Modelling of Mathematical Anxiety as a Three-Dimensional

Bilgen Kaymakamzadel[1], Meryem Cumhur[2]

[1] *Department of Mathematics, Near East University TRNC, Turkey*

bilgen.kaymakamzade@neu.edu.tr

[2] *Department of Mathematics, Near East University TRNC, Turkey*

meryem.cumhur@neu.edu.tr

Abstract: Some factors related to students maths anxiety are perceived to be important for academic failure. Such of these factors and some other factors contribute immensely to the problem of mathematics achievement that is spreading among students of Economics and Administrative Sciences. Considering such a problem as a maths anxiety, we propose a mathematical model to study how this problem is spread in Near East University at Faculty of Economics and Administrative Sciences. We have discussed about basic properties of the system. Stability analysis for both equilibria are also Given. Next, Basic reproduction number (Ro) is calculated. Our numerical findings are illustrated through computer simultaneous using MATLAB, which show the reliability of our model from the practical point of view. Students math-anxiety implications of our analytical findings are addressed critically. The model analysis reveals that all of the students (average students (N=100), below average students (N=100) and above the average students (N=100)) start to show better maths achievement on the positive way during the semester (approximately 3,5 months) .

Keywords: maths anxiety, stability analysis, students

2010 Mathematics Subject Classification: 97D60, 97D70, 93A30

References

[1] Wang Z, Shakeshaft N, Schofield K, Malanchini M. Anxiety is not enough to drive me away: A latent profile analysis on math anxiety and math motivation. PLOS ONE.2018;13(2):e0192072.

[2] Chitnis N, Hyman JM, Cushing JM. Determining important parameters in the spread of malaria through the sensitivity analysis of a mathematical model. Bull Math Biol.2008;70(5):1272-1296.

[3] Benedict B. Modelling alcohol as a contagious disease: how infected drinking buddies spread problem drinking. SIAM News. 2007;40:8.