

### Moderator Role of meta-cognitive beliefs on sport success

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**Abstract:** The purpose of this study is, investigating the moderator role of meta-cognitive beliefs on the sport success in members of Volleyball National team in adolescents and adults, girls and boys of volleyball federation of Islamic Republic of Iran. The present research is from type of descriptive - survey and correlation and in terms of goal is fundamental. Measurement instruments of questionnaire, demographic characteristics of Subjects, MCQ Wales, test of sport competitive anxiety and sport success questionnaire are that the rate of them Cronbach alpha as reliability and rate of its validity on the basis of KMO index in this research is favorable. For analyzing the data, indices of descriptive and inferential statistics with Pearson correlation method, Partial correlation and multiple regression analysis test was used. In addition, meta-cognitive beliefs could predict the rate of sport success in athletes.

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**Key words:** meta-cognitive beliefs, sport success, members of volleyball national team Disorders

#### 1. Introduction

Meta-cognition is a term that first time by Flavell (1976) was applied in the field of memory. Flavell knew meta-cognition, cognition about cognition or in general meta-cognitive defined how of cognition control. According to Saif statement (2001) meta-cognition Returns to before Flavell according to him statement the first time Harlow (1949) conducted a series of experiments on monkeys that in this experiment, whatever monkeys were solving more problems was became more capable in the solving the problem means monkeys were learning how to learn (Saif, 2008). According to Costa (1984), "If you can become aware from the existence of an internal dialogue in your mind and if you can get to know decision-making processes and problem solving, have experienced meta-recognition.

According to Brown et al. (1982) "meta-cognition is types of awareness about the cognitions with executive processes of decision making that human beings should do cognitive processes and review their progress."

Meta-recognition is said to the information that the person has about itself cognitive system. With the growth of the cognitive system in humans, a set of cognitive and regulatory processes is formed that is as widespread as the same cognitive processes that is caused efficiency, flexibility of memory, purposeful and deliberate learning. In other words, meta-cognitive skills act in form of informative skills that during learning and processing information are used by mind and facilitate the flow of this processing.

In addition, meta-cognition is a multifaceted concept, this concept includes knowledge (beliefs), processes, and strategies that evaluate, monitor and control cognitive (Moses, Baird, Wilson and Kiel, 2002). An important structure in the cognitive theories of emotional disorders is based on cognitive theories. Most of cognitive activities are dependent on meta-cognitive factors that monitor and control these activities. Meta-cognition theorists distinguish between two aspects meta-cognition. These two aspects are: 1. meta-cognitive regulation 2. Meta-cognitive knowledge, Meta-cognitive knowledge is beliefs that people have about the meaning of cognition and thoughts. Meta-cognitive knowledge in the area of emotional disorders can be positive or negative. Meta-cognitive regulation refers to a range of strategies that facilitate information processing, or face it with difficult. In other words, the responses that people use to control the activities of their own cognitive system. These strategies may intensify or suppress intellectual strategies and increase regulatory processes. Strategies that we adopt against ideas and information incoming from the outside world, can be related with behavior or emotions that in us is created. For example, if we reassess a painful, wrong thought and we calculate the advantages and disadvantages of this type of thinking for itself, causes decreasing the excitement of it, but if we have the wrong strategy causes durability of the wrong thinking and even increasing the painful emotions in us (Wells, 2005).

The role of meta-cognition in the stress reduction

in general and sport success in particular is noticeable. Many researchers in the field of sport psychology using meta-cognition structure deal to the athletes, in order to reduce stress and increase sport success. Sport success regardless of concessions that for athlete have, have a profound impact on society, especially young people, and can benefit from this effect a lot. The effect of different psychological factors on the performance of athletes in this area would be useful. Here we are going to examine three factors. There are many researches that confirm the relationship between stress and sport success (Firooz ray et al. 2010, Aslan Abadi, Ahmadi Asle, Ghadiri 2010, Aghdasi 2010) as well as role of Meta-cognitive beliefs, particularly in the treatment of stress in the researches reviewed and conformed (Pouran Arya, Keshavarzi 2010, Wells 2009).

#### Research Objectives

- There is a relationship between meta-cognitive beliefs and sport success.
- Meta-cognitive beliefs can predict rate of sport success.

**Sport success:** Sport success is rate of ranks and titles that people acquire in various national and international competitions.

**Sport success:** Sport success in this research is a score that obtain in questionnaire of sport success.

Today, in the world of sport, practice and frequent physical assiduity as only key factor of success and achieving peak of performance, not considered predetermined target, and it seems that in addition to physical and tactical capabilities and specialized skills, abilities and characteristics of personality undoubtedly is from important factors in progression of sport, moreover, because the athletes are forced to compete in stressful situations; Therefore, in such circumstances, stress and anxiety is common; consequently facing with situations that is potentially stressful will cause people in response with the situation feeling excited (Hanyn, 2000). The prevalence of stressful factors such as bad refereeing during the match, bad environmental conditions, the reaction of the spectators during the race, the desire to win at the expense of moving away from sport ethics, the experience of injury, observation of competitor fraud, the possibility of fraud in order to win, players reprimand by criticism of coach during the match (Anshel et al., 2000). All can reduce athletic success of Athletes. Meta-cognitive beliefs as cognitive factors are considered from the most basic psychological problems in the field of sport success of athlete. In this regard, meta-cognitive beliefs can play a moderator role in the field of stress and sport achievement.

**Meta-cognitive experiences:** meta-cognitive experiences, is including the assessment of meaning of specific subjective events (e.g. thoughts),

meta-cognitive feelings and judgment about status of cognition. Meta-cognitive assessments and judgments can be defined in form of alert interpretation and naming (labeling) cognitive experiences. (Wells, 2006). Nelson, Kruglanski and Jost) 1998) two types of information have identified that provide fields of meta-cognitive judgments, feelings or transient interpretations and implicit theories that are more stable. Schwartz and Kolar (1983) pointed out that people use feelings as information for the evaluation and judgment.

#### Emotions, meta-cognitive monitoring and control

The emotions represent the internal data that affect motivation and behavior. In fact, emotions may be preceded over cognitive and experimental data show that is controlled through sub-cortical brain structures. Emotions can be impact on a range of cognitive processes such as orientation in attention and memory, judgments and decisions (Kolar and Parat, 1994).

Simon (1976) states that compliance requires monitoring (review) important stimulus and displacement of goals, compatible with new goals with looking for disorder in function and emotion is considered as part of the disorder process. It seems that emotions are a result of changes in the success or failure and arise from one planned action. Appeared emotions may cause orientation in the underway programs. For example, anxiety caused by threatening the lives of individual and activates projects related to being alert into environment and or escaping.

In the Bower network model (1981) emphasizes on the social significance of such responses, in his view, emotions are identified by signs or symbols. Emotional symptoms may activate via external inputs or through activation of network of signs that are associated with emotion; Such as signs that are representing the memory of an unpleasant event. With getting excited person, signs of emotion through expansion of getting active associated symptoms affects on future processing. The overall effect is that the emotional modes, cause to processing in accordance with emotion. Mood effects on cognition, such as the retrieval dependent on the mood, with network model is justified. When retrieval in the emotional state is similar to learning time, signs of emotion somewhat is activated or cause setting up of signs for remembered things. As a result, the ability of access to Subjects can be more or less. Bower (1992) suggests that emotions may not only with the semantic concepts, but with regular actions, which were useful in the past similar situations also become active.

Williams, Watts, McLeod and Matthews (1988) in the cognition related to depression, trait anxiety (clinical), depending on the state, distinguish various

orientations and in various stages of processing placed them in one model of attention and memory. Here, the effects of anxiety are before attention, and anxiety dependent to mode, increases the level of identified threat by a stimulus.

The effects of depression on the processing of stimulus, is only after identifying them when the examined stimulus were evaluated skillfully. Depression dependent on mode makes negative assessment from the stimulus, while clinical depression or adjectival facilitate the development of negative materials. One of the characteristics of these theoretical approaches is this idea that emotions can impact on the functions of meta-cognitive control and supervision. Emotions may be signs of a crack in the autonomous processes and provide incentives for sustainable self-processing (Wells, 2006).

Cognitive theories about the emotional disorders, such as Beck's schema theory (1976), are based on this principle that mental disorders are associated with turmoil in thinking. In particular, anxiety and depression with automatic negative thoughts and distortion in the interpretation of stimulants and events are identified. It is thought that negative thoughts or distorted interpretations arise from getting active the negative beliefs, stored in long-term memory. According to the scheme theory, emotional disorder related with the activation of getting active with bad action schemes. The schemas are memory structures that contain two types of information: Beliefs and assumptions. Beliefs are central core of structures with unconditional nature (for example, the world is a dangerous place), which are accepted as facts about self and the world. Assumptions are Conditional and show dependencies between events and self-evaluations (for example, if I have an unspecified sign of physical illness, then it should suffer serious illness). Bad action schemas that specify emotional disorder from rigid schemas of ordinary people are drier and more objective (Beck, 1976). The content of the schema specifies a type of disorder. Anxiety schemes are consisting of beliefs and assumptions about risk and inability in confronting with it. In depression, the focus of scheme is on negative

thoughts in which early experiences, provide infrastructure of formation of negative concepts about self, the future and the outside world. Getting active bad action schema leads to orientation in the processing and interpretation of information. This orientation appears in apparent level in the form of negative automatic thoughts during the consciousness (Beck, Rush, Shaw and Amri, 1979). Teasdale and Barnard (1993), with the aim of taking into account all aspects of cognition in depression and solve the above problems, have provided a more comprehensive framework of news-making. However, the rejection of all basic principles of the scheme theory is unconsidered work. One of the useful principles of schema theory is that the knowledge stored in long-term memory affects on the content and nature information processing. With the development of a theoretical framework that influence of self-awareness with important concepts such as Autonomy is coupled and with considerable of self-awareness (beliefs) through dynamic and not static, entered criticisms on schema theory will become pallid. As Wells and Matthews (1994) have pointed out, considering the scheme in the form of discrete information that the therapist must push away them and replace with the real issues will not be useful. It seems that people their own beliefs on the basis the internal rules, make actively and investigate. Therefore formulation of processes, rules and internal cognitive mechanisms that cause patients reach to maladaptive interpretations and beliefs, is very important. What is required is a cognitive comprehensive framework for the representation of the interaction between cognitive self-awareness and emotional disorders. In the schema theory, there are other basic theoretical limitations, but they can also be removed with again formulation of method that is represented knowledge in information processing. Schema theory about emotional disorder almost exclusively focus on the content of the assessment and beliefs that in which beliefs in the human information processing system in the form of declarative sentences like (I've failed, I'm bad, I'm sick and I'm vulnerable) are represented.

Table 1. Features of objective method and meta-cognitive method in the executive function model of self-regulation (Wells, 2000 Translation Bahrami and Rizwan, 2006)

Meta-cognitive method	Objective method
Meta-cognitions Thoughts are events, not the facts (the threat is subjective) Thoughts should be evaluated.	Meta-cognitions Thoughts draw fact (threat is goal) Thoughts must be acted
Goals correction of Thinking	Goals Removal of threats
Strategies Evaluation of the behavior Doing Meta-cognitive control behaviors, for example: Removing worry, Reorient to attention	Strategies Evaluation of the threat Implementation of behaviors reducing the threat For example: Worry, monitoring threats
Probable outcomes Cognitive restructuring of knowledge Development of ideas and new projects	Probable outcomes Reinforcement of maladaptive knowledge

**Research instruments**

3.4.1 Questionnaire of demographic characteristics of subjects

In this questionnaire was studied descriptive information, including age, gender and field of study in the research samples.

**Sport Competition Anxiety Test**

1. Description of the test: Sport Competition Anxiety Test (also known as Illinois competitive questionnaire) is used specifically for measure of competitive adjective anxiety. The researchers found that this test in sport condition, better than the general tests measures anxiety. Although sport competition anxiety test was useful in the assessment of competitive adjective anxiety, but assume that adjective anxiety, is one-dimensional, and this is a weakness. Now new instruments were created that measure cognitive and physical adjective anxiety in sport position (Smith, Smoll, Schutz 1990). Sport competition anxiety test has components of cognitive anxiety, physical anxiety and confidence. Sport competition anxiety test is 15 questions in the Likert scale.

**Sport success questionnaire**

1. Description of test: In order to measure sport success of subjects, scale of sport success (Besharat, Abbasi and Shujahuddin, 2002) was given in available of athlete’s coaches, and in addition to explaining the goals of the research from them were asked to complete the questionnaire. Coach-athlete after implementing sport success scale, specify score of sport success of athletes according to the instructions scoring of test according to five points Likert scale. Scale of sport success forms from instrumental with

16 items that sport success rate of Subjects evaluated in terms of Likert Scale. In this scale, Subjects responses are scored from very low to very high (1 to 5).

2. The validity and reliability of the questionnaire: the results of the validity and reliability of success Scale with viewpoint of coaches that Kendall agreement coefficient with viewpoint of coaches was equal to 54.0 and, according to viewpoint of referees 44.0. The results of the chi square for meaningfulness test of said coefficient shown which obtained correlations are meaningful for coaches and referees (Besharat, Abbasi and Shujahuddin, 2002).

Cronbach's alpha coefficients of the items of sport success scales in the case of a sample of athletes football players and wrestlers (Besharat, Abbasid and Shujahuddin, 2002) according to score of coaches and referees respectively 0.97 and 0.98 and for total of sample, 0.98, Which indicates high internal consistency of test.

3.5 statistical design and analysis methods of research data

Research statistical scheme based on basic variables and level of data scale, is from the type of correlation designs. In this study for data analysis from the statistical techniques and by using statistical software EXCEL, SPSS has been used as follows.

Descriptive analysis of data: in the descriptive analysis of data from the absolute frequency table and cumulative frequency distribution of variables of the research have been used.

Inferential analysis: in inferential analysis of data with respect to the type of assumptions, the characteristics of variables, sample size and statistical assumptions separately in the hypotheses will be act as follows:

1. There is a relationship between meta-cognitive beliefs and sport stress. In order To investigate this hypothesis from statistical method of Pearson correlation was used.

2. There is a relationship between meta-cognitive beliefs and sport access. In order To investigate this hypothesis from statistical method of Pearson correlation was used.

3. Met-cognitive beliefs have mediator role in the relationship between stress and sport success. In order to investigate this hypothesis from statistical method of partial correlation has been used.

4. Meta-cognitive beliefs can predict the amount of sport stressful. To investigate this hypothesis, step by step regression has been used.

5. Meta-cognitive beliefs can predict the degree of sport success. To investigate this hypothesis, step by step regression has been used.

Descriptive indices of dependent variables

In these part, descriptive characteristics of the

study variables in sample in is presented in Table 4-2.

In Table 4.2, average and standard deviation of research variables in the sample groups is including total score of meta-cognition, positive beliefs about worry, uncontrollability and danger, the need to control thoughts and responsibility, cognitive self-awareness and cognitive trust, is given. As observed biggest the total score average of meta-cognition in girls is 65.19 and boys 85.19. In addition, the average score of cognitive anxiety, physical anxiety and self-esteem respectively in girls is 14, 13, 16, and boys 15, 14 and 17.

. Other averages and standard deviations of variables, positive beliefs about worry, uncontrollability and danger, the need to control thoughts and accountability, cognitive self-awareness, cognitive trust in the table is given.

There is a relationship between meta-cognitive beliefs and sport access.

Table 2. Descriptive statistics of the study variables in sample groups (Girls)

Groups	Variables	Average	The standard deviation
Girls	Cognitive trust	1710.	173.
	Positive beliefs about worry	13	3.36
	Uncontrollability of thoughts and danger	12.49	3.47
	The need to control of thoughts and responsibility	12.21	2.37
	Cognitive self-awareness	16.28	3
	Total score of meta-cognition	65.19	10.93
	Cognitive anxiety	13	3.11
	Physical anxiety	14	3.45
	self confidence	16	2.44

Table 3. Descriptive statistics of the study variables in sample groups (Boys)

Groups	Variables	Average	The standard deviation
boys	Cognitive trust	13.15	3.13
	Positive beliefs about worry	16.34	5.15
	Uncontrollability of thoughts and danger	18.14	6.59
	The need to control of thoughts and responsibility	17.29	3.37
	Cognitive self-awareness	20	3.06
	Total score of meta-cognition	85.19	13.47
	Cognitive anxiety	15	3.25
	Physical anxiety	14	3.15
	self confidence	17	3.11

To investigate this hypothesis, Pearson correlation coefficient was used because the relations between the two distance variables together will be examined. Obtained results are presented in Table 4-6, as can be observed between meta-cognitive beliefs and sport

success in girl and boy athletes, there is a direct relationship positive, that is meaningful at the level 01.0, means that with increase meta-cognitive beliefs, sport success in them goes higher.

Table 4. The correlation coefficient between meta-cognitive beliefs and sport access

Variable	1	2
Meta-cognitive beliefs (1)	1	
Success in sport (2)	**47.0	1

\*\*P<.05/0 \*P<0.01

Meta-cognitive beliefs has Moderator role in the relationship between stress and sport success.

In order to investigate this hypothesis, the partial correlation coefficient was used because the relationship between the two distance variables is tested based on the moderator role of meta-cognitive beliefs. Obtained results are presented in Table 4.7, as

can be seen between stress and sport success with using partial correlation and with remove the effect of meta-cognitive beliefs, - 0.23 was obtained. However, relationship between these two variables despite the moderator role of Meta-cognitions -0.41 was obtained; these two correlation coefficients are meaningful at the level of 0.01.

Table 5. Results of partial correlation coefficient for evaluate the moderator role of meta-cognitive beliefs in relationship stress and sport success.

Variables	Amount of Correlation without moderating role	The level of meaningfulness	Amount of Correlation with moderating role	The level of meaningfulness
Stress and sport access	-0.23	01/0	-0.41	0.01

**Meta-cognitive beliefs can predict rates of sport success**

To answer this question, the multiple regression analysis was used. In the present study five variables which researcher has chosen them as the predictor variables, and the sport access was considered as the criterion variable and multiple regressions were calculated step by step method. The results of multiple regression analysis are as follows: Among the selected

variables which the researcher has chosen them as predictor variables, five variables that their list in Table 4-8 we see were entered in the regression model . In Table 4-8 also multiple values of correlation coefficient, Regression square, Adjusted Regression square, standard error, and rate of  $R^2$  changes have been brought.

Table 6. Summary of regression model based on variables

Model	Multiple correlation coefficient	Regression square	Adjusted	The standard error of estimate	Rate of changes
1	415.0	180.0	179.0	17.2	0860.
2	4920.	252.0	252.0	14.2	072.0
3	5370.	301.0	3010.	.132	049.0
4	5640.	3360.	334.0	11.2	0350.
5	5880.	354.0	.3540	10.2	018.0

As can be seen in Table 4-8, the multiple correlation coefficient calculated between five predictor variables entered into the model and criterion variable equal to 0.588, the Regression square equal to 0.354 i.e. about 35.4 percent from changes of criterion variable is explained by these five variables entered into the model and other changes of criteria variable (64.6 percent) be explained by other variables that the researcher are ignored them and are

not entered into the model, as well as the adjusted Regression square (taking into account the degree of freedom) is equal to 0.350.

**Discussion and interpretation of research findings**

This study examined the mediator role of meta-cognitive beliefs on the relationship between stress and sport access in members of volleyball national team adolescents and adults, girls and boys

Volleyball Federation of the Islamic Republic of Iran. The results showed that significant and negative relationship is between meta-cognitive beliefs and sport stress. Between meta-cognitive beliefs and sport achievement is a meaningful and positive correlation. Meta-cognitive beliefs has moderator role in the relationship between stress and sport success and this role was meaningful in the level 0.01. In addition, meta-cognitive beliefs could predict rate of athletic success in Athletes. These results with obtained results from researches of Davenport (2006), Ajayi and Fatokun (2007), Lane (2006), Mohammad Khani and Farjad (2009), Irak and Tavson (2008), Pérez Nieto, Redondo Delgado and Martin (2005) Reuven-Magril, Roseman, and with Liberman (2009) and Pérez Nieto and colleagues (2010), Davis and valentiner (2000) are Synchronous and same direction. In the field of these findings can be said meta-cognitive model has identified two types of meta-cognitive beliefs that include the positive meta-cognitive beliefs and negative meta-cognition beliefs (Wells, 2009, translation of Mohamadkhani, 2011). Positive meta-cognitive beliefs about worry (eg, "If I be worry, I can anticipate possible problems and avoid them ", "If I be worry, I will be prepared to deal with possible problems.") Thoughts that increase using concern as one strategy and in some cases lead to the excessive use from worry (and Cartwright-Hatton Gallagher, 2008).

When the negative meta-cognitive beliefs are activated, the person evaluates negatively worry, that is a worry about worry and this cause the increase of anxiety and a feeling of disability in cope. Worry about worry, is an example of meta-cognitive evaluation. This process "meta worry" or "type 2 worry" is read (Wells, 1994). That implies on the negative evaluation of anxiety and its related symptoms. Meta worry referred to worry about worry, negative evaluation and uncontrollability of thoughts and reflects the desire to control of thoughts (Wells, 1995), the examples of Meta worry include: "I lost myself control", "I'm becoming crazy," "I may hurt own body." Symptoms of anxiety are often interpreted as a sign of harmful effect of worry that reinforces negative beliefs and immediately increase in the level of anxiety (Wells, 2009, translation Mohamadkhani, 2011).

The results of the study Yilmaz and Jensoz and Wales (2011) showed that meta-cognitive factors is one of the future predictors of anxiety symptoms and meta-cognitive beliefs about uncontrollability and danger of worry is a positive predictive for anxiety symptoms, also results of the study supports from the possibility of causal role in the formation of meta-cognitive beliefs of anxiety.

Ellis and Hudson (2010) have suggested that

negative emotions such as increase of anxiety is associated with Meta worry and this may cause people in finding a safe and secure method to stop worrying be faced with difficult. And this is increasing the anxiety and may lead to reinforce negative beliefs about worry and need to continue worry. Also results of Baku and others (2009); the work of Wright-Hatton and others (2004), Mather and Cartwright-Hatton and Wells (2004) and Matthews, Reynolds and Drays Lee (2007), support the relationship between Meta worry and symptoms of anxiety and worry.

Studies have shown that high levels of both types positive and negative meta-cognitive beliefs with some anxiety disorders (Harvey an others., 2004) and also with anxiety and worry in public samples (Cartwright-Hatton and Wells, 1997) are related (all quoted from Cartwright-Hatton and Galaqr 2008).

#### References:

1. Rabi'i, Mehdi. (2009). The effectiveness of cognitive-behavioral intervention on reducing symptoms of patients with body dysmorphic disorder. MS Thesis, University of Isfahan.
2. Lotfabadi, Hussein (1384). Educational Psychology. First Edition. Tehran: semat.
3. Mohseni, Nick Chehreh. (2004). Theories in developmental psychology (cognition, social cognition, cognition and emotion). Tehran: Pardis.
4. Ajayi, M., & Fatokun, A.L.A. (2007). "Effect of a six week Emotional Intelligence Programmed on the sports performance of Amateur athletes in Oyo state of Nigeria <http://www.sirc.ca>.
5. Beck, A.T., Rush, A.J., Shaw, B.F., and Emery, G.(1979). Cognitive Therapy Of Depression. New York: Guilford.
6. Bounds, R. (2006). Factors Affecting Perceived Stress in Pre-Hospital Emergency Medical Services. Journal of Health Promotion, 4 (2): 113-131.
7. Bower, G. H. (1981). Mood and memory. American Psychologist, 36, 129-148.
8. Brown, A.L, (1982). "Learning and Development: the problem of compatibility, Access and Induction", Human Development 25, 89- 115.
9. Costa, L.A (1984). Mediating the metacognitive Educational leader ship. 57-62.
10. Davis, R.N., & Valentiner, D.P. (2000). Does meta-cognitive theory enhance our understanding of pathological worry and anxiety? Personality and Individual Differences, 29, 513-526.
11. Flavell, J. (1979). Metacognition and cognitive monitoring: a new area of cognitive developmental inquiry. American Psychologist; 34: 906-11.

12. Folkman S, & Lazarus, R.S.(1988). The relationship between coping and emotion. *Soc Sci Med.*; 26:309-17.
13. Lane, A. M. (2006). Emotional intelligence research, positive thinking for sport. Tuning up performance – music and video as ergogenic aids. *Peak Performance*; issue 228: 5-7 Electric Word. Plc.
14. Moses, L. J., Baird, J. AA., Wilson, F. C., and Keil, D. (2002). *The encyclopedia of the cognitive sciences*. Cambridge: MIT Press.
15. Nelson, T.O., Kruglanski, A.W., and Jost, T.J. (1998). Knowing themselves and others: progress in metacognitive social psychology. In: Y. Yzerbyt, G. Lories & B. Dardenne (Eds), London:sags.
16. Pérez Nieto, M.A; Redondo Delgado, M.M; León Mateos, L & Bueno, N. (2010). Cognitive control and anxiety disorders: Metacognitive beliefs and strategies of control thought in GAD and OCD. *Clínica y Salud (Clinical and Health)*, 21(2), 159-166.
17. Reuven-Magril, O., Roseman, M., Liberman, N. & Dar, R. (2009). Manipulating metacognitive beliefs about the difficulty to suppress scratching: Implications for obsessive-compulsive disorder. *International Journal of Cognitive Therapy*, 2, 143-151.
18. Smith, R.E. Smoll, E.L & Schutz.R.W (1990). Measurements and correlates of sport specific cognitive and somatic anxiety. *The Sport Anxiety Scale*. *Anxiety Research* 2, 263.
19. Wells, A. (2001). Panic disorder in association with relaxation-induced-anxiety: An attentional training approach to treatment. *Behavior Therapy*, 21, 273-280.
20. Wells, A., Davies, M. I. (1999). The thought control questionnaire: A measure of individual differences in the control of unwanted thoughts. *Behaviour Research and Therapy*, 32, 871-878.
21. Wells, A., Mathews, G. (1994). Attention and emotion: A clinical perspective. *Clinical Psychology & Psychotherapy*, 2, 134-142.
22. Wells, A., and Simbi. S. (2004). Metcognitive therapy for PTSD: a preliminary investigation of a new brief treatment. *Behavior Therapy*, 35, 307- 318.
23. Wells, A. (2005). The metacognitive model of GAD: Assessment of meta-worry and relationship with DSM-IV generalized anxiety disorder. *Cognitive Therapy and Research*, 29,107-121.
24. Yılmaz, A.E. (2007). Examination of metacognitive factors in relation to anxiety and depressive symptoms: a cross-cultural study. Thesis for the degree of Doctor, Middle East Technical University, Turkey.

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