عنوان مقاله:

Evaluation of multiple linear regression function and generalized linear model types in estimating natural menopausal age: A cross-sectional study

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خلاصه مقاله:

Background: Since women spend about one-third of their lifespan in menopause, accurate prediction of the age of natural menopause and its effective parameters are crucial to increase women's life expectancy. Objective: This study aimed to compare the performance of generalized linear models (GLM) and the ordinary least squares (OLS) method in predicting the age of natural menopause in a large population of Iranian women. Materials and Methods: This cross-sectional study was conducted using data from the recruitment phase of the Shahedieh Cohort Study, Yazd, Iran. In total, ۱۲۵۱ women who had the experience of natural menopause were included. For modeling natural menopause, the multiple linear regression model was employed using the ordinary least squares method and GLMs. With the help of the Akaike information criterion, root-mean-square error (RMSE), and mean absolute error, the performance of regression models was measured. Results: The mean age of menopausal women was ۴۹.۱ ± ۴.۷ yr (۹۵% CI: ۴۸.۸-۴۹.۳) with a median of ۵۰ yr. The analysis showed similar Akaike criterion values for the multiple linear models with the OLS technique and the GLM with the Gaussian family. However, the RMSE and mean absolute error values were much lower in GLM. In all the models, education, history of salpingectomy, diabetes, cardiac ischemic, and depression were significantly associated with menopausal age. Conclusion: To predict the age of natural menopause in this study, the GLM with the Gaussian family and the log link function with reduced RMSE and mean absolute error can be a good alternative for modeling menopausal age.

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