ABSTRACT

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Hypertension is one of the diseases receiving global attention due to its increased risk of serious complications, such as heart disease and stroke. This study focuses on implementing the Holt-Winters Exponential Smoothing algorithm to predict the number of hypertension cases in the productive age group (35-64 years) within the BPJS Kesehatan services. Hypertension in the productive age group is often triggered by work-related stress and unhealthy lifestyle changes. Based on data from BPJS kesehatan, primary hypertension became one of the most frequent diagnoses in FKTP (Primary Health Care Facilities) during 2019-2020, with a continually increasing prevalence, as well as in FKRTL (Advanced Referral Health Care Facilities). This study uses both additive and multiplicative variants of the Holt-Winters model to forecast the trend of visits and healthcare costs related to hypertension. The model testing results showed a good MAPE value, for male capitation FKTP in Java with a value of 6.72% and outside Java 5.95%, for women in Java with a value of 6.94% and outside Java 7.20%. Meanwhile, FKRTL in Java has a MAPE value of 26.91%, and outside Java 16.84%. Predictions for the number of FKTP visits for capitated hypertension participants in the productive age group in 2026 indicate an increase compared to 2022. Similarly, the predicted cost of hypertension treatment in FKRTL services is expected to rise in 2026 compared to 2022. This study emphasizes the importance of using big data in monitoring and analyzing disease spread, as well as in planning more effective health programs. These predictive results are expected to serve as a reference in policymaking to reduce the incidence of hypertension through appropriate and effective preventive interventions in the future.

Bibliography (2018-2023)