Comparison of Motivation, Metacognition Ability, Mathematic Emotion Regulation in Students with and without Math Anxiety

In educational research, the study of cognitive and incognitive variables in relation to math anxiety is mainly focused on high school students or college students, and it seems that little research has been done on , Mathematic anxiety in elementary students. In this perspective, the present study compares motivation , The ability of metacognition and mathematical emotion regulation in students with and without math anxiety in elementary students. This research is a causal-comparative study. The statistical population of this study were all female students of fifth grade elementary school in Lahijan city in the academic year of 97-98. After screening, 71 students with anxiety and 71 students without math anxiety as Two groups were selected.

To collect data, a standard questionnaire was used for children's math anxiety scale (Chiu and Henry 1990), Curator's mathematical motivation questionnaire (2005), Children's Emotion Regulation Scale in Mathematics (CERS-M) (2017), Philippo and Panorama Mathematical Meta-Cognition Evaluation Questionnaire (2007) ,Tabrizi Math Disorders Standard Check List (1394) and Raven's (1938) IQ test were used. For data analysis, descriptive and deductive statistics (multivariable analysis of variance) were used. The results showed that there is a significant difference between the students with and without math anxiety in the three components of math motivation (interest in math, math self-esteem and internal motivation) (p = 0.001). In the mathematical metacognitive variable, three components (mathematical self-concept, self-regulation the metacognitive strategy were significantly different in two groups (P = 0.001), while there was no significant difference between the two groups in the mathematical motivation component (P = 0.805). In mathematical emotion regulation in four components (emotional expression, p = 0/001) (Task utility self-persuasion ,P = 0.048), (Negative self-talk ,P = 0.002), and (Dysfunctional avoidance , P = 0.001) were significant in both groups and in the two component (Help seeking ,p= 0/347= P , Brief attentional relaxation P = 0.065) was not significant. Based on the results, providing the necessary training to increase metacognitive knowledge in the students increases the motivation of math, and by improving motivational outlook and beliefs, negative emotions reduced towards mathematics and the basis will be provided to improve performance and achieve successful outcomes that can lead to reduce math anxiety in students.

Key Words: Mathematical motivation - Mathematical metacognition ability - Math emotion regulation - Math anxiety