Sensitivity Based Control Strategies for Marijuana Free Society

Atta Ullah[1], Hamzah Sakidin[1], Shehza Gul[1], Kamal Shah[2], Muhammad Zamir[3], and Nabil Mlaiki[4]

[1]Universiti Teknologi PETRONAS Fundamental and Applied Sciences Department
[2]University of Malakand
[3]University of Science & Technology Bannu
[4]Prince Sultan University College of Computer and Information Sciences

February 9, 2023

Abstract

The present work focusses on the control of marijuana in the population. This real-world problem is shaped in the language of mathematics and hence a mathematical model for the control of marijuana is formulated. The total population of the people is divided into two classes, the marijuana users, and the non-users. The users are further divided in four sub-classes, each sub-class represents a stage/level of addiction to the drug. The reproduction number (R_0) of marijuana usage is found from the proposed mathematical model. The sensitivity analysis reveals the importance of many parameters in the further spreading of marijuana is found out. Based on the sensitivity analysis, the parameters that plays a significant role in marijuana transmission were found. Furthermore, strategies were formulated to prevent the marijuana transmission in the population. Numerical simulations were also carried out to determine how the control strategies will perform.

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