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A Comparative Study of Students' Academic Optimism and Hope, and Their Relationships with Academic Achievement

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Abstract

Background: It is critical to identify the factors affecting the academic success of students in the context of medical sciences. The research approaches in positive psychology have shown that the variables of hope and optimism play important roles in the academic achievement of college students.

Objectives: The present study aimed to compare and evaluate the relationship between the academic achievement of medical and paramedical students with hope and optimism.

Methods: A descriptive-correlative and cross-sectional research design was adopted in this study. The statistical population of the study consisted of all medical and paramedical students at Shiraz University of Medical Sciences. A total of 350 students were selected based on Cochran's sampling formula, out of who 306 ones completed and returned the questionnaires. In order to collect the required data, two valid and reliable scales, including the Adult Hope Scale (AHS) and the Academic Optimism Questionnaire, were used. Moreover, descriptive and inferential statistics were performed to analyze the data by using SPSS 21V software.

Results: The findings showed that students' academic optimism ($r = 0.16$, $P \leq 0.01$) and hope ($r = 0.17$, $P \leq 0.01$) were positively and significantly associated with their academic achievement. The results also indicated that there was a considerable, positive correlation between student identification and their academic achievement ($r = 0.197$, $P \leq 0.01$). Furthermore, a significantly positive relationship was detected between student hope dimensions in terms of agency thinking ($r = -0.15$, $P \leq 0.05$), pathways thinking ($r = -0.17$, $P \leq 0.01$), and academic achievement. The findings demonstrated that paramedical students were significantly more optimistic than medical students ($P \leq 0.01$).

Conclusions: It was concluded that hope and academic optimism may have increased and improved students' academic performance and, consequently, had a positive impact on their success and achievement in universities.

Keywords: Hope, Optimism, Achievement, Student, Positive Psychology

1. Background

In recent years, there has been a shift in educational research from a negative perspective focusing on shortcomings and problems to a positive perspective concentrating on strengths and benefits (1, 2). To this end, studies of academic achievement have been linked with constructs from positive psychology. Studies have shown that gender, intelligence, and positive thinking, such as hope and optimism play a pivotal role in predicting academic performance (3).

Snyder suggestes that people are goal-oriented, and they have two distinct ways of thinking about achieving their goals (4). Pathway thinking is the first mode of thinking, which refers to a person's ability to visualize one or more paths towards attaining his/her desired objective. The second way of thinking is agentic thinking, which is the motivational part of hope theory and is concerned with the perceived ability to use one's routes to achieve desired goals. Briefly, Snyder et al. described hope as a "cognitive framework built on a reciprocally generated sense of effective (A) agency (goal-directed determination) and (B) routes (planning of strategies to attain goals)" (5).

Snyder et al. showed that hope was correlated with more scientific success in elementary school, high school, and college (6). For instance, Snyder et al. discovered that students in college who had a greater level of hope set higher goals, believing that they would be more successful in obtaining them. They also suggested that these students were also more likely to achieve higher grades, despite receiving the feedback that did not support their estimation (5). Likewise, Snyder et al. performed a 6-year longi-

tudinal research in which they analyzed students' grades in admission examinations. Their study findings demonstrated that the differences in college freshmen's levels of hope predicted their grade point averages. Furthermore, Curry et al. (7, (8) discovered that better academic performance was delivered by those students who had a greater amount of hope.

Another factor that can affect academic achievement is academic optimism. Tschannen-Moran et al. argue that students' academic optimism includes three sets of attitudes, namely student trust in teachers (enjoying high-trust relationships with teachers), student perceptions of the academic press (SAP) (perceiving the importance of academic success), and student identification with school (valuing school and having a sense of belongness) (9).

Academic optimism, according to Beard, Hoy, and Woolfolk-Hoy, influences academic accomplishment even after controlling the socioeconomic status (10). Ladd and Dinella believe that students' attitudes about the school can forecast their learning investment and long-lasting accomplishment growth (11). In general, an emerging body of research has reported the significant effects of these three sets of attitudes on student achievement (12-14).

There are a handful of studies on academic optimism, most of which are limited to elementary school students as well as teachers' academic optimism (15, 16). To explore all aspects of the range of educational settings, according to Hoy et al., further studies are required. To this end, it seems necessary to develop a scientific theory about academic optimism (15). Although several studies have investigated the academic optimism and hope in elementary and secondary schools, academic optimism and hope in universities and, particularly, healthcare setting have not received enough research attention (15).

2. Objectives

This study aimed to assess the effects of medical students' academic optimism and hope on academic achievement, as well as to examine and compare the level of optimism and hope among medical and paramedical students.

3. Methods

This study was a cross-sectional and descriptive-correlative study whose statistical population consisted of medical and paramedical students of Shiraz University of Medical Sciences. The sample size was calculated according to Cochran's sampling formula, and the samples were selected based on the stratified sampling method.

$$n = \frac{\frac{z^2 pq}{d^2}}{1 + \frac{1}{N}\left[\frac{z^2 pq}{d^2} - 1\right]}$$

N: Population size; p: The fraction of the population (as percentage) that displays the attribute; q: The fraction of the population (as percentage) that does not display the attribute; z: The z-value, extracted from a z-table; d: 0.05.

Accordingly, 350 students were selected. Then the questionnaires were distributed after obtaining permission from the university ethics committee and informed consent from students. After the collection of questionnaires (from 2018 to 2019), 44 incomplete questionnaires were excluded from the analysis due to the unwillingness of some students to participate in the study or fill the questionnaires completely. Therefore, the sample was reduced to 306 participants who completed two self-report questionnaires called the Adult Trait Hope Scale (5) and the Moran Academic Optimism Questionnaire (9). All descriptive (percentage, mean, standard deviation) and inferential (Pearson correlation, One-Way ANOVA) analyses were performed using the SPSS 21 software.

3.1. Measures

Two questionnaires used in the current study were the following:

3.1.1. Adult Hope Scale

The Adult Hope Scale (AHS) (5) is a self-reporting questionnaire composed of 12 items to measure two components (agency and pathways) of Snyder et al.'s conception of hope. Four elements make up these two components, with four extra items serving as filler. Based on an 8-point Likert scale from 1 representing (certainly false) to 8 representing (definitely true), the respondents can rate how correctly each item represents them in general. A total score is calculated by summing the ratings for the items related to the two subscales (pathways and agency). The AHS has demonstrated adequate internal consistency reliability in acceptable ranges for the scale as a whole (a = 0.74 - 0.84) and when considered as scales representing the components of agency (a = 0.71 - 0.76) and pathways (a = 0.63 - 0.80) (17). In Iran, Kermani et al. investigated the content validity of the AHS, and Cronbach's alpha coefficient for this scale was attained at 0.86 (18). In general, experts and practitioners in this area have all agreed that the information is valid to be use in Iran. In the present study, the Cronbach's alpha scores for the total scale, agency, and pathways were (0.77), (0.75), and (0.73), respectively.

3.1.2. Student Academic Optimism Questionnaire

Moran et al. student academic optimism questionnaire (9) is used for assessing the academic optimism of students. The scale consists of three components: a) student trust in teachers (8 items), opinions of students regarding the academic press (SAP) (10 items), and identification of students with their school (10 items). Contributors rate how correctly each item usually defines them on a 5-point Likert scale. The Cronbach's alpha coefficient of internal consistency was calculated by Tschannen-Moran et al. (9) in order to test the reliability. The alpha coefficient for student trust in teachers was 0.93, for SAP was 0.96, and for identification of students with their school was 0.96.

In Iran, Qadmpour et al. investigated the content validity of the three components of the scale. The results showed that Cronbach's alpha score for student trust in teachers was 0.85, for SAP was 0.95, and for identification of students with their school was 0.90 (19).

In the present study, Cronbach's alpha score for student trust in teachers was 0.88, for SAP was 0.90, and for identification of students with their school was 0.86.

3.2. Ethical Consideration

First, the approval of the University Ethics Committee for research on human data was obtained (IR.SUMS.MED.REC.1397.251), and the criteria of data confidentiality were observed by assuring the students that the data would be collected and analyzed confidentially and anonymously. Before conducting the research, moreover, the students were given forms of informed consent and verbal consent.

4. Results

4.1. Descriptive Statistics

Before data evaluation, the demographic characteristics of the study samples were measured. A total of 306 medical and paramedical students filled out and returned the questionnaires. As presented in Table 1, 58.2% of the study samples were female and 41.8% were male students. As for the marital status of the participants, 92.2% of them were single. As for their educational degrees and fields of study, 26.1% of research samples were undergraduate paramedical students, 63.1% were students of basic sciences, and 10.7% were those at clinical stage. Our descriptive findings (i.e., means, standard deviations, and minimum/maximum values) related to research variables are presented in Table 2.

Table 1. Demographic Characteristics of the Study Sample (N = 306)

Variables	No. (%)
Gender	
Female	178 (58.2)
Male	128 (41.8)
Married status	
Single	282 (92.2)
Married	24 (7.8)
Educational grade	
Undergraduate paramedical	80 (26.1)
Basic sciences	193 (63.1)
Clinical stage	33 (10.7)

4.2. Inferential Analysis

According to Table 3, the results of Pearson correlations indicated that students' academic optimism ($r = 0.16$, $P \leq 0.01$) and hope ($r = 0.17$, $P \leq 0.01$) were significantly correlated with academic achievement. The results also indicated that student identification was considerably and positively correlated with academic achievement ($r = 0.197$, $P \leq 0.01$). Furthermore, a significant positive relationship was found between student hope dimensions in terms of agency thinking ($r = 0.15$, $P \leq 0.05$) and pathways thinking ($r = 0.17$, $P \leq 0.01$) with academic achievement (Table 3).

The one-way analysis of variance (ANOVA) was performed to determine whether there are any statistically significant differences between the means of academic optimism and hope between three groups of students (i.e., undergraduate paramedical, basic sciences, clinical stage). According to Table 4 presenting the One-Way ANOVA test results, there was a significant difference between paramedical and medical students regarding academic optimism and hope ($P \leq 0.05$). Therefore, post hoc comparisons were performed using the Tukey HSD test, and the results revealed that paramedical students had considerably higher mean scores of academic optimism and hope ($M = 88.95$ and $M = 48.97$, respectively) than medical students (Table 4).

5. Discussion

The main focus of attention in this study was the relationship between hope and academic optimism with student academic achievement. The study's findings revealed that there was a relationship between hope and its dimensions (i.e., pathway thinking and agentic thinking) with

Table 2. Descriptive Statistics of Variables

Variables	No.	Mean ± SD	Min	Max
Hope	306	45.56 ± 9.23	8	64
Academic optimism	306	84.29 ± 15.27	43	120
Academic achievement	306	16.50 ± 1.37	11.16	19.91

Table 3. The Results of Correlation Between Variables

Variables	Mean ± SD	Correlation with Achievement	P-Value
Academic achievement	16.71 ± 1.48	-	-
Academic optimism	84.29 ± 15.27	0.16	0.01
Academic press	25.24 ± 4.69	0.08	0.18
Student trust in teachers	28.75 ± 6.92	0.12	0.06
Student identification	30.29 ± 6.30	0.19	0.01
Hope	45.56 ± 9.23	0.17	0.01
Agency thinking	23.08 ± 5.01	0.15	0.02
Pathways thinking	22.48 ± 4.91	0.17	0.01

Table 4. Summary of Results of One-Way ANOVA

Educational Level	Mean ± SD	F	P-Value
Hope		6.44	0.01
Undergraduate paramedical [a]	48.97 ± 8.16		
Basic sciences	44.47 ± 9.64		
Clinical stage	43.63 ± 7.19		
Academic optimism		4.77	0.01
Undergraduate paramedical [a]	88.95 ± 18.85		
Basic sciences	83.08 ± 13.86		
Clinical stage	80.0 ± 12.03		

[a] Groups with significant differences.

student achievement. In addition, there was a positive correlation between total academic optimism score and student's school identification with academic achievement. These findings were consistent with those reported in the literature (6, 15, 20-24). Evidence suggests that there are other variables, in addition to ability and intelligence (e.g., hope and optimism), that greatly contribute to the variability in students' academic performance (25).

Furthermore, studies have found a significant relationship between academic performance and hope. Hope relates to the cognitive process of pursuing a goal through paths (i.e., thoughts related to planning) and agency (i.e., thoughts related to motivation). Logically, success in the field of education requires the combination of motivation and planning. College-related activities such as studying, note taking, writing research papers, scheduling, and doing assignments require planning and motivation as two major components of hope. Bressleret al. argue that hope affects individual's ability and self-confidence, which might increase future success. Hope may increase students' academic performance in class. Students with high hopes possess high agency and pathways. Hope theory and the agency are the ways by which individuals appreciate their abilities to use the paths they have developed for achieving their goals. People having high hopes create an acceptable path and show confidence in that direction. They are also excellent at discovering alternative paths to achieve their goals (26). According to Snyder et al., briefly, people having high hopes constantly strive to achieve their goals and find various ways to achieve their goals (6) and, therefore, can earn a higher academic achievement.

Several studies investigating this new structure of academic optimism have reported the benefits of academic optimism in relation to the achievement of students. Research has shown a positive and significant association between academic optimism and academic achievement based on standard school grades. These educational environments consider approved and high standard educational indicators, provide facilities for students to achieve that standard, and then celebrate success (27).

Evidence has also shown that optimists, like those having hope, are likely more successful than pessimists in pursuing their goals and plans when facing problems (28). Optimists tend to rely on their own abilities and constantly take effective measures such as facing the problems, which helps them address their challenges and develop positive and healthy habits required to overcome the stress (25). Moreover, they enjoy greater social support to perform their duties and responsibilities (26). Finally, optimism improves the ability of individual to endure difficult situations and solve problems, which may affect his/her academic achievement (15, 29). In fact, optimists are less moody when, for instance, facing different situations in life, such as the time when they need to adjust to college life (25). All these characteristics have positive effects on

students' academic success. On the other hand, studies have shown that hope has a positive relationship with self-efficacy (30, 31).

In addition to affecting several activities, self-efficacy positively affects quality. In other words, self-efficacious students adopt deeper and more metacognitive learning strategies, attempt to get familiar with their academic duties, and display great perseverance to overcome the challenges (32-35), which, in turn, improve their academic achievement (34).

The results showed that paramedical students had greater hope and optimism than undergraduate medical students. This finding may have been explained by the definition of hope given by some experts, since they define hope as the ability to pursue daily activities and stay active. The finding is further supported by the fact that medical students are less able to follow their favorite daily routines due to the more content-heavy and crammed curriculum. Therefore, it can be argued that a good curriculum is more effective for paramedical undergraduate students compared to medical students in terms of volume, the number of syllabuses, and course duration.

It was also discovered that paramedical undergraduate students had a higher level of academic optimism than undergraduate medical students. This finding may have been attributed to various factual factors, including the fact that paramedical students have fewer and lighter subjects than undergraduate medical students, which can contribute to creation of a greater degree of academic optimism among them; or the facts that paramedical undergraduate students have generally a 4-year course duration, whereas undergraduate medical students have a 7-year one, and that paramedical undergraduate students are likely employed earlier.

5.1. Limitations

This study had some limitations. First, since all three variables measuring perceptions of students were included in the same survey, according to Tschannen-Moran et al. (9), there was a possibility that participants were less likely to differentiate their responses amongst the various constructs, resulting in common response bias and an overestimation of the strength of the relationships between these variables. Although the study's sample size was statistically appropriate for the analysis, it was limited to 306 medical and paramedical students, which was not our preferred sample size. A larger sample size may have produced more favorable results because larger sample sizes provide better point estimates of parameters in the model. Finally, although this study examined students' academic achievement as a dependent variable as well as hope and academic optimism variables as predictors, the cross-sectional nature of the data prevented the inference about cause-effect relationships. Reciprocal associations may have been existed between hope and academic optimism with students' academic achievement. In fact, a student's academic achievement may also lead him/her to behave more hopefully and to have more academic optimism in college.

5.2. Recommendation

Taking into account the study results, it was recommended that planning should be done in order to increase the psychological capital of students, which, in turn, may lead to: (A) an increase in the commitment and effort of students to engage in challenging learning tasks and achieve academic success; (B) formation of positive attribution regarding present and future successes and failures; (C) stability in academic goals and, if necessary, changing the path of achieving these goals in order to achieve academic success (hope).

Moreover, investing in ways to build trust with students and faculty increases academic optimism at the university. Interventions related to academic optimism result in increased academic achievement of students. Therefore, it was also recommended that college faculties should set high expectations for students, since high expectations have been found essential for academic optimism and success.

5.3. Conclusions

Our study findings may have practical outcomes for instructors wishing to maximize their students' achievement. It can also help to understand how the cognitive set function measures allow teachers to make more focused plans for supporting positive student development. Our findings showed that optimistic thinking, which included both control (pathways) and agency perceptions, may have been the adequate approach to boost academic success. As such, activities that boost optimistic thinking may have been incorporated more easily into learning environments (31). Furthermore, the student's academic optimism structure may have had favorable and wide-ranging implications for students' development and learning processes. Therefore, it was recommended that educators should foster confidence in their learners in order to enjoy these favorable implications (9).

Footnotes

Authors' Contribution: All authors had full access to all data in this study and assumed the responsibility for the integrity of the data and accuracy of data analysis. MHK and AAH conceived and designed the study. NE did data collection. MHK and AAH analyzed and interpreted the data. All authors contributed to reviewing and editing the manuscript.

Conflict of Interests: The authors declared no potential conflicts of interests.

Data Reproducibility: The data presented in this study are openly available in one of the repositories or will be available on request from the corresponding author by this journal representative at any time during submission or after publication. Otherwise, all consequences of possible withdrawal or future retraction will be with the corresponding author.

Ethical Approval: The ethical approval for this study was obtained from the University Ethics Committee for research on human data (IR.SUMS.MED.REC.1397.251) (link: ethics.research.ac.ir/EthicsProposalViewEn.php?id=25267)

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Informed Consent: Students were given forms of informed consent and verbal consent at the beginning of the study.

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