

ABSTRAK

Merokok merupakan salah satu endemik yang berbahaya pada skala global, bukan hanya menjadi penyebab penyakit berbahaya, merokok juga menyebabkan kematian. Besarnya dampak dari aktivitas merokok ini, mendorong upaya pengendaliannya melalui media informasi. Dalam penelitian ini, digunakan model *Potential Smoker, Smoker, Quit Smoker, Aware Population* dan *Media Compartment*. Analisis kestabilan dilakukan terhadap titik ekuilibrium bebas penyakit dan titik ekuilibrium endemik pada model untuk menentukan kondisi di mana penyebaran penyakit dapat dihentikan atau dikendalikan. Setelah analisis kestabilan dilakukan, diperoleh kesimpulan bahwa titik ekuilibrium bebas penyakit stabil asimtotik jika ($\mathcal{R}_0 < 1$), sedangkan titik ekuilibrium endemik stabil asimtotik jika ($\mathcal{R}_0 > 1$). Selain itu, simulasi numerik dilakukan untuk memverifikasi hasil analisis dan mengamati perilaku penyebaran kebiasaan merokok di bawah pengaruh media informasi dan *awareness*.

Kata kunci: *Analisis Kestabilan, Kebiasaan Merokok, Pengaruh Media Informasi dan Awareness*

ABSTRACT

Smoking is a significant global endemic issue, not only leading to serious diseases but also causing death. The magnitude of the impact of smoking has driven efforts to control it through information media. In this study, a model comprising Potential Smoker, Smoker, Quit Smoker, Aware Population, and Media Compartment is used. Stability analysis is conducted on both the disease-free equilibrium point and the endemic equilibrium point of the model to determine the conditions under which disease spread can be stopped or controlled. The stability analysis reveals that the disease-free equilibrium point is asymptotically stable if ($\mathcal{R}_0 < 1$), whereas the endemic equilibrium point is asymptotically stable if ($\mathcal{R}_0 > 1$). Additionally, numerical simulations are performed to verify the results of the analysis and to observe the behavior of smoking spread under the influence of information media and awareness.

Keywords: *Stability Analysis, Smoking Behavior, Impact of Information Media and Awareness*