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# **Socio-Demographic Predictors Of Quality Of Life Among Nurses With Diabetes Mellitus In Public Tertiary Health Institutions In Rivers State**

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## **ABSTRACT**

Diabetes mellitus is ranked among the four most prominent chronic non-communicable diseases with debilitating organ damages which occurs mainly due to demographic transition and changing lifestyle of population. The correlational research design was adopted with a population consisting of 106 diabetic nurses working at the University of Port Harcourt Teaching Hospital and the Rivers State University Teaching Hospital. The census sampling procedure was adopted whereby all the 106 diabetic nurses were included in the study. The instrument for data collection was a structured questionnaire which is a standardized WHOQOL-BREF which was adapted. Data analysis was done with the aid of Statistical Product for Service Solution version 27 (SPSS V-27) using regression model at 0.05 alpha level. The result indicated that there was a high prediction between age and quality of life ( $r = 0.91, p < 0.05$ ), and 83.8% of quality of life of diabetic nurses was predicted by the age ( $R^2 = 0.838$ ). There was a low prediction between gender and quality of life ( $r = 0.34, p < 0.05$ ), and 24.3% of quality of life of diabetic nurses was predicted by the gender ( $R^2 = 0.243$ ). The result indicated that there was a low prediction between marital status and quality of life ( $r = 0.22, p < 0.05$ ), and 18.0% of quality of life of diabetic nurses was predicted by the marital status ( $R^2 = 0.180$ ). It was concluded that the socio-demographic predictors of quality of life among nurses with diabetes mellitus in public tertiary health institutions in Rivers State were basically disease-specific factors such as age, gender and marital status. It was recommended among others that, the government, NGOs, philanthropists and public health practitioners should consider free diabetic treatment for nurses age 60 and above to augment the financial burden of these group of nurses.

**Keywords:** Diabetes, Quality of Life, Socio-Demography, Nurse

## **INTRODUCTION**

Diabetes mellitus (DM) is one of the most significant non-communicable diseases has become a global problem, which occur as a result of sedentary lifestyle and reduced energy expenditure with utilization of labour- saving devices like motorized transportation. The International Diabetic Federation (IDF) and other national databases, such as the Center for Disease Control and Prevention Diabetes Surveillance System, reported in 2022 that approximately 463 million people had DM, representing 9.3% of the global population (aged 20-79) and by 2030 the number is expected to increase to 578 million (10.2%) and 700 million (10.9%) in 2045, and about two third of these people live in the developing countries (Yahaya et al, 2023). Diabetes mellitus is expected to reach epidemic proportion to many regions throughout the world as lifespan extend and societies adopt increasing urban and modern lifestyle of unhealthy diet, physical inactivity and inappropriate use of alcohol, resulting in various long term disease processes and high mortality rate (Polonsky, 2020).

Quality of life (QoL) refers to an individual's overall well-being and satisfaction with their life. It is a subjective and multi-dimensional concept that can vary greatly from person to person (Fernandez et al., 2018). The quality of life of diabetic nurses must be reflected to monitor their health status. Issa

and Baiyewu (2016) opined that diabetes mellitus was once regarded as a disease of the affluent but is now vastly visible as a growing health problem in developing economies as almost 80% of diabetes deaths occur in low and middle-income countries, of which Nigeria is one. From personal observation, diabetes has been seen to affect the rich and the poor, including healthcare professionals. Ogbera et al. (2016) reported a prevalence of 18.3% diabetic cases among registered nurses which is frequently undiagnosed, in most cases, this is diagnosed incidentally during routine medical check-up or when nurse presents with the complications. With the alarming growth in the number of nurses suffering from diabetes, due to high-stress work environment, limited time for physical activity during long hours and shift work, efficient and quality care becomes imperative. It is essential for nurses to prioritize self-care, maintain a healthy lifestyle, and seek regular health check-ups to manage risk factors and prevent diabetes, therefore the need to assess the quality of life of these nurses become necessary.

The predictors of QoL in diabetes mellitus is classified into two sub-heading: the socio-demographic predictors such as age, gender, marital status, income, level of education and occupation; and the disease-specific predictors which are level of blood glucose control, duration of illness, presence and types of complication (Gbolami et al., 2018). Study suggests that age is a significant factor in the development of diabetes among nurses. Nurses are often middle age, a demographic with a higher risk of developing type 2 DM due to natural aging processes, decrease physical activity and weight gain. It was however noted that, nurses may be at risk of developing early-onset diabetes before age 40 due to occupational stress, poor lifestyle habits and genetic predisposition (Prause et al., 2015). The CODE – 2 study carried out by Kolokm et al. (2013), showed that increasing age resulted in reduced scores in QoL measures. Kolokm et al., further reported that, the older patients scored lowest in the physical domain, while the younger ones scored lowest in the psychological domain. The older patients were frail while the younger patients have more commitments. Hence, with increasing age, the quality of life of nurses tend to deteriorate.

Gender plays a role in the relationship between diabetes and QoL of nurses. Gender differences in psychological adjustment to diabetes mellitus were accessed by researchers. Almer et al. (2021) reported that female nurses are more depressed with high level anxiety than male nurses when adjusting to diabetes mellitus impacting on their quality of life. Maunzio et al. (2019), opined that, women with diabetes mellitus had worse quality of life with greater suicide risk. However, Alavi et al. (2019) stated that there was no gender difference in the perceived QoL of diabetes mellitus among nurses. In Glasgow, it was noted that the male gender had more significant deterioration in their quality of life. In a cross-sectional study conducted in Saudi Arabia by Al-Shehri et al. (2018), it was noted that there was a decrease in QoL in female nurses compared to males, and further explained that this could be because females were more obese, which in itself impairs QoL. The female nurses were reported to have poorer QoL compared to males due to their high score in obesity, hormonal fluctuations and caregiving responsibilities.

Marital status can impact the quality of life for nurses with diabetes. Married nurses may receive emotional support and encouragement from their partners improving diabetes management and well-being. Jeong (2020), reported a pattern of relationships between marital status and quality of life as measured by the SF-36, which indicated that single, separated or divorced nurses experienced worse quality of life than those who were married. Studies of QoL carried out in Nigeria, at the University of Benin Teaching Hospital and University of Ilorin Teaching Hospital by Odili et al (2020) and Issa and Baiyewu (2016) respectively, concluded that diabetes mellitus impact on the lives of diabetic patients, and that, lower income, education, lower rated employment and presence of complications adversely affect the quality of life of patients with diabetes.

Nurses however, are known to have a sedentary lifestyle with high levels of stress, lack of proper rest and irregular eating habits making them highly vulnerable to diabetes mellitus and the associated risk factors. The outcomes of diabetic complications are increased hospitalization, increased direct patient costs, and mortality. Frequent hospitalization that could lead to financial loss, job loss, diminished interaction with family and other psychological effects which can impact on QoL. Diabetes mellitus is a chronically distressful illness for nurses to live with. The demand for self-care for some of these nurses can be burdensome, frustrating and overwhelming. Diabetes mellitus management has regimen that interfere with the desired lifestyle of these nurses, which places unique and manifold demands on

them, and serious constraints on their individual activities as well as their families, which affects their QoL.

**Research Questions**

The following research questions were stated to guide the study:

1. To what extent does age of diabetic nurses predict quality of life in public tertiary health institutions in Rivers State?
2. To what extent does gender of diabetic nurses predict quality of life in public tertiary health institutions in Rivers State?
3. To what extent does marital status of diabetic nurses predict quality of life in public tertiary health institutions in Rivers State?

**Hypotheses**

The following hypotheses formulated to guide the study were tested at 0.05 level of significance:

1. Age of diabetic nurses does not significantly predict quality of life in public tertiary health institutions in Rivers State.
2. Gender does not significantly predict quality of life among nurses with diabetes mellitus in public tertiary health institutions in Rivers State.
3. Marital status does not significantly predict quality of life among nurses with diabetes mellitus in public tertiary health institutions in Rivers State.

**METHODOLOGY**

The study adopted a correlational design with a population which consisted of 106 nurses with presently working with the two hospitals, 74 nurses in UPTH and 32 nurses in RSUTH (The NHIA clinics and staff clinics record of UPTH and RSUTH, 2024). The census sampling technique was used, whereby all the 106 nurses with diabetes that met the inclusion criteria were used for the study. The instrument for data collection was a structured questionnaire developed by WHO in 1996 as a multilingual and multidimensional profile of QOL for cross-cultural use titled: WHOQOL-BREF. It is a 26-item questionnaire, made up of 4 domains. Each question is scored on a 5 point Likert type scale of not at all, a little, moderate, very much, and extreme. The psychometric properties of the WHOQOL include an acceptable internal consistency reliability indicated by Cronbach’s alpha of 0.81.

With the ethical approval from the ethical committee and the letter of introduction from the Head of department, Human Kinetics, Health and Safety Studies; the researcher approached the Head of Nursing services of the two hospitals, and obtained an administrative permit to collect data from respondents. The researcher and the assistants administered the questionnaires to the respondents, the questionnaires were retrieved on the spot immediately after completion. Data collection lasted for eight weeks. Data collected were computed using Statistical Product and Service Solutions (SPSS) version 27.0, for editing, coding and analysis. Linear regression statistical model was used to analyze the data at 0.05 level of significance.

The ethical approval was granted on 4<sup>th</sup> September, 2024 and 27<sup>th</sup> September, 2024 with the registration numbers: NHREC/UPTHREC/03/2023 and RSUTH/REC/2024/563 respectively; before data collection and informed consent was obtained from the participants. Confidentiality and anonymity, was maintained during the process of data collection and the participants were not exposed to any form of hazard.

**RESULTS**

The result of the study are shown below:

**Table 1: Regression analysis on the extent to which age predict quality of life among nurses with diabetes mellitus in public tertiary health institutions in Rivers State**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Decision
<b>1</b>	0.91	0.83	0.83	1.83	<b>Very high extent</b>

Guide: 0.00-0.19 = very low, 0.20-0.39 = low, 0.40-0.59 = moderate, 0.60-0.79 = high and 0.80 above is very high

Table 1 illustrated the extent to which age predict quality of life among nurses. The result indicated that there was a high prediction between age and quality of life ( $r = 0.91$ ). The result further showed that 83.8% of quality of life of diabetic nurses was predicted by the age ( $R^2 = 0.838$ ). Thus, the extent to which age predicted quality of life among nurses with diabetes mellitus in public tertiary health institutions in Rivers State was very high.

**Table 2: Regression analysis on the extent to which gender predict quality of life among nurses with diabetes mellitus in public tertiary health institutions in Rivers State**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Decision
1	0.34	0.24	0.24	1.83	Low extent

Guide: 0.00-0.19 = very low, 0.20-0.39 = low, 0.40-0.59 = moderate, 0.60-0.79 = high and 0.80 above is very high

Table 2 illustrated the extent to which gender predict quality of life among nurses. The result indicated that there was a low prediction between gender and quality of life ( $r = 0.34$ ). The result further showed that 24.3% of quality of life of diabetic nurses was predicted by the gender ( $R^2 = 0.243$ ). Thus, the extent to which gender predicted quality of life among nurses with diabetes mellitus in public tertiary health institutions in Rivers State was low.

**Table 3: Regression analysis on the extent to which marital status predict quality of life among nurses with diabetes mellitus in public tertiary health institutions in Rivers State**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Decision
1	0.22	0.18	0.18	1.52	High extent

Guide: 0.00-0.19 = very low, 0.20-0.39 = low, 0.40-0.59 = moderate, 0.60-0.79 = high and 0.80 above is very high

Table 3 illustrated the extent to which marital status predict quality of life among nurses. The result indicated that there was a low prediction between marital status and quality of life ( $r = 0.22$ ). The result further showed that 18.0% of quality of life of diabetic nurses was predicted by the marital status ( $R^2 = 0.180$ ). Thus, the extent to which marital status predicted quality of life among nurses with diabetes mellitus in public tertiary health institutions in Rivers State was low.

**Test of Hypotheses**

**Table 4: Regression analysis on age and quality of life among nurses with diabetes mellitus in public tertiary health institutions in Rivers State**

Model		Sum of Squares	Df	Mean Square	F	Sig.	Decision
1	Regression	815.443	1	815.443	475.37	0.00*	Rejected
	Residual	157.815	92	1.715			
	Total	973.258 <sup>d</sup>	93				

**\*Significant,  $p < 0.05$**

Table 4 showed the regression analysis on age and quality of life among nurses with diabetes mellitus in public tertiary health institutions in Rivers State. The findings of the study revealed that age significantly predict quality of life [ $f(1,92) = 475.37, p < 0.05$ ]. Therefore, the null hypothesis which stated that age does not significantly predict quality of life among nurses with diabetes mellitus in public tertiary health institutions in Rivers State was rejected.

**Table 5: Regression analysis on gender and quality of life among nurses with diabetes mellitus in public tertiary health institutions in Rivers State**

Model		Sum of Squares	Df	Mean Square	F	Sig.	Decision
1	Regression	820.087	1	820.087	492.57	0.00*	Ho Not Rejected
	Residual	153.171	92	1.665			
	Total	973.258 <sup>d</sup>	93				

**\*Significant,  $p < 0.05$**

Table 5 showed the regression analysis on gender and quality of life among nurses with diabetes mellitus in public tertiary health institutions in Rivers State. The findings of the study revealed that gender does not significantly predict quality of life [ $f(1,92) = 492.57, p < 0.05$ ]. Therefore, the null hypothesis which stated that gender does not significantly predict quality of life among nurses with diabetes mellitus in public tertiary health institutions in Rivers State was not rejected.

**Table 6: Regression analysis on marital status and quality of life among nurses with diabetes mellitus in public tertiary health institutions in Rivers State**

Model		Sum of Squares	Df	Mean Square	F	Sig.	Decision
1	Regression	759.384	1	759.38	326.65	0.00*	Ho Not Rejected
	Residual	213.874	92	2.325			
	Total	973.258	93				

**\*Significant,  $p < 0.05$**

Table 6 showed the regression analysis on marital status and quality of life among nurses with diabetes mellitus in public tertiary health institutions in Rivers State. The findings of the study revealed that marital status does not significantly predict quality of life [ $f(1,92) = 326.65, p < 0.05$ ]. Therefore, the null hypothesis which stated that marital status does not significantly predict quality of life among nurses with diabetes mellitus in public tertiary health institutions in Rivers State was not rejected.

### DISCUSSION OF FINDING

The result indicated that there was a high prediction between age and quality of life ( $r = 0.91, p < 0.05$ ), and 83.8% of quality of life of diabetic nurses was predicted by the age ( $R^2 = 0.838$ ). The finding of this study corroborates that of Gupta et al. (2021) whose study on the quality of life among patients with diabetes mellitus in Sub-Himalayan Region of India which revealed that there was a relationship between age and quality of life. The finding of this study is line with that of Stojanovic et al. (2018) whose study on quality of life among nurses with diabetes mellitus at the General Hospital of the city of Leskovac which showed a high relationship between age and quality of life. The finding of this study is in keeping with that of Chung et al. (2013) whose study on quality of life in Korean type 2 diabetic patients showed that there was a relationship between age and quality of life. The finding of this study is in keeping with that of Almasri et al. (2020) study on the impact of diabetes mellitus on health-related quality of life among type 2 diabetes nurses in Saudi Arabia which showed a high relationship between age and quality of life. The finding of this study is line with that of Huang et al. (2020) study on factors contributing to glycemic control among diabetes mellitus patients in China which showed a relationship between age and quality of life. This study also corroborates others like Prause et al. (2015), and Kolokm et al. (2013) which showed that there was a high relationship between age and quality of life. The result differs from that of Koponen et al (2016) study on quality of life in Ethiopia which showed a non-significant association between age and quality of life. This variation could be attributed to the difference in the study location, as the previous study was conducted in Ethiopia while the present study was conducted in Nigeria.

The result indicated that there was a low prediction between gender and quality of life, and 24.3% of quality of life of diabetic nurses was predicted by the gender ( $R^2 = 0.243$ ). The finding of this study corroborates that of Gupta et al. (2021) whose study on the quality of life among patients with diabetes mellitus in Sub-Himalayan Region of India which revealed that there was a relationship between gender and quality of life. The finding of this study is line with that of Huang et al. (2020) study on factors contributing to glycemic control among diabetes mellitus patients in China which showed a relationship between gender and quality of life. The finding of the study also similar to that of Almer et al. (2021) reported that female nurses are more depressed with high level anxiety than male nurses when adjusting to diabetes mellitus impacting on their quality of life. The result is also in line with that of Maurizio et al. (2019) which revealed that, women with diabetes mellitus had worse quality of life with greater suicide risk. However, Alavi et al. (2019) stated that there was no gender difference in the perceived QoL of diabetes mellitus among nurses. In Glasgow, it was noted that the male gender had more significant deterioration in their quality of life. The finding of this study is in

keeping with that of Almasri et al. (2020) study on the impact of diabetes mellitus on health-related quality of life among type 2 diabetes nurses in Saudi Arabia which showed a high relationship between gender and quality of life. In a cross-sectional study conducted in Saudi Arabia by Al-Shehri et al. (2018), it was noted that there was a decrease in QoL in female nurses compared to males, and further explained that this could be because females were more obese, which in itself impairs QoL. The female nurses were reported to have poorer QoL compared to males due to their high score in obesity, hormonal fluctuations and caregiving responsibilities. The findings of this study is at variance with that of Wang et al. (2023) study among type 2 diabetes mellitus in residents of Zhongshan city of China which revealed that there was no statistically significant relationship between gender and quality of life.

The result indicated that there was a low prediction between marital status and quality of life ( $r = 0.22$ ,  $p < 0.05$ ), and 18.0% of quality of life of diabetic nurses was predicted by the marital status ( $R^2 = 0.180$ ). Married nurses may receive emotional support and encouragement from their partners improving diabetes management and well-being. Jeong (2020), reported a pattern of relationships between marital status and quality of life as measured by the SF-36, which indicated that single, separated or divorced nurses experienced worse quality of life than those who were married. The finding of this study is in keeping with that of Almasri et al. (2020) study on the impact of diabetes mellitus on health-related quality of life among type 2 diabetes nurses in Saudi Arabia which showed a high relationship between marital status and quality of life. The finding of the study was at variance with that of Almer et al. (2021) study on adjusting to diabetes mellitus impacting on their quality of life revealed that there was no statistically significant relationship between marital status and quality of life. The result is also at variance with that of Maurizio et al. (2019) which revealed that there was no statistically significant relationship between marital status and quality of life. Also, Alavi et al. (2019) noted that there was no revealed that there was no statistically significant relationship between marital status and quality of life.

## CONCLUSION

Based on the findings of the study, it is concluded that the socio-demographic predictors of quality of life among nurses with diabetes mellitus in public tertiary health institutions in Rivers State were age, gender and marital status.

## RECOMMENDATIONS

The following recommendations were made based on the findings of the study:

1. The government, NGOs, philanthropists and public health practitioners should consider free diabetic treatment for nurses age 60 and above to augment the financial burden of these group of nurses.
2. Healthcare providers caring for diabetic nurses should ensure holistic gender-based approach to diabetic management and prevention programmes.
3. Healthcare organizations should provide routine health-check, free of charge for diabetic nurses in the hospitals, that suites the marital status of nurses.

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