



Received: March 19, 2025
Revised: May 20, 2025
Accepted: July 8, 2025

Corresponding Author:
Jamaludin Marhazlinda, Department
of Community Oral Health & Clinical
Prevention, Faculty of Dentistry,
Universiti Malaya, Kuala Lumpur
50603, Malaysia
E-mail: marhazlinda@um.edu.my

Forecasting Adult Public Oral Healthcare Utilization in Malaysia via ARIMA

Yeung R'ong Tan, Lokman Najihah, Jamaludin Marhazlinda

Department of Community Oral Health & Clinical Prevention, Faculty of Dentistry,
Universiti Malaya, Malaysia

Abstract

Objectives: This study analyzed historical trends in public oral healthcare utilization among the adult population of Malaysia from 1992-2019 and forecasted the future utilization prevalence through 2034.

Methods: Using secondary data from the Malaysian Health Information Management System (HIMS) from 1992 to 2019, this study analyzed the percentage of adults (aged 18-59 years) utilizing public oral healthcare services. The automatic ARIMA function in EViews 12 was used for forecasting, with optimal model parameters selected on the basis of the Akaike and Schwarz criteria. Diagnostic checks validated model adequacy via residual analysis, R-squared, and Prob (F statistics).

Results: Trend analysis revealed distinct periods of change in the prevalence of adult public oral healthcare utilization in Malaysia from 1992 to 2019, characterized by phases of decline, stabilization, gradual growth, and a sharp increase. The ARIMA (3,0,4) model forecasts a decline in the prevalence of adult public oral healthcare utilization from 2.32% in 2020 to 1.83% by 2034, reflecting a gradual reduction in utilization.

Conclusion: Although the trend over 28 years has fluctuated, forecasting analysis projects a gradual decline in utilization prevalence from 2020-2034, reflecting evolving healthcare preferences, increasing private sector alternatives, and infrastructure constraints in the public sector. These findings emphasize the need for proactive policies to address stagnating infrastructure, enhance accessibility, and promote preventive care.

Keywords: adult, ARIMA, Malaysia, oral healthcare utilization, time series forecasting