Original Article

The Relationship between Critical Thinking Disposition and Self-Esteem

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Abstract

Introduction: Critical Thinking Disposition indicates individual's inclination to Critical Thinking, which is one of the domains of personality. Individual characteristics are important and influential factors in the growth and development of students' Critical Thinking. One of these influential characteristics might be self-esteem, thus this study was to determine the correlation between Critical Thinking Disposition and self-esteem in medical students.

Methods: In an analytical cross-sectional study, 289 medical students were selected through stratified random sampling method in Kermanshah University of Medical Sciences in 2011. The instrument for data collection was a questionnaire containing 3 parts: demographic data, California Critical Thinking Disposition Inventory, and Cooper-Smith Self-Esteem Inventory. The results were analyzed by SPSS-16 using descriptive statistics, Pearson and Spearman Correlation Coefficient, ANOVA, Chi-Square and Fisher exact test.

Results: Results showed that 98.6% (285) of students had deficiency, 1.4% (4) ambivalence and nobody had positive critical thinking disposition. There was a significantly negative correlation between Critical Thinking Disposition and self-esteem ($r=-0.462$, $P<0.001$). Also, there was no a significant relationship between two groups of low self-esteem , high self-esteem , negative and ambivalent Critical Thinking Disposition.

Conclusion: It seems that Critical Thinking Disposition, like other psychological variables, is influenced by social factors and social environment plays a role in promoting or undermining it. So, similar studies are recommended to investigate the factors affecting Critical Thinking in medical students.

Keywords: Critical thinking, Self-esteem, Medical students.

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Introduction

Critical Thinking (CT) is the art of reviewing thoughts, while you're thinking to improve your thoughts; in fact you are trying to express them more precisely, clearly, and justifiably (1). In other words, CT is a type of unique and purposeful thinking in which the thinker creates some managing criteria and standards for thinking habitually and regularly, directs it on the basis of standards and evaluates its effectiveness and efficiency on the basis of standards (2). From the view-point of a lot of educators and philosophers, developing CT is not only the major goal of education system but also is considered as the first condition and one of the

main responsibilities in university education (3). If university wants to succeed in today's global and pluralist community, the students are required to acquire the ability of high-level thinking more than anything else. The students need to differentiate between reality and interpretation, evaluate the validity of their thinking disposition, and judge the evidence properly (4). In reply to the quick change of healthcare environment, the necessity of CT in medical education has also been emphasized. Physicians should think critically to be able to provide effective care during adaptation to role development in relation to the complications of healthcare system (5).

Generally, CT has two vast dimensions, cognitive skills and sentimental tendencies (5, 6). Critical Thinking Skill (CTS) emphasizes cognitive techniques and Critical Thinking Disposition (CTD) emphasizes the viewpoint and the stable internal motivation for problem solving (7). The necessity of using these skills is having a kind of disposition or tendency which is considered as a moving engine and is the starting point of CT. In fact, CTD means motivation with the person's internal stability to face problems which cause the individual to make decisions by thinking (8). CTD points out the individual's tendency to think critically, and the tendency to put CT into practice is a personality trait (9). Personal characteristics of the students are considered effective factors in the improvement and development of their CT (10).

One of the traits of an effective normal personality is self-esteem. Self-Esteem (SE) is the amount of ratification and value that the individual thinks of himself or it is the confirmation and judgment that the individual has about his value (11). Medical students should always try to achieve the best and updated knowledge and assess new information and evidence. This requires an intelligent and decisive personality which is one of the factors of SE (12). Given the significance of the matter, several studies have been done in this regard. The results showed that 81.8% of nursing students tended to employ unstable CT, none of them had strong and stable CTD and 73.5% of the students had average self-esteem (13). In a similar study, the results indicated a positive and significant relationship between CT and SE in human sciences and engineering students (14). In another study, the results showed that the nursing students had low CTD and average self-confidence and were rather much stressed. Further, CTD had a positive relationship with SE and a negative relationship with stress (15).

Given the significance of the issue and the fact that a lot of studies have been conducted on CTS in our country, most of them have been done on students of other majors and few studies have been done on medical students. Previous studies have also focused on CT aspect and the other aspects like CTD have been ignored. As medical students are expected to have CTS to make proper decisions and act appropriately on lots of diseases in different situations, it is essential to identify the effective factors in their tendency to use this aspect of thinking. This study was undertaken with the aim of the relationship between CTD and SE in medical students at Kermanshah University of Medical Sciences (KUMS) in 2012-2013.

Methods

This analytical-descriptive study was conducted in 2012-2013 using cross-sectional method. The participants of this study included medical students in basic sciences, physiopathology, internship, and apprenticeship at KUMS in 2012-2013, selected via stratified random sampling. The sample size was estimated 289 people (about 72 students in each educational level) proportional to population size with 95% confidence and 5% accuracy. A total of 362 participants were randomly chosen, among whom 73 people were excluded based on the selection criteria of the study and finally 289 students participated in this study. Students without stress or tiredness, non-familiar with the questionnaire as well as students in different grades were included. Dissatisfied students with participation in the study, stress exposure, score higher than 4 in question related to lie detector in self-esteem questionnaire were excluded.

In this method, medical students in 4 grades of basic sciences, physiopathology, apprenticeship and internship were selected using stratified random sampling. For basic sciences, physiopathology and internship, participants were selected through stratified random sampling. In basic sciences and physiopathology, one or two classes were randomly chosen based on their population with the cooperation of education administrator and medical faculty principal. In practice, we required the education center of the faculty to invite the students of the chosen classes and the students at the level of apprenticeship and internship were invited to participate in training classes of education-treatment centers. These participants were chosen on the basis of their education level and with the cooperation of deputy of clinical training and educational hospitals. Before distributing the questionnaires among the students, informed consent was obtained from all the participants, and the purpose of the study, the method of answering the questions, time schedule for filling out the questionnaires, and confidentiality of the information were described. Then, the questionnaires, which included California Critical Thinking Disposition Inventory (CCTDI) and Copper Smith's Self-Esteem Inventory, were distributed among medical students by a researcher and a general physician.

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 previous term, marital status, and current address, and the second part included CTDI with 75 questions which was ranked from completely agree to completely disagree options scored by Likert scale. The maximum and minimum of the achieved scores from this test were 420 and 70, respectively. A total score less than 280 meant deficiency, 280-350 ambivalence, and more than 350 indicated positive CTD (16). 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 by Cronbach's Alpha test which was 0.9 (7). The content validity of the questionnaire was determined and reliability index calculated by Cronbach's alpha test was 0.8 (17).

The second questionnaire was Cooper Smith's Self-Esteem Inventory, which had a common code with the first questionnaire with 50 choices and 8 lie detector choices. These 50 choices were divided into 4 fields of general SE, social SE, family SE and educational SE. The scoring method of this test was zero and one. The average score of the participant students in this test was 35.9±6.79, therefore, the people who got a score higher than 35.9 had a high SE and the people who got a score lower or equal to 35.9 had a low SE. These tests have been frequently made appropriate in Iran and they have been used in many researches and theses (12, 11, 18). To calculate the reliability coefficient of the questionnaire in Iran, split-half method was used, so that the questionnaire was distributed among a group of 30 people and then the achieved scores out of the odd and even halves were used to calculate Pearson correlation indicating the index of 0.83 which was statistically significant (18). In another study, the validity index with Cronbach's alpha internal correlation method was 0.81 which was statistically significant (19). After doing the whole study, the reliability coefficients calculated for general, social, familial, and educational SE were 0.86, 0.83, 0.81, 0.83, respectively (20).

The questionnaires were distributed in a quiet place where students could concentrate well on filling them out. The questionnaires didn't include the name and information was considered as confidential. The given time for completing the first questionnaire was 25 minutes and for the second one was 10 minutes. The data of the questionnaires were fed into SPSS-16 and analyzed by descriptive and analytical statistics. To estimate the normal distribution of data, Kolmogorov-Smirnov test was used, and to determine the relationship between the variables, Pearson Correlation Coefficient, Spearman Rank Correlation Coefficient, ANOVA, and Chi-Square were used. $P<0.05$ was considered significant.

Results

The largest number of respondents belonged to appre-ntices (28.4%, n=86) and the least number of respondents belonged to interns (20.8%, n=56). The findings about personal characteristics showed that the mean age of the participants was 22.8±2.8, 56.4 % (163) of the samples were females, 87.5% (253) were single, 43.6% (161) were native and lived in the dorm, the average score of diploma was 18.63±1.05, and the mean score of their previous term was 15.44±1.47. Further, the results showed that the majority of the students (98.6%, n=285) had low CTD, 1.4% (4) had ambivalent CTD, and none had high CTD, and 56.4% of the students under study had high SE. Tables 1 and 2 show the means for CTD and SE in medical students on the basis of their education level.

Table 1: Mean and standard deviation of the total score of CT disposition based on education level (n=289)

Education Grade	Number	Mean (SD)	Confidence level	
			Low rate	High rate
Basic sciences	80	212.12±23.48	206.89	217.35
Physiopathology	67	207.22±28.72	200.21	214.23
Internship	82	212.48±27.48	206.44	218.52
Apprenticeship	60	216.75±30.31	208.91	24.58
Total	289	212.05±27.40	208.87	215.22

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

Education Grade	Number	Mean (SD)	Confidence level	
			Low rate	High rate
Basic sciences	80	36.29±6.64	34.81	37.77
Physiopathology	67	35.58±6.53	33.99	37.17
Internship	82	35.60±6.40	34.19	37.00
Apprenticeship	60	35.95±7.86	33.92	37.98
Total	289	35.86±6.79	35.07	36.64

The findings indicated no significant relationship between education levels, CTD and SE. As it is observed in table 3, Pearson correlation coefficient showed a negative relationship between CTD, SE and its related domains. The findings showed that there was not a significant difference between two groups of low SE and high SE and negative and ambivalent CTD (Table 4). Also there was not a significant relationship between age and gender, and CTD.

Table 3: Mean and standard deviation and the results of correlation coefficient about CT disposition and self-esteem and its domains (n=289)

Self-esteem and its domains	Mean (SD)	Pearson Correlation coefficient	P value
Total Self-esteem	35.9±6.79	-0/462	<0/001
General self-esteem	11.4±2.77	-0/406	<0/001
Social self-esteem	13.7±2.59	-0/373	<0/001
Familial self-esteem	6/2±1.80	-0/281	<0/001
Educational self-esteem	4.6±1.59	-0/336	<0/001

Table 4: the relationship between CT disposition and two groups of self-esteem (n=289)

		Critical thinking disposition		Total
		Negative N(%)	Ambivalent N(%)	
Self-esteem	Low self-esteem	125(99.2%)	1(0.8%)	126
	High self-esteem	160(98.2%)	3(1.8%)	
	λ^2=0.57	**P=0.635**		

Discussion

The findings of the study revealed that, although students had low CTD and high self-esteem, there was a negative correlation between CTD score and SE with 95% confidence, while Barkhordary reported a significant and positive relationship between CTD and SE (12). In another study, at the same time positive and significant relationship was obtained between CTD and SE (15). Of course the previous studies have all been done on nursing students, in which average SE and CTD has been reported. It seems that unharmonious findings in this study are related to people's viewpoint toward their major, which naturally affect students' personality. In our country, students compete very hard in order to get accepted in university, especially in the case of medicine, and definitely the people who get accepted in this major are intelligent and hardworking. Therefore, it is not unexpected that they think of themselves as highly important and naturally have a high SE. Elder in an interview answering the question "Do talented and clever learners face any problems in learning and put CT into practice? stated this type of learners are involved in the same sort of arrogance or bias because of their views toward themselves as they believe that they think or act better and faster than others. This kind of viewpoint is wrong and biased and makes them ignore the main principle of CT that is paying attention to others' beliefs and ideas (21)."

Further, the findings showed that the mean score of CT was 212.05±27.40. In fact, 98.6%9(285) of them had low CTD, none of them had positive CTD and only 1.4% (4) had ambivalent CTD. The highest mean score belonged to truth seeking domain and the lowest was related to analytical domain. Moreover, out of 163 students who had high SE, only 3 of them had ambivalent CTD, 160 had negative SE disposition and none of them had positive CTD. Also, there was not a significant relationship between two groups of high and low self-esteem and negative disposition, positive domain and ambivalent domain. However, findings of another study on midwifery and nursing students showed that 9.7% of the students had low CTD and others had an ambivalent status.

In studies conducted on nursing students in China and Australia, the mean of 268.36±21.58 was reported for CT in Chinese students and 287.73±30.98 in Australian students (22). Another study, which was done on 27 nursing colleges in Norway on newly-graduates of nursing, showed that nearly 80% of them had positive CTD. The highest mean score belonged to exploration and the lowest was related to truth seeking (23). Few studies, however, have been done on medical students, which have merely examined one dimension of CT that is cognitive dimension. So far, no study has been conducted to examine the emotional dimension of CT in medical students.

The findings obtained from this study showed no significant relationship between gender and CTD. Barkhordary and Gharib reported similar results in the case of nursing students in their studies (13, 7).

Conclusion

Since CTS is essential for medical students and as using skills needs kind of disposition or tendency and CTD like other psychological variables are affected by social factors and society plays a role in its strengthening or wakening, so researchers suggest that by doing similar studies on medical students identify factors affecting this thinking, so that strategies can be found to improve such kind of thinking.

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