

## The Relationship between Meta-Cognition, Mental Health and Self-Esteem in Students

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### ABSTRACT

**Introduction:** meta-cognition is a multifaceted concept. This concept includes knowledge, processes and strategies that evaluate, monitor or control the cognition. This study is done targeted the relationship between meta-cognitive beliefs and self-esteem and mental health of university students.

**Approach:** This study was a descriptive-explanatory research and type of which is correlative, population of it is all undergraduate students at Islamic Azad University of Zanjan (Iran) in the academic year of 91\_92, the 372 cases (203 males and 169 females) were selected as a stratified random sample method. Measurement tools used are Cartwright \_Wales questionnaire of meta-cognitive beliefs (MCQ 30), Coopersmith self esteem (sei) and mental health (scl25). Data were analyzed with stepwise method by Pearson's correlation coefficient and multiple regression analysis.

**Findings:** Based on statistical analysis of Pearson's correlation coefficient, there was a meaningful inverse correlation between meta-cognitive beliefs and mental health of university students, a meaningful positive correlation between meta-cognitive beliefs and self-esteem and also inverse meaningful correlation between mental health and self-esteem in university students. Using regression's stepwise multivariate analysis also showed that about 30% of the variance in students' mental health can be explained by two variables of meta-cognition beliefs and self-esteem ( $\bar{R}^2 = 0.30$ ). Similarly, 26% of the variance in self-esteem of students is explained in regression figure by two mental health and meta-cognition beliefs ( $\bar{R}^2 = 0.26$ ).

**Conclusion:** Meta-cognitive beliefs is one of the effective factors of mental health and could be acted as a general indicator of confidence, as by reforming and changing meta-cognitions that have increased negative thoughts and maladaptive ways of thinking, we can help students to improve and enhance their mental health.

**KEYWORDS:** Meta-cognitive beliefs; Mental Health; Self-esteem; University Students

### INTRODUCTION

Meta-cognition is a multifaceted concept. This concept includes knowledge, processes and strategies that evaluate, monitor or control the cognition (1). Different conceptualizations have been provided on meta-cognition. The first conceptualization has been done by Flavell in 1976. Flavell sees meta-cognition as one's knowledge about processes and cognitive results, in his idea meta-cognition is one of the mind's top processes that is divided to two fundamental dimensions under the topic of knowledge and understanding in relation to the cognition, regulation and control of cognitive activity (2). Cognitive understanding comes into existence when the person is aware of his/her cognitive abilities. The second dimension of meta-cognition is the thought that adjusts and monitor it (3). Cognition conceptualization is in the field of clinical psychology and psychopathology. Meta-cognition in recent years has been examined as the basis of many psychological disorders (4). The main idea of this approach is the beliefs in psychological disorders that consisted of meta-cognitive component that directs the action of thought and confrontation style and is affected (5). Meta-cognition is one of the most important variables that play a major role in the intensification of the psychological disease symptoms and is interrupted during illness. The role of meta-cognition in psychological disorders has been developed through information-processing model by Wells and Matthews that is associated with the self-regulatory executive function model for vulnerability to psychological disorders, maintaining the cognitive dysfunction syndrome (6). Meta-cognitive beliefs are beliefs that people have about their own cognitive thought, processes and experiences, meta-cognition beliefs include negative beliefs about uncontrollability and danger of thoughts and emotions and positive beliefs about the importance of thought monitoring and engaging in worry, rumination and threat surveillance, these beliefs have a profound impact on

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thinking and psychological disorders (7). Activation of negative meta-cognitive beliefs lead to negative intrusive thoughts that is as a sign of threat and mental health of an individual will be in danger (8). In fact meta-cognitive approach believes that people suffers from mental health problems because their meta- cognition leads to pattern of response to their inner experience, which leads to the persistence of negative beliefs and as a result mental health problems (9). Based on theories of Papageorgio and Wales meta-cognition can be an important factor in the development of psychological disorders. The basis of new theories is that psychological disorders beliefs consists of cognitive component and directs thinking and adaptability function. The content of thinking is also important to explain the nature of psychological disorders. The point is that how people think has important role in understanding and treatment of psychological disorders. One of the major issues in this field is worry and positive and negative beliefs about it (10). Meta -cognitive skills play an important role for a variety of activities such as information exchanging verbally, verbal persuasion, understanding and comprehension of what has been read, writing, learning a language, perception, attention, memory, problem solving, social cognition,, various forms of self education and self control. Meta-cognition and concepts related to them are used in the fields of cognitive psychology, personality psychology, gerontological, educational psychology, clinical psychology, and cognitive development of children. Nowadays the concept of meta-cognition and its affiliates are highly suggestive in psychology and education (11).

Meta-cognitive skills not only have major role in person's mental health but also can improve confidence and self-efficacy through self-esteem impact and extend one's general skills (12). Self-esteem or self-worth being is one of the most basic requirements of a healthy and developed personality. Hunter (2006) speaks about a self-esteem perspective in relation to aspects of physical, mental, emotional (13). In general, learning meta-cognitive strategies, involving in scientific topics, internal control source, positive attributions, greater motivation, creativity and responsibility will be provided within people, encourages a sense of confidence in life and enables people to identify problems, examine their activities, to operate freely and independently and offer the best solutions at various Affairs (14).

Many studies indicate the relationship between meta-cognitive domains and a wide variety of mental disorders particularly emotional disorders, as Dragon and Dragon (2013) concluded in their study is that the main characteristics of the anxiety associated with meta-cognition. Dragon, Kononovich (2012) showed in their study that mood is associated with meta-cognition involved in mental pathology and may also both have direct effects and indirect meta-cognitive effects on anxiety (16). Hassan Zadeh (1392) in his study concluded that meta-cognition plays an important role in portraying the importance of thoughts and feelings that are required to perform compulsive rituals and also maintains exacerbate symptoms in people with Obsessive Compulsive Disorder – practical and in mind (17). Mohammadkhani (1390) in a study showed that there is a meaningful positive correlation between meta-cognitive beliefs and thought control strategies and anxiety (18). Guydavhulas (2012) concluded in his review that individuals with high inefficient meta-cognitive beliefs show more anxiety and depression symptoms, In addition, this study showed that people who have high anxiety, have low self-esteem. Poornamdaryan and Salarifar (1391, 1390) each in a separate study showed that meta-cognitive beliefs, especially beliefs associated with uncontrollable negative thoughts and the need to harness the thought are the best predictor of depression, anxiety and stress. The results showed a positive relationship between meta-cognitive beliefs with depression and anxiety of disorders. Mathews et al (1999) in their research showed that meta-cognition is the centered confrontation on anxiously and worry, are one of the factors that based on them stress, anxiety, physical symptoms associated with anxiety and thoughts unrelated to the test (22). Bruno and Sachs (2012) in their research demonstrated that meta-cognitive deficits play an important role in maintaining the wrong beliefs. Therefore, therapeutic strategies may be important with respect to the patient's meta-cognitive predictions. Lizakropol (2012) concluded that schizophrenia is associated with reduced meta-cognition and some forms of social cognition. Van Austerhatt (2012) came to the conclusion that meta-cognition beliefs are one of the main features of in the development and maintenance of depression and anxiety in patients with severe auditory-verbal hallucinations. Morrison and Gomly (2011) showed that meta-cognitive approach in relation to the conceptualization of paranoia can be used as a strategy for managing and organizing interpersonal threat to understand the clinical paranoia (26). Barkus and Reader (2010, 2010) each in a separate study concluded that the components of meta-cognition beliefs in thoughts are considerably related with psychosis-like experiences, with the type of Schizophrenia (27, 28).

Cognitive beliefs have major impact on mental health moreover on self-esteem, and with direct and indirect effects can lead to increase or decrease the self-esteem. Also meta-cognition has a positive relationship in problem-solving ability, educational achievements motivation, self-regulation and self-efficacy.

Irak (2012) in his study concluded that there is a meaningful relationship between beliefs and ideas about human memory, meta-cognitive processes and self-esteem. The expressed regression analysis indicated that cognitive confidence has been very important meta-cognitive process for memory-related beliefs and those with high self-confidence and positive cognition, showed positive beliefs about memory.

Yousefzadeh (1391) and Bahadori (1391) in their study indicated that there is a meaningful relationship between cognitive processes and self-confidence. Palmira class et al (2011) concluded that the meta-cognitive subscale of faith is a moderating factor not confidence between stress and its negative effects. And those who have more emphasis on controlling their thoughts have more diversity in confident within stressful situations (32).

The studies indicate that the meta-cognition is one of the high cognitive processes that have different effects on people, clarifying the role of meta-cognitive beliefs as a effective factor in self-esteem and mental health has an important aspect practically and theoretically. Therefore, this study aimed to study the relationship between meta-cognition and mental health and self-esteem of the students. This study sought to test this hypothesis is that meta-cognition and self-esteem is associated with mental health and response to the question as to whether there is a relationship between meta-cognition beliefs and mental health and self-esteem?

### Approach

The community under study is out of male and female undergraduate students of Zanjan University (Iran) in the academic year (92-91) (N=6903). The study sample included 203 male students and 169 female undergraduate students that were selected from the above-mentioned population in relation to population, hypothesis and variables and stratified random sampling method has been used.

### Measuring Tools

1- Meta-cognition Questionnaire Short Form: This questionnaire has 30 items that was created by Wells and Cartwright-Hatton (2004). This questionnaire has five subscales concerning uncontrollability and danger of thoughts, positive beliefs about worry, cognitive awareness, confidence and the need to control thoughts. This questionnaire has acceptable validity and reliability. The obtained reliability via Cronbach alpha coefficient for subscale ranged from 0.72 to 0.93 and retest reliability for the total score, after 22 to 118 days, 0.75 and for subscales from 0.59 to 0.87 has been reported. The questionnaire was translated and prepared for the Iranian population by Shirinzadeh. Shirinzadeh (1385) reported the coefficient of internal consistency using Cronbach's alpha coefficient for the total scale 0.91 and subscales ranged from 0.71 to 0.87 and retest reliability for the total scale of the test within 4 weeks of 0.73 and for the subscales ranged from 0.59 to 0.83 (33).

2- Cooper Smith self-esteem questionnaire: Cooper Smith (1967) prepared and edited its scale based on the revision that has been done on Damon Rogers scale (1954). Correlation among the test scores for boys 0.69 and for the girls 0.71 that at level 0.001 was meaningful. The reliability of the test -retest reliability for boys 0.90 and for girls 0.92 obtained. In Poorfaraji research (1380) Cronbach's alpha method with Cooper Smith reliability coefficients scale equaled 0.52 and the coefficient is acceptable in terms of the psychometric. The questionnaire consists of 58 questions that ask eight lie detector questions and its other 50 questions include four subscales. Cooper Smith four subscales questionnaire consists of: Family self-esteem subscale (8 items), academic self-esteem (6 questions), overall self-esteem (17 items) and social self-esteem (18 questions) (34).

3- Short form of mental health questionnaire scl25: This questionnaire is a short form of the SCL-90 questionnaire and is made for the availability of short form and valid instrument for assessing mental disorders using the SCL-90 in a way that research questionnaire was conducted on a sample of 801 people out of Ahwaz Chamran University. Then questions with principal components pattern and a varimax rotation analysis became a factor and questions loadings higher than 0.785 were selected. All questions will be considered as a factor that explained totally 50/4 % of variance. Calculated correlations between the subscales of the test of 25 questions, with 90 questions showed 0.80 to 0.97 for the total sample that indicates high validity of 25 questions. Internal consistency of the 25 questions has been gained 0.97 for females and 0.98 for men. Short scale, good internal consistency and good validity coefficient, good reliability based on correlation with some related structures, make scl25 an appropriate scale for research. Credit of scl25 in Iranian population sample was investigated by calculating the internal consistency and retest coefficients. Internal consistency of Scl25 is 98% for female sample and 97% is male. The questionnaire contains 8 subscales and the validity of each subscale is calculated as follows: Medicine 83%, Obsessive 85%, depression 88%, interpersonal sensitivity 84%, anxiety 87%, hostility 68%, phobia 69%, paranoid thinking 74% and psychosis 79% (35).

### Research Conclusion

**Table 1: Compares meta-cognition with the mental health and self-esteem of students based on sex**

		Significant Layer	Freedom Level	t	Standard Deviation	Average	Number
Meta-cognitive Beliefs	Girl	0/698	370	1/104	13/50	75/84	169
	Boy				12/98	74/32	203
Mental Health	Girl	0/342	370	2/628	15/97	35/62	169
	Boy				16/94	31/10	203
Self-Esteem	Girl	0/635	370	0/475	8/39	33/08	169
	Boy				8/75	33/50	203

According to Table 1, it is considered that there is no meaningful difference between meta-cognition and mental health and self-esteem of students based on gender.

**Table 2: Correlation coefficients between research variables**

Variable	Meta-cognitive Beliefs	Mental Health	Self-Esteem
Variable			
Meta-cognitive Beliefs	1	$r = -.453$ $P = .000$ $n = 372$	$r = .385$ $P = .000$ $n = 372$
Mental Health	$r = .453$ $P = .000$ $n = 372$	1	$r = .477$ $P = .000$ $n = 372$
Self-Esteem	$r = .385$ $P = .000$ $n = 372$	$r = .477$ $P = .000$ $n = 372$	1

Results of table 2 show that there was a meaningful inverse correlation between meta-cognition and mental health and also there is a meaningful positive correlation between meta-cognitive beliefs and Self-esteem. There is an inverse and meaningful correlation between mental health and self-esteem in students.

**Table 3: Indices of multiple regression analysis with stepwise method**

Analysis	Non-standard Coefficients		Used Coefficient	T	Meaningful Layer
	B	SD Error	Beta		
Fixed Variable	85/973	4/340		19/808	0/000
Meta-cognitive Beliefs	-0/398	0/059	-0/316	-6/762	0/000
Self-Esteem	-0/345	0/045	-0/356	-7/609	0/000

According to Table (3) found that self-esteem with beta  $\beta = -0.356$  and meta-cognitive beliefs with beta  $\beta = -0.316$  contributed to the prediction of students' mental health have meaningful share.

**Table 4: indices of multiple regression analysis with stepwise method**

Analysis	Non-standard Coefficients		Used Coefficient	T	Meaningful Layer
	B	SD Error	Beta		
Fixed Variable	58/998	5/906		9/989	0/000
Meta-cognitive Beliefs	0/276	0/065	0/212	4/238	0/000
Self-Esteem	-0/393	0/052	-0/381	-7/609	0/000

According to Table (3) found that mental health with beta  $\beta = -0.382$  and meta-cognitive beliefs with beta  $\beta = 0.212$  contributed to the prediction of students' mental health have meaningful share.

**Table 5: Indices of the multiple correlation coefficient of predicted variable with the criterion**

Analysis	Multiple correlation coefficient	Coefficient of determination	Coefficient of net	Estimated standard error
Predicted Variables				
Mental Health	0/560 $R =$	0/313 $R^2$	=0/309 $\overline{R}^2$	13/83
Self-Esteem	0/514 $R =$	=0/264 $R^2$	=0/260 $\overline{R}^2$	7/384

Results of Table 5 shows that about 30% of the variance in mental health status of students is explained by two predicted variables between meta-cognitive beliefs and self-esteem in regression figure, also about 26% of the variance in students' self-esteem is explained by predicted variable of mental health and meta-cognition in the regression figure.

## DISCUSSION AND CONCLUSION

This study investigated the relationship between meta-cognitive beliefs and self-esteem and mental health variables in students. The results showed that there was a meaningful inverse correlation between meta-cognitive beliefs and mental health ( $p=0.000$ ,  $r=-0.453$ ). In other words, high scores on psychological questionnaires showed high scores on psychopathology, therefore, these results suggest that an increase in psychopathology and higher scores on mental health related with the increasing number of negative meta-cognitive beliefs and decreasing of positive meta-cognitive beliefs. Students who have positive meta-cognitive beliefs have better mental health. This finding is consistent with previous results of Hulas Guido (2012), Bruno and Sachs (2012), Dragon and konovich (2012), Van Austerhaurt et al (2012), Morrison and gomly (2011), Reader et al (2010), Barkus et al. (2010), mitosis et al (1999), Lizaker (2012), Hassan Zadeh (1392), Poornamdaryan et al (1391), Sadati et al (1391) ( 36 ), Salarifar et al (1390), Bahadori et al (1391), Mohammadkhani (1390), Karshaky and Pakmehr (1390) ( 37 ).

The results of the present study show that there is a meaningful positive correlation between meta-cognitive beliefs and self-esteem of the students ( $P=...$ ,  $r=.$ **385**). In other words, students with high scores on meta-cognitive beliefs had more positive self-esteem. This finding is consistent with previous results of Irak (2012), Palmir \_Class (2011), Yousefzadeh et al (1391), Bahadori et al (1391), Karroborkosky (2012) ( 38 ).

Furthermore, stepwise multiple regressions results showed that about 30% of the variance in mental health status of students by two variables between meta-cognition and self-esteem is explained in regression figure and this finding is consistent with findings (Ghanei et al, 2011) showed in their study that 59% of students' mental health is explained by two variables such as meta-cognition beliefs and self-efficacy. Also, about 26% of the variance in students' self-esteem is explained by meta-cognition predictor variables and mental health in the regression figure.

In general, the findings illustrate that the meta-cognition is an important factor in vulnerability to psychological disorders and maladaptive meta-cognitive beliefs have a major role in mental health. Therefore, by changing and improving meta-cognitive beliefs we can help to increase students' mental health. Those students who have more positive cognitive skills can better control stressful, negative emotions such as frustration and anxiety. It also helps to create positive meta-cognitive beliefs more effective confronting coping strategies in stressful situations. Changes in cognitive beliefs make students attribute their success to themselves due to their own efforts and knowledge and thus it increases their confidence. This indicates the importance of teaching these skills to students using appropriate strategies and models, the results of this study suggested training-consulting centers to execute wide plans in the field of teaching and learning positive strategies of meta-cognitive beliefs and avoiding harmful and negative meta-cognition beliefs. This way will increase effectiveness of academic and socio-economic activities in all fields.

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