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A MATHEMATICAL MODEL FOR ENDURING EFFECT OF CHILDHOOD MALTREATMENT ON CORTISOL AND HEART RATE RESPONSES TO STRESS USING LOG-NORMAL DISTRIBUTIONS

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Abstract: In this study, we implement the characteristics of hazard rate function of log-normal distribution model to analyze the impact of childhood maltreatment on later mental health problems and behavioural difficulties. Maltreated participants had higher cortisol responses to stress in comparison to controls. Finally, we conclude that the application part overlaps with a mathematical model. In the future, this paper will be advantageous in the medical field.

Keywords and Phrases: Log-normal distribution, Hazard rate function, CTQ, HR.

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1. Introduction

Survival analysis is used to analyse data like clinical health for example, occurrence of sickness, recurrence of disease, recovery and death [12, 13]. A few of the points that is important to evaluate is the hazard scale, namely the probability density function ratio (pdf) and the survival function ($s(t)$) [16, 17].

The log-normal distribution is the probability of a continuous random variable that has been converted from a normal distribution [3, 22]. Log-normal distribution can be applied in many fields of analysis for instantaneous hydrology, and can be