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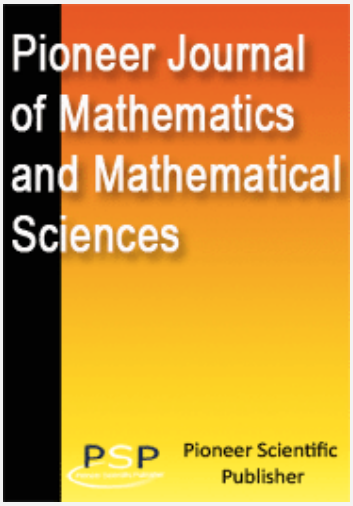

A MATHEMATICAL FRAMEWORK FOR ANALYSIS OF MEDICAL ADHERENCE IN THE MANAGEMENT OF CHRONIC DISEASES

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Abstract

Chronic diseases are a major concern worldwide due to the devastation of their morbidity and mortality. Managing chronic diseases promises to decrease health care cost and thus have a positive impact on the American economy. This work introduces a mathematical framework to model the management of chronic diseases. A Neural Network setting that provides the context and structure for a Public Awareness Campaign is proposed as a first step. In addition, we consider the topological definition of adherence, then we propose a system were adherence to a health regiment is explored. Finally, we provide established topological theorems related to adherence and filterbases. The proposed framework provides a structure for future probabilistic and statistical analysis of the connection between topological and health adherence.

Keywords and phrases: management of chronic disease, neural network, health adherence, filterbase, Markov models.