness of students, their academic vitality also increased.

Discussion

The aim of this study was to investigate the relationship

between psychological hardiness and academic enthusiasm and academic vitality of students of Arak University of Medical Sciences. The results showed that there was a significant negative relationship between psychological hardiness and academic motivation so that by an increase in psychological hardiness (lower scores), students' academic motivation increases. This finding was consistent with the results of studies by Safari et al. on students of Birjand University of Medical Sciences (4), Jalilian et al. on high school students in West Azerbaijan province (5). Also, the results of Malekpour et al. research conducted at Alborz University of Medical Sciences showed that psychological hardiness has a direct effect on academic achievement (22).

Mazloom et al. conducted a study on the students of Payame Noor University in Ahvaz and concluded that there is a positive and significant relationship between

Table 2. The mean score of psychological hardiness, academic enthusiasm, and academic vitality by subgroups

Variable	Groups	Psychological hardiness Mean (SD)	Academic enthusiasm Mean (SD)	Academic vitality Mean (SD)
Gender	Female	25.70 (12.97)	41.23 (7.14)	27.65 (8.89)
	Male	26.37 (13.56)	40.31 (9.11)	31.10 (8.04)
Marital status	Single	26.37 (13.33)	41.06 (7.95)	29.23 (8.73)
	Married	23.00 (11.97)	39.68 (8.08)	28.37 (8.01)
Residence status	Dormitory	25.55 (12.54)	40.82 (7.81)	29.16 (8.27)
	Off-campus students	26.58 (14.07)	40.89 (8.31)	28.96 (9.30)
Faculty	Medical	23.65 (12.31)	40.58 (7.73)	28.82 (9.40)
	Paramedical Sciences	30.11 (12.98)	43.42 (6.50)	30.28 (7.68)
	Rehabilitation	35.52 (10.29)	41.16 (6.37)	27.50 (9.39)
	Dentistry	27.25 (13.23)	39.96 (9.36)	29.53 (8.39)
	Nursing and Midwifery	23.77 (13.79)	40.30 (8.85)	29.63 (8.28)
	Health	28.55 (12.61)	41.21 (7.46)	27.68 (8.63)
Total		25.99 (13.21)	40.52 (8.66)	29.13 (8.69)

Table 3. Correlation coefficients between subjects' scores in psychological hardiness, academic enthusiasm, and academic vitality

Variables	Psychological hardiness	Academic enthusiasm
Academic enthusiasm	$r = -0.17$ $P = 0.002^*$	--
Academic vitality	$r = -0.38$ $P = 0.001^*$	$r = 0.15$ $P = 0.008^*$

Table 4. The comparison of the mean score of psychological hardiness, academic enthusiasm, and academic vitality based on gender (independent t-test)

Variables	Females Mean (SD)	Males Mean (SD)	t	P-value
Psychological hardiness	25.70 (12.97)	26.56 (13.44)	-0.56	0.57
Academic enthusiasm	41.23 (7.14)	40.24 (9.12)	1.07	0.28
Academic vitality	27.65 (8.89)	31.14 (8.05)	-3.53	*0.001

* $P < 0.01$.

Table 5. Results of Multiple linear regression regarding psychological hardiness (dependent variable) and academic enthusiasm, academic vitality, age, and gender (independent variables)

Regression parameters	B	Beta	t-value	P-value
Constant value	47.84	-	9.70	0.001
Academic enthusiasm	-0.17	-0.10	-1.92	0.05
Academic vitality	-0.58	-0.37	-6.73	0.001
Age	-0.69	-0.04	-0.82	0.41
Gender	2.36	0.08	1.60	0.11

psychological hardiness and students' academic performance and psychological hardiness predicts students' academic performance (23). Also, Crust et al. found that the presence of psychological hardiness has a positive effect on academic achievement and increases educational progress (8). Kamtsios and Karagiannopoulou concluded that the components of psychological hardiness have positive effects to deal with tasks, purposeful learning of learners, and coping with academic failures (9), which is consistent with the findings of the present study.

Psychological hardiness, as a protective factor, affects how students face academic challenges, lack of preparation, and other undesirable experiences. Students with a high level of hardiness are able to maintain their motivation, perseverance, and effort at a high level despite obstacles and difficulties, and as a result, have a high academic performance. In general, it can be inferred that people with high hardiness, even if they are not interested in an activity, such as acquiring knowledge, use strategies to turn these activities into more positive ones and enjoy doing them. They are committed and struggling, and control over the events around them due to the characteristic of psychological hardiness in studying and acquiring science and knowledge (4).

Based on the results of the present study, a negative and significant relationship was observed between psychological hardiness and academic vitality so that by an increase in psychological hardiness (lower scores), students' academic vitality increases. This finding was in line with the findings of Sadri Demirci et al. (14) and Jalilian et al. (5).

The results of Karagiannopoulou and Kamtsios research showed that the commitment dimension acts as a single entity against stressors (24). Subramanian and Vinothkuma i concluded that psychological hardiness leads to a greater sense of self-esteem in individuals and ultimately leads to their resistance to the stresses of work and study and increases their vitality (25). The results of these two studies (25, 24) were consistent with the findings of the present study.

Hardiness, as a personality trait, creates a certain inner attitude in students that affects the way they deal with various life issues. It makes them realistic and high-minded facing psychological pressures. Fighting makes them able to consider even unpleasant events as an opportunity to learn, not a threat to safety. This type of coping with difficult and unpleasant events prevents or shortens the negative consequences of stressful events and, as a result, provides the background for mobility, interest, and academic vitality in learning. Hardiness is not only effective in maintaining health, increasing performance despite stressful situations, and quality of life but also it causes stubborn people not to consider themselves victims of change and, on the contrary, to consider themselves the determinants of the results of change (14).

Another finding of the present study was a positive and significant relationship between academic enthusiasm and academic vitality so that with an increase in students' academic enthusiasm, their academic vitality also increases.

This finding is in line with the results of research by Jalilian et al. (5) and Azimi et al. (13), which showed that there is a positive and significant relationship between academic enthusiasm and all its dimensions, and academic enthusiasm can positively predict academic vitality. This is also in line with the results Casuso-Holgado et al. who concluded that academic enthusiasm was a positive factor in students' academic achievement (26). Academic enthusiasm is one of the psychological precedents affecting academic vitality (27), which is an important mediator of academic achievement, social behavior, and continuing education (28). Given that academic enthusiasm is a multidimensional structure, including cognitive, enthusiasm, and behavioral dimensions, on the one hand, the cognitive dimension makes students to use several cognitive and metacognitive strategies in the learning process. On the other hand, the behavioral dimension increases learners' efforts, perseverance, and asking for help from others to do homework. The enthusiasm dimension also increases the educational environment for students leading to the growth of their cognitive enthusiasm for academic and scientific activities, protects students from negative situations, such as fatigue and burnout, and ultimately results in academic vitality (13).

According to the results of the present study, only the academic vitality was associated with gender, and the academic vitality score of male students was higher than female students, which was consistent with the results of Sadeghi and Khalili Geshnigani (29) and Martin and Marsh (10). Male students are more capable of dealing with academic barriers and problems and are more resilient to academic stress and challenges, especially in medical sciences, in which persevere in pursuing a goal, positive attribution about himself (considering positive consequences of behavior related to his ability and effort), and enduring problems are needed (29).

One of the limitations of the present study was the use of the correlational methodology. Therefore, the obtained relationships cannot be considered as causal relationships. Self-reporting was used to collect data and samples were limited to students of Arak University of Medical Sciences, which limits the generalization of the results. Lack of studies on the relationship between the studied variables as well as the lack of appropriate and comprehensive literature are other limitations of the research. However, the findings of the present study can be used to address the lack of information resources in this field. Also, conducting research on students in other fields of study and other cities and comparing their results with each other or with the results of the present study can lead to useful results and is suggested.

Conclusion

Students of medical universities and health-related fields are one of the most important groups of students and graduates in Iran; because these students deal with the physical and mental health of the people. Therefore, paying attention to the factors affecting the knowledge and

academic achievement of this group is one of the necessities of all universities of medical sciences. According to the results of the present study, there was a significant relationship between the studied variables. Also, the psychological hardiness and academic vitality of students of Arak University of Medical Sciences was at a moderate level, and below than moderate level in terms of academic enthusiasm. Therefore, identification of the psychological aspects of students and their reactions to specific situations can act as a powerful teaching aid tool and lead to increased learning; because it can increase the performance and level of mental health of students despite experiencing stressful and stressful situations. On the other hand, academic vitality, which is one of the most important factors affecting the health of the educational context of the educational system in each country, can be used as part of positive academic thinking programs to improve positive academic characteristics, especially academic enthusiasm, which is an important mediator of academic achievement and continuing education. Student enthusiasm is an important goal of education in the university and in the classroom in general, and in academic assignments in particular; because it leads to social and cognitive growth and academic achievement. Therefore, paying attention to academic enthusiasm is very valuable and important not only because of an educational goal but also because of its logical relationship with educational outcomes. Thus, it is suggested to consider training courses for medical students who should pass a stressful and long-term educational process.

Supplementary Material

Supplementary material(s) is available here [To read supplementary materials, please refer to the journal website and open http://sdme.kmu.ac.ir/jufile?ar_sfile=804435].

Acknowledgments

The officials of the Research and Education Administration of Arak University of Medical Sciences who cooperated in conducting the present study and also, the professors and students of the faculties affiliated to Arak University of Medical Sciences who helped in completing the questionnaires are appreciated.

Conflict of Interests: The authors of the current study declare no conflict of interest for this investigation.

Ethical Approvals: This study extracted from research with ethical code IR.ARAKMU.REC.1396.66.

Funding/Support: We thank the officials of the Research and Education Unit of Arak University of Medical Sciences, who were helpful in carrying out this study. In addition, we appreciate the students of the Arak University of Medical Sciences for cooperating in filling out the questionnaires.

References:

1. Abbasi M, Ayadi N, Shafiee H, Pirani Z. Role of social well-being and academic vitality in predicting the academic motivation in nursing students. *Educ Strategy Med Sci*. 2016; 8(6): 49-54. [In Persian]
2. Aghajani M J, Tizdast T, AbbasGhorbani M, Bajvar M. Relationship between hardiness and nurses' professional burnout. *J Holist Nurs Midwifery*. 2013; 23(2): 1-7. [In Persian]

3. Mazaheri M. The relationship of psychological hardiness with alexithymia and severity of gastrointestinal symptoms in patients with functional gastrointestinal disorders. *Journal of Isfahan Medical School*. 2015; 33(328): 378-88. [In Persian]
4. Safari H, Jenaabadi H, Salmabadi M, Abasi A. Prediction of academic aspiration based on spiritual intelligence and tenacity. *Educ Strategy Med Sci*. 2016; 8(6): 7-12. [In Persian]
5. Jaliliyan S, Azimpoor A, Golizadeh N. Prediction of academic buoyancy based on academic engagement and psychological hardiness in secondary students. *Journal of Educational and Scholastic Studies*. 2018; 7(1): 123-40. [In Persian]
6. Ajam A A, Badnava S, Abdellahi M, Momeni-mahmouei H. The relation between emotional creativity and academic enthusiasm in public health students in Gonabad University of Medical Sciences. *Research In Medical Education*. 2017; 8(4):11-8. doi:10.18869/acadpub.rme.8.4.11. [In Persian]
7. Abbasi M, Dargahi S, Pirani Z, Bonyadi F. Role of procrastination and motivational self-regulation in predicting students' academic engagement. *Iran J Med Educ*. 2015; 15: 160-9. [In Persian]
8. Crust L, Earle K, Perry J, Earle F, Clough A, Clough P J. Mental toughness in higher education: Relationships with achievement and progression in first-year university sports students. *Personality and Individual Differences*. 2014; 69: 87-91. doi:10.1016/j.paid.2014.05.016.
9. Kamtsios S, Karagiannopoulou E. The development of a questionnaire on academic hardiness for late elementary school children. *International Journal of Educational Research*. 2013; 58: 69-78. doi:10.1016/j.ijer.2012.12.001.
10. Martin AJ, Marsh HW. Academic buoyancy: Towards an understanding of students' everyday academic resilience. *J Sch Psychol*. 2008; 46(1): 53-83. doi:10.1016/j.jsp.2007.01.002. [PMid:19083351].
11. Miller S, Connolly P, Maguire L K. Wellbeing, academic buoyancy and educational achievement in primary school students. *International Journal of Educational Research*. 2013; 62: 239-48. doi:10.1016/j.ijer.2013.05.004.
12. Cho E, Leen D, Lee JH, Bae BH, Jeong SM. Meaning in life and school adjustment: Testing the mediating effects of problem-focused coping and self-acceptance. *Procedia Soc Behav Sci*. 2014; 114(1): 777-81. doi:10.1016/j.sbspro.2013.12.784.
13. Azimi D, Gadimi S, Khazan K, Dargahi S. The role of psychological capitals and academic motivation in academic vitality and decisional procrastination in nursing students. *J Med Edu Dev*. 2017; 12(3): 147-57. [In Persian]
14. Sadri Damirchi E, Karimaianpoor G, Jalilan S. Prediction of academic buoyancy based on perception of learning environment and psychological hardiness in medical sciences student. *Educ Strategy Med Sci*. 2017; 10(5): 364-74. [In Persian]
15. Gasiewski J, Eagan M, Garcia J, Hurtado S, Chang M. (2012). From gatekeeping to engagement: a multi contextual, mixed method study of student academic engagement in introductory STEM courses. *Res High Educ*. 2012; 53(2): 229-61. doi:10.1007/s11162-011-9247-y. [PMid:23503751]. [PMCID:PMC3596160].
16. Baker JA, Clark T.P, Maier K.S, Viger W. The differential influence of instructional context on the academic engagement of students with behavior problems. *Teaching and Teacher Education*. 2008; 24(7): 1876-83. doi:10.1016/j.tate.2008.02.019.
17. Yarahmadi Y, Ebrahimibakht H, Asadzadeh H, Ahmadian H. The Effectiveness of academic buoyancy training program on students' academic performance, academic engagement, and academic buoyancy. *Journal of Research in Teaching*. 2018; 6(2): 163-82. [In Persian]
18. Kiyamsie A, Najarian B, MehrabizadehHonarmand M. Construction and validation of a scale to measure psychological hardiness. *Psychol J*. 1998; 7(2): 271-84. [In Persian]
19. Fredricks JA, Blumenfeld PC, Paris AH. School engagement: Potential of the concept, state of the evidence. *Rev Educ Res*. 2004; 74(1): 59-109. doi:10.3102/00346543074001059.
20. Dehghanizadeh MH, HosseinChari M. Educational vitality and perception of family communication model; Self-efficacy mediator role. *Educ Learn Stud*. 2012; 4(2): 22-47. [In Persian]
21. Veiskarami H, Yousefvand L. Investigating the role of academic vitality and happiness in predicting the student's creativity in Lorestan university of medical sciences. *Research in Medical Education*. 2018; 10(2):28-37. doi:10.29252/rme.10.2.28. [In Persian]
22. Malekpour N, Soleymani M, Talebi GR, Ghasemzadeh AR. An examination of the relationship between hardiness and assertiveness with academic achievement in students. *Educational Development of Jundishapur*. 2017; 8(2): 226-33. [In Persian]
23. Mazloom N, Nisi AK, Makvandi B. The relationship between

hardiness and achievement motivation and academic performance of students of Payam Noor University in Ahvaz. Proceedings of the First National Conference on Sustainable Development in Educational Sciences and Psychology, Social and Cultural Studies; (2014 November 11); Tehran, Iran. 2015 [In Persian]

24. Karagiannopoulou E, Kamtsios S. Multidimensionality vs. unitary of academic of hardiness: An under explored issue...?. *Learning and Individual Differences*. 2016; 51: 149-56. doi:10.1016/j.lindif.2016.08.008.

25. Subramanian S, Vinothkuma M. Hardiness personality, self-esteem and occupational stress among IT professionals. *Journal of the Indian Academy of Applied Psychology*. 2009; 35: 48-56.

26. Casuso-Holgado MJ, Cuesta-Vargas AI, Moreno-Morales N, Labajos-Manzanares MT, Barón-López FJ, Vega-Cuesta M. The association between academic engagement and achievement in health

sciences students. *BMC Med Educ*. 2013; 13: 33-40. doi:10.1186/1472-6920-13-33. [PMid:23446005]. [PMCID:PMC3599896].

27. Zyngier D. Conceptualizing student engagement: Doing education not doing time. *Teaching and Teacher Education*. 2008; 24(7): 1765-76. doi:10.1016/j.tate.2007.09.004.

28. Pietarinen J, Soini T, Pyhalto K. Students' emotional and cognitive engagement as the determinants of well-being and achievement in school. *International Journal of Educational Research*. 2014; 67: 40-51. doi:10.1016/j.ijer.2014.05.001.

29. Sadeghi M, KhaliliGeshnigani Z. The role of self-directed learning on predicting academic buoyancy in students of Lorestan University of medical sciences. *Research in Medical Education*. 2016; 8(2): 9-17. doi:10.18869/acadpub.rme.8.2.9. [In Persian]