

MODELING RISK FACTORS FOR DIABETES AMONG OUT-PATIENTS OF
UNIVERSITY COLLEGE HOSPITAL IBADAN, USING BAYESIAN STRUCTURAL
EQUATION MODELS.

By

AKINTUNDE, AISHAT TAIWO

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M.Sc. Biostatistics (Ibadan)

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CERTIFICATION

I certify that this project work was carried out under my supervision by AKINTUNDE AISHAT TAIWO of the Department of Epidemiology and Medical Statistics, Faculty of Public Health, College of Medicine, University of Ibadan.

Dr O. M. AKPA

BSc, MSc, Ph.D. statistics (Ilorin)

Department of Epidemiology and Medical statistics,

Faculty of Public health,

College of Medicine,

University of Ibadan, Nigeria.

ATTESTATION

I understand the nature of plagiarism, and I am aware of the University of Ibadan policy on this. I certify that this dissertation reports work by me is not a plagiarized content and has not been presented to any other university or body.

Signature.....

Date.....

Name: AKINTUNDE, Aishat Taiwo.

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DEDICATION

This project work is dedicated to Almighty Allah, the custodian of knowledge, who has taught (to write) with the pen and taught man that which he knew not for his boundless mercy over me, to my late father, late **Alhaji Abdu-Rouf Akano Akintunde** and to my baby whom I lost during the course of this program, may Allah reunite us in jannah.

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ABSTRACT

Background

The consistent increase in the national prevalence of diabetes remains a public health concern due to its mortality effect on adults. Many models were built to identify the risk factors of diabetes in Nigeria including the use of traditional regression but there is limited research adopting structural equation modelling to identify the risk factors of diabetes in Nigeria. Hence, this study is aimed at assessing multidimensional relationship between risk factors and diabetes in Ibadan, Nigeria using structural equation model.

Methods

Secondary data on total of 979 patients were obtained from adult outpatients of the general outpatient directory (GOPD), University College Hospital (UCH), Ibadan using a cross sectional study design. Missing values were examined through the use of 'mice' package in R- software and the data contained no notable outliers. Descriptive statistics including mean, standard deviation, frequency and percentages were used to describe the study participants. AMOS statistical package in SPSS version 20 was used to draw the path diagrams and analyse the data, the analysis were performed at 5% significant level.

Results

Diabetes was prevalent (10.7%) in out-patients and diabetic patients (55.66 ± 14.34 years) were relatively older than non-diabetic patients (49.46 ± 14.76 years). Bayesian SEM model provide an acceptable fit to the dataset with $ppp\text{-value}=0.47$ while the two structural models also confirm the model fit established by the Bayesian SEM model with the following measures of fit indices for model 2; CGF= 3.338, GFI= 0.961, NFI= 0.958, CFI=0.926, RMSEA= 0.029, and model 3; CGF= 3.223, GFI= 0.973, NFI= 0.932, CFI=0.943, RMSEA= 0.031. All the constructs have significant positive influence on diabetes meaning that the chance of participants being diabetic is higher when exposed to a low socio-demographic status, unhealthy lifestyle factors, unmonitored metabolic and anthropometric factors. Socio-demographic construct have an indirect positive influence on diabetes through lifestyle and anthropometric constructs meaning that lifestyle and anthropometric variables can positively mediate the effect of socio-demographic status on diabetes.

Conclusion

This study identified the consistent rate of increasing prevalence of diabetes in Nigeria as it increases with age with many undiagnosed cases. It was also established that all the constructs are significantly and positively related to diabetes, hence the need for government and health practitioners' intervention by organizing enlightenment programs for adults on risk factors and prevention of diabetes is suggested.

Key words: Structural equation model, diabetes, out-patients, risk factors, Bayesian.

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