Stability Analysis and Numerical Simulation of Fractional Cholera Model

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Keywords Fractional Cholera model, Equilibrium points, Basic reproduction number, Stability analysis.	The Vibrio cholera bacterium, which belongs to the Vibrionaceae family, is the source of the cholera virus. A bacterium known as Vibrio cholerae is the cause of the human disease cholera. This study developed a fractional epidemic model to describe the transmission of cholera. The model consists of four elements: susceptible people, infected people, recovered people, and a setting where the germs may flourish. The endemic and disease-free equilibrium points were calculated. The next-generation matrix was used in order to calculate the reproduction number. It has been proven that a disease-free equilibrium is capable of being locally asymptotically stable. To make sense of them and to compare them to the qualitative answers, numerical simulations of the fractional equations of the epidemic model were performed. According to the findings, the system's susceptible population decreases when more populations are restored. This study suggests that for outbreak and preventive initiatives, health professionals should make good use of the media.