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The Relationship Between Self-Esteem and Critical Thinking Among Medical Sciences Students in Iran

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KEYWORDS Critical Thinking. Iran. Psychological. Self-esteem. Student

ABSTRACT This study was to define the correlation between critical thinking and self-esteem among students of medical sciences. In this analytical cross-sectional study, 252 medical students were selected through stratified random sampling method at Neyshabur University of Medical Sciences in 2018. The instruments for collecting the data were questionnaires of demographic data, California Critical Thinking Inventory, and Cooper Smith Self-esteem Inventory. The data were analysed using SPSS-22 and the following statistics were examined, namely, descriptive statistics and the average score of students' self-esteem was found to be 36.57±6.22 and that is considered a strong level. The average score of students' critical thinking was 355.39±25.42 that shows a high level. Moreover, there was a significantly positive correlation between critical thinking and self-esteem (r=0.562, P<0.001). It seems that critical thinking, similar to psychological variables, is tempted by social factors. Thus, it is important to consider the psychological status of the students.

INTRODUCTION

Critical thinking is defined, in short, as self-directed, self-disciplined, self-monitored, and self-corrective questioning ability that exist in human beings. It entails powerful conversation and problem-fixing competencies as well as a commitment to conquer native egocentrism and sociocentrism, that are all directed on one's thoughts (Demirdag 2019; Larsson 2019; Romeo 2013). It is considered to be crucial for educational achievement and it refers back to the styles of capabilities rookies need. It also enables them think efficiently and rationally about what they need to do and what they assume about the best path of action (Futami et al. 2019; Larsson 2019). CT promotes choice-making abilities of a number of the clinical students, who will finally improve and step forward towards caring for the society (Zayapragassarazan et al. 2016). Many different environmental and private elements have affected the development of critical thinking. Non-public characteristics like motivational beliefs and self-esteem are related to the improvement of critical thinking. Critical thinking is related to any of the cognitive abilities and affective tendencies that people have (Azizi et al. 2018). There should be significant level of critical thinking in order to make doctors think critically. While one has wholesome self-esteem, one tends to regard their experience approximately about existence trendy. It makes one highly capable of coping with existence ups and downs. Self-esteem would have an instantaneous impact on important questioning ability, and also would have instantaneous and indirect impact on the attitudinal element of a student's autonomy (Sayehmiri 2019). Self-esteem is the sum of approval and takes a toll that the character conceives of self or it is translated as the assertion and appraisal that somebody has around his fetched (Zare et al. 2007). Medical students should constantly attempt to reach the best and updated knowledge and evaluate new data and evidence. This needs an intelligent and decisive personality, which is one of the factors of self-esteem (Barkhordary et al. 2009). Given the fact that a lot of studies have been conducted on critical thinking in the state, most of them have been practiced by scholars of other majors and a few of them examined students of medical sciences reports. Former subjects have likewise focused on critical thinking while other aspects unlike critical thinking have been dismissed. As medical students are required to have critical thinking to make the right decisions and work appropriately on lots of diseases in different places, it is indispensable to distinguish the effective elements in their inclination to utilise this aspect of thinking. This work

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was undertaken with the purpose of investigating the relationship between critical thinking and self-esteem among students of Neyshabur University of Medical Sciences in 2018.

Objectives

The purpose of this study was to investigate the relationship between critical thinking and self-esteem among students of Neyshabur University of Medical Sciences in 2018.

METHODOLOGY

This analytical-descriptive study was conducted in 2018 using the cross-sectional method. The participants of this study were students of medical sciences in ten departments at Neyshabur University of Medical Sciences in 2018, who were selected through stratified random sampling. According to the formula, the sample size was 252.

$$n = \frac{(Z1-\frac{\alpha}{2})^2 \ (P \times q)}{(d)^2} = 252$$

A total of 252 participants were randomly chosen from different classes in this survey. Students participated in the study without having any stress, fatigue, or familiarity with the content of the questionnaire. Dissatisfied students with participation in the subject field, stress exposure and a score higher than 4 in questions related to lying detector in the self-esteem questionnaire, were excluded from further analysis.

In this method, medical students in ten educational departments of Public Health, Nursing, Midwifery, etc., were selected using stratified random sampling. With the cooperation of education administrators in each department, one or two classes were randomly chosen based on medical faculty principals and their population. Prior to the administration of the questionnaires among the scholars, informed consent was obtained from all the participants, and the aim of the survey, the method, time schedule, and confidentiality of the information were described to them. Next, the questionnaires namely the California Critical Thinking Inventory (CCTI) and Copper Smith's Self-esteem Inventory were distributed among medical students by a researcher.

The first questionnaire consisted of two parts, the first part was related to demographic characteristics, which included gender, age, average score of diploma, average score of the participants in the previous semester, marital status, and current address while the second part included CTI with 75 questions, which were ranked on a Likert scale from 'Completely Agree' to 'Completely Disagree'. The maximum and minimum of the scores from this test were 420 and 70, respectively. A total score of less than 280 means deficiency, 280-350 means ambivalence, and more than 350 indicated positive critical thinking (Iranfar et al. 2012). The content validity of the mentioned questionnaire was approved by the US Philosophy Association with Delphi Strategy and the scientific validity of this questionnaire was calculated through examining Cronbach's Alpha test, which was 0.9 (Barkhordaryi et al. 2009). The content validity of the questionnaire was determined and the reliability index calculated by Cronbach's alpha test that was 0.8 (Iranfar et al. 2013). The second questionnaire was Cooper Smith's Self-esteem Inventory, which possessed a common code with the first questionnaire with 50 picks and 8 lie detector choices. These 50 selections were split into four sections of general self-esteem, social self-esteem, family self-esteem and educational self-esteem. The grading method of this test was zero and one. The mean score of the participating scholars in this test was 36.57±6.22, and therefore, the people who received a grade higher than 35.9 had a high self-esteem and the people who scored lower or equal to 35.9 had a low self-esteem. These trials have been frequently implemented in Iran and they have been applied to many types of research (Larsson 2019). To estimate the reliability coefficient of the questionnaire in Iran, a split-half method was applied, so that the questionnaire was distributed among a group of 30 people and then the achieved scores of the two halves were used to calculate Pearson correlation that was 0.83 as a statistically significant threshold (Suliman et al. 2007).

In another study, the validity index with Cronbach's alpha internal correlation method was 0.81, which was statistically significant (Iranfar et al. 2013). After conduction of the study, the reliability coefficients calculated for general, social, familial, and educational SE and they were 0.86, 0.83, 0.81, 0.83, respectively (Gupta et al. 2012).

The questionnaires were administered in a placid condition where students could focus well on filling them out. The questionnaires did not in-

clude the name and personal information of the participants. The given time for completing the first questionnaire was 25 minutes and for the second questionnaire was 10 minutes. The data was analysed using SPSS 22 and the descriptive and analytic statistics were calculated. To approximate the normal dispersion of data, the Kolmogorov-Smirnov test was used, and to investigate the relationship between the variables, the Pearson Correlation Coefficient and ANOVA test were used. P-values less than 0.05 were considered significant.

RESULTS

The majority of the participants were nursing students (19.04%, n=48) while the minority of the respondents were food industry students (2.38%, n=6). The findings about personal characteristics showed that the mean age of the participants was 23.8±3.8, and about 66.26 percent (167) of the participants were females. Likewise, 83.30 percent (210) were single, and about 43.6 percent (n=161) were native and lived in the dormitory. The average score of their diploma was 18.73±2.05, and the mean score of their previous semester the college was about 16.44±1.59.

Further, the results showed that the majority of the students 69.44 percent (n=175) had strong critical thinking, while 30.55 percent (n=77) had low level of critical thinking ability. Table 1 shows the mean and standard deviation of the total score of critical thinking across different departments, that is, the public health department (355.12±21.38), nursing department (357.21±29.54), midwifery department (354.38±27.38), anaesthesiology department (356.65±31.15), health information technology students (350.15±28.51), food industry students (358.12±22.48), environmental health department (358.48±26.38), occupational health department (355.65±31.31), emergency medicine department (356.05±23.40) and surgical technology department (352.12±23.46). Moreover, Table 2 shows the means

Table 1: Mean and standard deviation of the total score of CT based on education department (n=252)

Educational department	*Number*	*Mean (SD)*	*Confidence level*	
			Low rate	*High rate*
Public health	39	355.12±21.38	306.89	358.45
Nursing	48	357.21±29.54	310.21	354.23
Midwifery	17	354.38±27.38	316.44	358.52
Anesthesiology	28	356.65±31.15	328.91	354.58
Health Information Technology	8	350.15±28.51	328.87	355.22
Food Industry	6	358.12±22.48	326.89	355.22
Environmental Health	31	358.48±26.38	326.44	358.52
Occupational Health	16	355.65±31.31	318.91	354.58
Emergency Medicine	23	356.05±23.40	318.87	355.22
Surgical Technology	36	352.12±23.46	316.89	355.22
Total	252	355.39±25.42	318.12	357.21

Table 2: Mean and standard deviation of self-esteem scores based on education department

Educational department	*Number*	*Mean (SD)*	*Confidence level*	
			Low rate	*High rate*
Public health	39	37.39±5.64	34.81	36.57
Nursing	48	35.98±4.53	33.99	36.27
Midwifery	17	36.70±6.40	34.19	38.20
Anesthesiology	28	36.85±7.86	33.92	36.58
Health Information Technology	8	36.86±4.79	35.07	36.27
Food Industry	6	36.39±6.44	34.81	36.27
Environmental Health	31	35.98±4.53	33.99	38.10
Occupational Health	16	35.92±6.40	34.19	38.18
Emergency Medicine	23	36.95±8.96	33.92	37.27
Surgical Technology	36	36.76±6.69	35.07	37.20
Total	252	36.57±6.22	34.39	37.39

for self-esteem for medical sciences students based on their educational department, that is, the public health department (37.39±5.64), nursing department (35.98±4.53), midwifery department (36.70±6.40), anaesthesiology department (36.85±7.86), health information technology students (36.86±4.79), food industry students (36.39±6.44), environmental health department (35.98±4.53), occupational health department (35.920±6.40), emergency medicine department (36.95±8.96) and surgical technology department (36.76±6.69). The findings indicated a significant relationship between education departments, critical thinking and self-esteem.

Table 3 shows that there was a significant difference between two groups of students with low self-esteem and high self-esteem, as positive and ambivalent critical thinking (Table 3). Also, there was not a significant relationship between age, gender and critical thinking. Students with high self-esteem (n=150) had positive critical thinking, and also students with low self-esteem (n=102) had ambivalent critical thinking.

Table 3: the relationship between CT and two groups of self-esteem (n=252)

		Critical thinking	
		Positive N (%)	*Ambivalent N (%)*
Self-esteem	Low self-esteem	102 (99.2%)	1 (0.8%)
	High self-esteem	150 (98.2%)	2 (1.8%)
	$ë^2$ =0.170 P=0.028		

DISCUSSION

Few preceding studies had been published assessing the outcomes of self-esteem on critical thinking. The study showed that critical thinking is undoubtedly correlated with self-esteem (Gharib et al. 2009). How did self-esteem contribute to the progress of critical thinking? There are some thought processes to donate a clarification. To begin with, self-esteem impacts all stages of people's lives, including their feeling and developments (Godfrey et al. 2019). Self-esteem, self-belief and commitment are fundamental features for therapeutic college understudies, and they are important due to interaction with the critical thinking procedure and making judgments in uncommon therapeutic circumstances (Zayapragassarazan et al. 2019). The determinations of the survey revealed that for students who had high critical thinking and high self-esteem, there was a positive correlation between these two with ninety-five percent confidence. It was also found that there is a significant and positive relationship between critical thinking and self-esteem (Park et al. 2015). In another field, at the same time, a positive and significant relationship was obtained between the two (Park et al. 2015). In this state, students compete exceptionally to be acknowledged into college, especially within the case of therapeutic sciences, and certainly, the individuals who get acknowledged in this major are intelligent and industrious. Hence, expectedly they conceive themselves amazingly critical and actually support a high self-esteem. This frame of point of seeing is off base and one-sided and makes them overlook the essential guideline of critical thining. In fact, this essential guideline is paying thought to others' feelings and ideas (Plotnikova et al. 2019). Further, the study conducted by Noshadi indicated that the mean score of critical thinking was 214.05±25.42. In fact, 98.6 percent of participants had low critical thinking, and only 1.4 percent had ambivalent critical thinking (Futami et al. 2019; Noshadi et al. 2007). The highest mean score belonged to the truth-seeking domain and the lowest was related to the analytical domain. Moreover, out of 163 students who were high on self-esteem, only 3 had ambivalent critical thinking, 160 sustained a positive self-esteem and none of them had negative critical thinking. Besides, there was a significant relationship between two groups of high and low self-esteem and negative, positive domains and ambivalent domain. Nevertheless, findings of another work on midwifery and nursing students showed that 9.7 percent of the students had low critical thinking and others held an ambivalent position. In studies conducted on nursing students in China and Australia, the mean of 268.36±21.58 was reported for critical thinking in Chinese students, while the mean was 287.73±30.98 for Australian students (Tiwari et al. 2003).

Another study, which was performed on 27 nursing colleges in Norway on new graduates of nursing, showed that about eighty percent of participants had positive critical thinking. The highest mean score belonged to exploration and the lowest was related to truth seeking (Wangensteen et al. 2010). Few studies, nevertheless, have been done on medical sciences students, which have

only examined one dimension of critical thinking, that is, cognitive dimension. Thus far, no study, to the best knowledge of the researcher, has been led to examine the emotional dimension of critical thinking in medical students. The findings obtained from this survey indicated no substantial relationship between gender and critical thinking. In a similar vein, Kamali reported similar outcomes in the case of nursing students in their studies (Kamali et al. 2009).

CONCLUSION

Since critical thinking is essential for medical scholars and similar to using skills needs a kind of tendency and critical thinking. Actually, it is like another psychological variable, as self-esteem is affected by social factors and society plays a significant role in the amelioration or deterioration of its progress and development. University students have not had sufficient training in "critical thinking". However, in no way is the lack of such training relegated to university students alone.

Beginning from education in primary schools and junior high schools, the prevalent form of education is already to passively acquire knowledge. There is a lack of active mental training wherein students act independently to discover problems and formulate a variety of methods for obtaining solutions. Even if one attempts to suddenly change the way in which students think after they enter university, a leopard cannot change its spots and it is difficult to encourage new patterns of thought.

RECOMMENDATIONS

The researchers suggest that medical education should centre more on the higher order thinking processes, which is required to visit the emerging competes in medical education. Higher order thinking has become one of the necessary personal of future health care experts and a necessary adjective of medical competence. Henceforth, thinking about critical thinking has become the need of the hour and prospect the highway for its utilisation in medical education through suitable means.

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