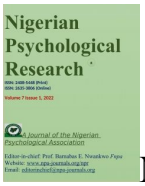

ISSN: 2408-5405 (Print)
ISSN: 2635-3806 (Online)

NIGERIAN PSYCHOLOGICAL RESEARCH

Published by the Nigerian Psychological Association

Social Support, Health Locus of Control and Psychological Acceptance as Predictors of Perceived Quality of Life among Diabetic Patients

Morounfola A. AWONUG
Peter O. OLAPEGBA
Emmanuel E. UYE

Abstract

Diabetic patients carry enormous public health burden thus making the identification of risk factors for this disorder an important health issue. This study was aimed at investigating social supports, health locus of control and psychological acceptance as predictors of perceived quality of life (PQoL) among diabetic patients. Self-efficacy and self-determination theories provided theoretical framework while cross-sectional survey design was adopted for data collection. Convenient sampling technique was used to select 315 participants that responded to instruments on social support, health locus of control, psychological acceptance and PQoL. Data were analysed using standard multiple regression analysis and independent t-test. Results showed that health locus of control significantly predicted PQoL. Also there as a joint prediction of social support, health locus of control, and psychological acceptance on PQoL. Also, patients with internal health locus of control reported higher score on PQoL than patients with external health locus of control. It is suggested that more training initiatives in quality of life among diabetic patients should be intensified.

Received: 29th December, 2021
Revised: 20th February, 2022
Accepted: 25st February, 2022

Affiliation
Department of Psychology,
University of Ibadan, Nigeria
emmanuel.e.uye@gmail.com

Keywords: Diabetic Patients, Health Locus of Control, Perceived Quality of Life, Social Support, Psychological Acceptance, Nigeria.

Introduction

Diabetes Mellitus (DM) is a chronic disease with an increasing prevalence worldwide (International Diabetes Federation [IDF], 2021). It constitutes significant health and socioeconomic burden for patients and the health care system (Arokiasamy et al., 2021). According to the World Health Organisation (WHO, 2016), there were 150 million diabetic patients worldwide by the year 2000, with a projection of 221 million people in 2010 and 300 million in 2025. The IDF (2021) estimated that over 537 million adults (20-79 years) are living with DM in the world. The number is predicted to rise to 643 million by year 2030 and 784 by year 2045. In Africa the number of adults living with DM is estimated to be 24 million by the year 2020. The prevalence of DM in Nigeria varies from 5.8% in rural Mangu village to 11% in urban Lagos (Ugwu et al., 2020). The WHO (2016) suggests that Nigeria has the greatest number of people living with diabetes in Africa, with an estimated burden of about 3.4 million which will increase to 4.8 million by 2030. The economic burden of diabetes is enormous in terms of the direct cost of intensive monitoring and control of blood glucose and managing cardiovascular, renal and neurological consequences (Adeleye, 2021). Therefore, this study will explain the contributions of social support, health locus of control, and psychological acceptance on perceived quality of life among diabetic patients in a developing country like Nigeria. Also, it will suggest recommendations to guide health care providers and clinicians on areas to focus on in treatment and care of persons that suffer from DM. Finally, it will expand the existing literature on diabetes research among illiterate population in Nigerian communities.

Diabetes tend affect the life of those who suffer from it in many ways: emotionally, physically, financially, and socially. Recent studies suggest that diabetes is associated with a range of psychological problems and mental disorder, which not only cause pain but also affect the treatment and course of the disease (Uloko et al., 2018). The psychological impact of diabetes and its treatment can cause psychological problems and mental disorders that require psychiatric consultations for the recognition and treatment of its clinical manifestations. The condition can cause aggression, defensive reactions appearing as excessive anger, irritability, suspicion, and abnegation. It can also result in timid, shy and insure behaviour or maliciousness and suspiciousness (Muhammad, 2020).

Quality of life (QoL) has been defined in a descriptive term as people's emotional, social and physical wellbeing and their ability to function in the ordinary tasks of living (Akinyemi et al., 2012; Aschalew et al. 2020). It means the degree to which a person enjoys the important possibilities of his/her life. Furthermore, quality of life reflects individuals' perception of their position in life in the context of the culture and value system in which they live and in relation to their goals, expectations, standards and concerns (Aschlew et al., 2020). Physicians and health care providers are interested in individual's happiness and satisfaction with life while defining quality of life. Hence, health related quality of life (HRQoL) include domains (aspects) of life that improve when treatment option is successful (Onwekwe et al., 2015). A clinically significant change in HRQoL is indicated by a decline in a domain that leads a physician or health care provider to alter a medication or medical treatment (Nwatu et al., 2019). HRQoL domain minimally include functional status (e.g., whether a patient is able to manage a household, use the telephone, or dress independently), mental health or emotional wellbeing (e.g., depressive symptoms, positive affect), social engagement (e.g., involvement with others, engagement in activities), and symptom states (e.g., pain, shortness of breath and

fatigue). These domains represent typical outcomes in medical and social science research (Nwatu et al., 2019; Rogon et al., 2017).

Diabetes affects the mental functioning of patients, but not in a uniform manner. It has been proved that certain psychosocial factors, such as health beliefs, social support, coping style, stress and personality traits, can have a direct or indirect effect on perceived quality of life of diabetic patients (Ababio et al., 2017; Aschalew et al., 2020). Social dispositions may be more significan for lower quality of life than the presence of co-existing diseases implication. Patients generally characterised as depressive experience a lower quality of life than patients without depression. Conversely, diabetes with an optimistic outlook in life and a strong belief in self-efficacy, as well as those who use active, solutions-oriented problem solving strategies for coping with stress often enjoy a good quality of life (Rogon et al., 2017).

One factor that has been implicated as predicting perceived quality of life among diabetic patients is health locus of control (HLoC) which is defined as a person's beliefs about control over his or her health and the extent an individual's perceived control over health outcomes (Nikolaou et al., 2019). HLoC could be internal, or about external powerful others, or external chance. In the internal domain, individuals assume responsibility for their conducts and health outcomes. In the external powerful others, the individual believe that others such as health professionals are responsible for one's health, while in the external chance, individuals believe that their health is controlled by chance and luck. Studies have shown that HLoC moderated health behaviours and adherence to health treatment plans. Individuals with high internality had more positive outcomes on their health conditions, while those with low internality and high externality had poor health outcomes and felt less able to control their pain (Octari et al., 2020). Moreover, previous studies reported positive association among health internal locus of control belief, psychological factors and biological measures of physical health and survival (Nikolaou et al., 2019).

In addition to health locus of control as predictor of perceived quality of life among diabetic patients, another predictor is social support. This refers to the function and quality of social relationship such as either perceived availability of help or support actually received by an individual in need (Jaafaripooyan et al., 2021; Rad et al., 2013). Perceived available support is usually prospective, whereas the recall of actually received support is always retrospective (Long et al., 2021). In additions, the sources of support (spouse, colleagues, friends, etc.) can make a difference. For exercise in older adults, it has been shown that support provided by significant others (e.g., family and friends) is in many cases are more effective than support provided by health care providers, because older adults tend to prioritize support from emotionally meaningful others (Van Stralen et al., 2009). Within support from significant others, support provided by friends can be considered an especially important variable because most physical activities are preformed in a social peer-group context (Rad et al., 2013). For example, O'Brien Cousins (1995) reported that support for exercise received from friends was the best resources of physical activity in women over age 70. Friends' support for exercise was also found to be better predictor than family support in older adults living in a care retirement community and community-dwelling older adults (Jaafaripooyan et al., 2021).

Psychological acceptance and perceived quality of life: Aside social support from family, friends and significant others contributing to diabetic patients quality of life, psychological acceptance has also been implicated. Psychological acceptance involves the willingness to experience psychological events (thoughts, feelings, memories, etc) without having to avoid them or let them unduly influence one's behaviour (Bonikowska et al., 2021). Psychological acceptance (also called 'experiential avoidance') involves

attempting to change the form or frequency of psychological events. It allows one to spend more time actively living, making choices to assist completion of goals or sorting out problems, rather than spending time and mental resources on controlling psychological events. Research suggests that experiential avoidance often fails in the long run and may also adversely affect the immune system (Rogon et al., 2017). Studies have examined attempts to keep secrets, suppress thoughts about past relationships, and suppress mood states (Zahra et al., 2020).

Self-efficacy theory (Bandura, 2012) and self-determination theory (Deci & Ryan, 2000) provided theoretical frameworks for this study. Self-efficacy explained that an individual's belief about his/her ability to organize and execute courses of action is necessary to achieve designated goals (Bandura, 2012). In other words, individuals with strong self-efficacy beliefs are more confident in their abilities to execute behaviour with successful outcome. Perceived self-efficacy affects how successful goals are accomplished by influencing the level of effort and persistence a person will demonstrate in the face of obstacles (Paulsamy et al., 2021; Winahyu et al., 2019). That is, the stronger the perceived self-efficacy, the more active the efforts. When applied to diabetic patients, it reflects an optimistic self-belief that they can manage their disease conditions with positive outcomes. A higher self-efficacy is associated with more persistence; a trait that allows diabetic patients to gain corrective experiences that reinforces their sense of self-efficacy which lead to a higher perceived quality of life (Borsbo et al., 2010; Chen et al., 2012). Other studies have found that a high degree of self-efficacy is related to high self-belief and an optimistic outlook on life which can also determine perceived quality of life (Winahyu et al., 2019). In addition to the direct and positive association between self-efficacy and different health outcomes including diabetic condition, Bandura (2012) has suggested that self-efficacy might function as a mediator between stress experience and negative health and wellbeing outcomes.

On the other hand, self-determination theory (SDT) posits that human being is oriented towards physical and psychological health (Deci & Ryan, 2014). It explains further that people are more likely to adopt healthy behaviours or change unhealthy ones when their basic psychological needs for autonomy, competence, and relatedness are supported (Ryan & Deci, 2000). For example, before the initiation and maintenance of healthy behaviour such as taking medication as directed by physician to improve glucose control for patients with diabetes is an important concept of autonomous self-regulation and perceived competence for healthy behaviour engagement for diabetic patents. Studies have confirmed that diabetic patients with sense of autonomy, competence, and relatedness showed better recovery from their situations than those lacking these qualities (Bolenius et al., 2019).

Studies have shown that patients with diabetes have lower PQoL than non-diabetic individuals (Issa, & Baiyewu, 2006). In addition to the debilitating complications of diabetes, they are also susceptible to premature aging, weight gain and low levels of physical activities that negatively affect their PQoL (Murphy & Murphy, 2006). In a study on the PQoL of patients with type II diabetes in Cababar, Nigeria, Enang et al., (2021) found that diabetes mellitus significantly reduced patients general health and wellbeing and the overall PQoL. Also, Nwatu et al., (2019) studied the PQoL of diabetic patients in Enugu, South-east, Nigeria reported that the majority of patients with diabetes had undesirable PQoL in comparison with healthy people. The care of diabetes mellitus is usually done at home and inside the family. Therefore, diabetes is sometimes called a family disease because its control and demands influence all family members. Thus, social support, especially family support, can be a vital component in the successful management of diabetes. Many studies have been done to evaluate the effects of diabetes mellitus on the patients' perceived quality of life in the

developed world. In contrast, studies relating to the perceived quality of life among diabetic patients in developing countries are limited. It is, therefore, urgent and necessary to examine the roles of social support, health locus of control and psychological acceptance as predictors of perceived quality of life among diabetic patients in Osun State, Nigeria, a less developing country.

The following hypotheses were tested:

1. Social support will independently predict perceived quality of life among diabetic patients.

2. Health locus of control will independently predict perceived quality of life among diabetic patients.

3. Psychological acceptance will independently predict perceived quality of life among diabetic patients.

4. Social support, health locus of control, and psychological acceptance will jointly predict perceived quality of life among diabetic patients.

5. Patients with internal health locus of control will report higher perceived quality of life than patients with external health locus of control.

Methods

Design The study adopted cross- sectional survey design. The study was conducted in three hospitals in Osun State, Nigeria. The population of the study were all diabetic patients in the three hospitals selected in Osun State, Nigeria while convenience sampling technique was used to select 315 participants(male:144 (46%); female:171 (54%) from the three hospitals. The mean age of the participants was 56.4±13.2 years.

Instruments

Social Support Scale

It developed by Zimet et al., (1988). This is a 12-items scale that measures three components of social support, namely, Family (Fam), Friends (Fri), or significant others (SO). The items are presented on a 7-point Likert respond format ranging from very strongly disagree (1) to very strongly agree (7). For this study, the Cronbach alpha is 0.89. A high score mean high social support while a low score mean low social support.

Health Locus of Control Scale

It was developed by Rotter (1966) to measure locus of control in three dimensions- Internal, Powerful others, and Chance. It consists of 18 items and is rated on a 5- point Likert's type scale from strongly agree to strongly disagree. A high score means external locus of control while a low score means internal locus of control. In this study, the Cronbach alpha reported is 0.86.

Psychological Acceptance Scale

It was developed by Bond and Bunce (2003) which assesses a person's experiential avoidance, acceptance, and action. The 19 items of the scale are rated on a -7 point Likert's format ranging from 1 Never to 7 (always true). High score on the scale are reflective of greater avoidance and immobility, while low scores reflect greater acceptance and action. In this study, the Cronbach alpha is 0.85.

Quality of Life of Chronic Illness Scale

It developed by Burckhardt et al., (1989). It consist of 16 items formatted in Likert's type that ranging from 7= Delighted, 6= Pleased, 5 = most satisfied, 4=Mixed, 3= Mostly Dissatisfied, 2= Unhappy, 1 = Terrible. The Cronbach alpha in this study is 0.83. A high score means high psychological acceptance and a low score means low psychological acceptance.

Procedure

Questionnaires were distributed individually among patients in the various hospitals. Participants were encouraged to ask any question they do not understand when instructions for completing the questionnaire were given to them. Participants were assured that there were no right or wrong answers to questionnaire items, and that information supplied would only be strictly used for research purposes and a high degree of confidentiality would be maintained. Questionnaires were given only to those who were willing to participate in the study. It was voluntary and there was no inducement for participation.

Statistical analysis

Data were analyzed using Statistical Packages for the Social Sciences (SPSS) software. Hypotheses 1 to 4 were tested using multiple regressions analysis, while hypothesis 5 was tested using t-test for independent measures. The hypotheses were accepted at a $p< 0.05$ level of significance.

Results

Table 1: Zero-order correlation of social support, health locus of control, and psychological acceptance on perceived quality of life (PQoL) among diabetic patients

Variables		Mean	SD	1	2	3	4
1	Social support	60.8977	2.79331	-			
2	Locus of control	49.5628	10.63166	.851**	-		
3	Psychological acceptance	60.2372	14.35968	.404**	.543**	-	
4	Quality of life	74.6791	27.54019	.644**	.716**	.367**	-

** $p < 0.05$

Table 1 revealed significant relationship between social supports and PQoL (r=.644); p<.05), health locus of control and PQoL (r=-.716; p<.05), psychological acceptance and PQoL (r=-.367; p<.05). Hence, social support, locus of control and psychological acceptance has positive relationship on perceived quality of life among diabetic patients. This was accepted as good and then used in multiple regressions analysis.

Hypothesis one states that social support will significantly predict perceived quality of life among diabetic patients. The result was tested using multiple regressions analysis and is presented in Table 2.

Table 2: Multiple regressions analysis showing social support, health locus of control and psychological acceptance as joint and independent predictors of perceived quality of life among diabetic patients

Predictors	β	t	p	R	R^2	F	p
Social support	.141	1.587	>.05	.720	.519	75.801	<.05
locus of control	.608	6.27	<.05				
Psychological acceptance	-.020	.346	>.05				

Health

The result revealed that social support did not significantly predict perceived quality of life among diabetic patients (β = .141, t = 1.587; p > .05), thus, the hypothesis was rejected.

Hypothesis two states that health locus of control will significantly predict perceived quality of life among diabetic patients. This was tested using multiple regressions and the result is presented in Table 2. The result indicated that health locus of control significantly predicted perceived quality of life among diabetic patients (β = .608, t = 6.275; p < .05), and the hypothesis was confirmed.

Hypothesis three states that psychological acceptance will significantly predict perceived quality of life among diabetic patients. This was tested using multiple regressions and the result is presented in Table 2. The result showed that psychological acceptance did not significantly predict perceived quality of life among diabetic patients (β = -.020, t = .346, p > .05). The hypothesis was rejected.

Hypothesis four states that social support, health locus of control, and psychological acceptance will jointly predict perceived quality of life among diabetic patients. The hypothesis was tested using multiple regressions and the result is presented in Table 2. The result indicated that social supports, locus of control

and psychological acceptance jointly predicted PQoL (R^2 = .52, F (3,211) =75.801, p<.05) among diabetic patients. Thus, the hypothesis was accepted.

Hypothesis five states that patients suffering from diabetes having internal health locus of control will report significantly higher perceived quality of life than their counterpart with external health locus of control. This hypothesis was tested using the T-test for independence sample and the result presented in Table

Table 3: T-test of independent mean showing difference between internal and external health locus of control on perceived quality of life

	Health locus of Control	N	Mean	SD	df	t	p
Perceived quality of life	External	72	43.883	22.898	213	9.232	<0.05
	Internal	143	90.209	12.472			

The result in Table 3 revealed that patients with internal health locus of control (M=90.21, S.D =12.472) significantly reported higher quality of life than patients with external health locus of control (M=43.83, S.D =22.898). This implies that health locus of control significantly influence perceived quality of life. The hypothesis is, thus, accepted.

Discussion

The purpose of this study was to examine social supports, health locus of control and psychological acceptance as predictors of perceived quality of life among diabetic patients. Five hypotheses were stated to test this objective. The results of this study confirmed that health locus of control positively and significantly predicted perceived quality of life among diabetic patients. Thus, this finding is in line with the existing literature that individuals health locus of control is an important factor in the perceived quality of diabetic patients (Nikolaou et al., 2019; Octari et al., 2020; Onwekwe et al., 2015).

The hypothesis that social support, health locus of control, and psychological acceptance will jointly predict perceived quality of life among diabetic patients was confirmed. This finding supported the results obtained by Long et al., (2021) that in the overall perceived quality of life among diabetic patients, health locus of control, social support and acceptance of one's condition are very important predictors.

However, the hypotheses that social support and psychological acceptance will independently predict perceived quality of life were not supported. Social support has been considered as a potent predictor of how diabetic patients will view their quality of life. A remote support from extant literature to the finding in the present study come from the studies conducted by Joensen et al., (2016) and Koetsenruijter et al., (2015) that low diabetes empowerment and specific support were associated with the large difference in perceived quality of life among such diabetic patients.

Also, the hypothesis that psychological acceptance will significantly predict perceived quality of life was not confirmed. Acceptance of disease condition including diabetes can improve perceived quality of life among the affected individuals. This finding is supported by the study by Bertolin et al., (2015) who found that diabetic patients who did not accept their disease conditions in good faith reported low perceived quality of life. A lower score for acceptance of the disease was related to a low score in perceived quality of life.

Finally, the hypothesis that patients with internal health locus of control will report higher perceived quality of life than patients with external health locus of control was confirmed. Patient with internal locus of control reported significant difference in perceived quality of life than patient with external health locus of control. This means that patients with internal health locus of control had a better perceived quality of life than patient with external health locus of control. The finding of this study supported the result obtained by Nikolaou et al., (2019) that health locus of control is a strong predictor of perceived quality of life among diabetic patients.

Implication of findings

The finding implies that significant positive relationship of social supports, health locus of control and psychological acceptance on perceived quality of life among diabetic patients. This means that patient who receives supports from the family, friends or relatives, who believes with them by identifying and acknowledging their problems and feel sense that they are psychologically accepted by the society will enhance better perceived quality of life. Also, social supports, locus of control and psychological acceptance jointly predicted PQoL. Health locus of control independently predicted perceived quality of life. An implication of these findings is that for diabetes, both biomedical and psychosocial influences must be taken into account for their well being. If health status is defined by measures such as perceived quality of life, then medications that treat or control underlying physiologic processes may be insufficient to improve health status. Furthermore, patients with internal health locus of control reported higher perceived quality of life than patients with external locus of control. This implies that patients who did not blame external environment as the causes of their diseases will be able to manage their diseases and they are likely to keep medical practitioners prescription when given treatment.

Limitation and suggestion for further studies

One major limitation of the study was the difficulties in assembling the participants in one place to complete the research instruments. Many participants were illiterates and were unable to fill the questionnaire in good time. Further study should have instruments translated into primary languages of the people. The second limitation was that of sample size. A larger sample size would make the results better and more generalizable. Lastly, self-reported questionnaire was used for data collection. Further studies which allow for both quantitative and qualitative data collection (triangulation) should be considered.

Recommendations

Based on the findings of this study, it is recommended that health care providers should be involved in management of diabetic patients. An effective support from family members, friends, and health professionals and patients may enhance diet regimen adherence. It is suggested that more education and training initiatives in the quality of life among the diabetic patients should be intensified. Resources for curriculum development of health-related quality of life that have been developed by the International

Society for Quality of Life Research which have proven a useful tool should be made available for educators interested in helping diabetic patients as it is done in the developed countries.

Conclusion

In this study, social support, health locus of control, and psychological acceptance were investigated as predictors of perceived quality of life among diabetic patients. Results from the study confirmed that the overall contributions of social support, locus of control, and psychological acceptance as major predictors of perceived quality of life among diabetic patients.

References

Ababio, G. K., Bosomprah, S., Olumide, A., Apekoh, N., Aimakhu, C., & Oteng-Yeboah, A. (2017). Predictors of quality of life in patients with diabetes mellitus in two tertiary health institutions in Ghana and Nigeria. *Nigeria Post-Graduate Medical Journal, 24*(1), 48-55.

Adeleye, O .J. (2021). The hazardous terrain of Diabetes Mellitus in Nigeria: The time for action is now. *Research Journal of Health Science*, 9(1), 69-76.

Akinyemi, O.O. Owoaje, E.T., Popoola, O.A., & Ilesanmi, O.S. (2012). Quality of life and associated factors among adults in a community in South-west, Nigeria. *Annal of Ibadan Post-Graduate Medicine, 10*(2), 34-39.

Arokiasamy, P., Mani, S., & Salvi, S. (2021). Global burden of Diabetes Mellitus. In: R. Haring, I. Kickbusch , D. Ganten, & M. Moeti (Eds.), *Handbook of Global Health* (pp.1-45).

Aschalew, A.Y., Yitayal, M., & Minyihun, A. (2020). Health-related quality of life and associated factors among patients with Diabetes Mellitus at the University of Gondar Referral Hospital. *Health and Quality of Life Outcomes, 18,* (1), 1-9.

Bandura, A. (2012). On the functional properties of perceived self-efficacy revisited. *Journal of Management, 38*, 9-44.

Bertolin, D. C., Pace, A.M., Cesarino, C.B., Ribeiro, R.C., & Ribeiro, R.M. (2015). Psychological adaptation and acceptance of type 2 Diabetes Mellitus. *Acta Paulista de Enfermgem, 28*(5), 440-446.

Bolenius, K., Lamas, K., Sandman, P. O., Lindkvist, M., & Edvardsson, D. (2019). Perceptions of self-determination and quality of life among Swedish home care recipients: A cross-sectional study. *British Medical Council Geriatrics, 19* (1), 1-10.

Bond, F. W. & Bunce, D. (2003). The role of acceptance and job control in mental health, job satisfaction, and performance. *Journal of Applied Psychology, 88* (6), 1057- 1067.

Bonikowska, I., Szwamel, K., & Uchmanowicz, I. (2021). Analysis of the impact of disease acceptance, demographic and clinical variables on adherence to treatment recommendations in elderly type 2 diabetes mellitus patients. *International Journal of Environmental Research and Public Health, 18*(16), 1-18.

Borsbo, B., Gerdle, B., & Peolsson, M. (2010). Impact of the interaction between self- efficacy, symptoms, and catastrophising on disability, quality of life and health in chronic pain patients. *Disability Rehabilitation, 32,* 1387-1396.

Burckhardt, C.S., Woods, S.L., Schultz, A. A., & Ziebarth, D.M. (1989).Quality of life of adults with chronic illness: a psychometric study. *Research on Nursing Health, 12*(6), 347-357.

Chen, S.M., Creedy, D., Lin, H.S., & Wollin, J. (2012). Effects of motivational interviewing intervention on self-management, psychological and glycemic outcomes in type 2 diabetes: A ramdomized controlled trial. *International Journal of Nursing Studies, 49*, 637-644.

Deci, E.L. & Ryan, R.M. (2014). Autonomy and need satisfaction in close relationships: Relationship motivation theory. In N. Weinstein (Ed.), *Human Motivation and Interpersonal Relationships: Theory, Research, and Application* (pp 53-73). Springer.

Enang, O., Omoronyia, O., Asibong, U., Ayuk, A., Nwafor, K., & Legogie, A. (2021). A case- control study of pattern and determinants of quality of life of patients with diabetes in a developing countries. *Journal of Egyptian Public Health Association, 96*(2), 1-11.

International Diabetes Federation (IDF, 2021). *Diabetes Atlas,* 10th Edition. Belgium: Brussels.

Issa, B.A. & Baiyewu, O. (2006). Quality of life of patients with diabetes mellitus in a Nigerian Teaching Hospital. *Hong Kong Journal of Psychiatry, 16,* 27-33.

Jaafaripooyan, E., Habebo, T.T., Mosadeghrad, D., Foroushani, A. R., Anshebo, D.G. (2021). The magnitude, types and roles of social support in diabetes management among diabetes in Southern Ethiopia: A multilevel, multicentre cross-sectional study. *Diabetes, Metabolic Syndrome and Obesity Target and Therapy, 14,* 4307-4319.

Jensen, N.K., Pals, R.A.S., & Willaing, I.(2016). The use of dialogue tools to promote dialogue-based and person –centred patient education for people with type 2 diabetes. *Chronic Illness,12* (2), 1-12.

Koetsenruijter, J., Lieshout, J., Lionis, C., Portillo, M.C., Vassilev, I., Todorova, E., Foss,C., Gil, M.S., Knutsen,I.R., Angelaki, A., Mujika, ., Roukova,P., Kennedy, A., Rogers, A. & Wensing, M. (2015).Social support and health in diabetes patients;n observational study in six European countries in era of austerity. PLoS ONE, *10* (8), 1-13.

Long, Q.,Guo, J., Zhong, Q., Jiang, S., Wiley, J., & Chen, J.L.(2021). General self-efficacy and social support as mediators of the association between perceived stress and quality of life among rural women with previous gestational Diabetes Mellitus. *Journal of Clinical Nursing, 30*(7-8), 1026-1036.

Muhammad, F. (2020). Diabetes: A silent killer in Nigeria. *Jundishapur Journal of Chronic Disease & Care,* 9(4), 1-2.

Murphy, H. & Murphy, E. K. (2006). Comparing quality of life using the World Health Organisation Quality of Life measure (WHOQOL-100) in a clinical and non-clinical sample: Exploring the role of self-esteem, self-efficacy and social functioning". *Journal of Mental Health, 15,* 289-300.

Nikolaou, I., Alikari, V., Tzavella, F., Syga, S., Tsironi, M., Polikandrioti, M.,Koufopoulou, P., & Theofilou, P. (2019). Health locus of control and quality of life in Diabetes Mellitus: A cross-sectional study. *International Journal of Midwifery and Nursing Practices, 2* (1), 95-101.

Nwatu, C., Onyekonwu, C., Unaogu, N. N., Ijeoma, U. N., Onyeka, T., Onwuekwe, I., Ugwumba, F., Nwachukwu, C., & Nwutobo, C.R. (2019) Health – related of life in Nigerians with complicated Diabetes Mellitus- a study from Enugu, South –east Nigeria. *Nigerian Journal of Medicine, 28* (2), 138-147.

Octari, T.E., Suryadi, B., & Sawitri, D. (2020). The roles of self-concept and health locus of control on quality of life among individuals with diabetes. *Journal of Psikolgi, 19* (1), 80-94.

Paulsamy, P., Ashraf, R., Alshahrani, S.H., Periannan, K., Qureshi, A.A., Venkatesan, K., Manoharan, V., Govindasamy, N., Prabahar, K., Arumugam, T.,Venkatesan, K., Chidambaram, K.,Kandasamy, g.,Vasudevan, R.,& Krishnaraju, K. (2021). Social support, self-care behaviour and self-efficacy in patients with type 2diabetes during the COVID-19 pandemic: Across-sectional study. *Healthcare, 9*(11), 1-10.

Paulsamy, P., Venkatesan, K., & Ramaiah, R. (2021). Relationship of self-efficacy with the quality of life of type 2 diabetes. *Journal of Nursing and Healthcare Research, 5*(1), 21-24.

Rad, G.S., Bakht, L. A., Feizi, A, Mohebi, S. (2013). Importance of social support in diabetes care. *Journal of Education and Health Promotion, 2*(1), 1-7.

Rogon, I., Kasprzak, Z., & Szczesniak, (2017). Perceived quality of life and acceptance of illness in people with Type 2 Diabetes Mellitus. *Menopause Review, 16* (3), 79-85.

Rotter, J. (1966). General expectancies for internal versus external control of reinforcement. *Psychological Monographs, 80*(1), 1-28.

Ryan, R.M. & Deci, E.L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55* (1), 68-78.

Ugwu, E., Young, E. & Nkpozi, M. (2020). Diabetes care knowledge and practice among primary care physicians in South-west, Nigeria: A cross-sectional study. *British Medical Council Family Practice, 21*, 1-12.

Uloko, A. E., Musa, B. M.,Ramalan, M. A., Gezawa, I. D., Puepet, F. H., Uloko, A.T., Borodo, M.M.,& Sada, K. (2018).Prevalence and risk factors Diabetes Mellitus in Nigeria: A systematic review and meta-analysis. *Diabetes, 9*(3), 1307-1316.

Winahyu, K.M., Anggita, R., & Widakdo, G. (2019). Characteristics of patients, self-efficacy and quality of life among patients with type 2 diabetes mellitus. *Padjadiaran Nursing Journal, 7*(3), 279-284.

World Health Organisation (WHO, 2016). *Global report on diabetes*. Technical Document. Washington, D.C.

Zahra, R., Sadiq, U., & Baig, K. (2020). Illness acceptance, diabetes specific distress and quality of life in adolescents with type 1 diabetes mellitus. *Pakistan Journal of Physiology,16* (1), 37-40.

Zimet, G. D., Dahlem, N.W., Zimet, .G., & Failey, G. K..(1988). The Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment, 52*(1), 30-41.