An Examination Of The Mediating Role Of Treatment Satisfaction In Linking Autonomy Support And Quality Of Life.

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ABSTRACT

Despite a growing awareness of quality of life (QOL) and its determinants in diabetic patients, little is known about the mediating role of treatment satisfaction in linking autonomy support and diabetic patients' quality of life. Based on self-determination theory (SDT), social cognitive theory (SCT) and attachment theory (AT) this study examined whether diabetic patients' autonomy support from health care practitioners (physicians) is mediated by the treatment satisfaction of diabetic patients' and in turn influences their QOL. A total of two hundred and seventy four (274) Participants, Ninety four (94) males (34.3%) and one hundred and eighty (180) females (65.7%). with the (Mean age of 58.80 and Standard Deviation of 11.44) were recruited for this study. The participants were patients diagnosed of diabetes mellitus and receiving treatment at the Enugu State University of Science and Technology Teaching Hospital (ESUTH) Parklane. Participants were drawn from Medical outpatient department (MOPD) of the hospital (ESUTH). They were selected through purposive sampling method. Their ages ranged from 18 and above. The instruments employed in this study were: Health Care Climate Questionnaire (HCCQ), Diabetes Quality of Life Questionnaire and Diabetes Treatment Satisfaction Questionnaire (DTSQ). The study is a cross-sectional design and multiple linear regressions and process macro was used to statistically analyze the study hypotheses. The results show that treatment satisfaction partially mediated and was positively/statistically significant, that there is positive relationship between autonomy support and treatment satisfaction and there is significant mediation effect of treatment satisfaction and autonomy support on the quality of life. This therefore implied that patients' satisfaction with diabetes treatment will most likely determine the quality of life of such individual when linking it with the support they have received to be autonomous in managing their condition. The implication of this study is that Health care providers needs to be psych-educated on the mediating role of treatment satisfaction in linking autonomy support and quality of life to keep them in view in their management of patients with diabetes and to ensure their improved quality of life.

Keywords: mediating role, treatment satisfaction, autonomy support, quality of life.

Introduction

Background to the Study

Recent research convincingly demonstrated that better quality of life is associated with improved autonomy support for patients with diabetes mellitus (Baard, Deci, and Ryan, 2004). Diabetes Quality of Life Questionnaire and Diabetes Treatment Satisfaction Questionnaire (DTSQ) were useful model illness survey for considering the effects of chronic disease on health-related quality of life. Currently, most of the published literature on health related quality of life (HRQOL) of patients with Diabetes Mellitus (DM) is based on developed countries with scanty literature among developing countries. Whilst it is well acknowledged that there is better access to health in developed countries compared to developing countries, there are more associated morbidities of DM in developing countries (Rubin and Peyrot, 1999) which will have a considerable impact on their QOL (Da Mata, Alvares and Diniz, et al., 2016). Diabetes mellitus may lead to serious multisystem complications that often require additional inclusive treatments.

World Health Organization Quality of Life (WHOQOL) group defined QOL as an individual's perception of his or her position in life in the context of the culture and value systems in which he or she lives and in relation to his or her goals, expectations, standards, and concerns (WHOQOL, 1998). Quality of life refers to all aspects of patient's physical, psychological and social wellbeing (Cramer, 1999). Quality of life measures have been developed to improve patient care by allowing patients to express their concerns about personal morbidity and overall function thereby guiding therapy decisions and improving patients' satisfaction (Baker, 1998). Quality of life (QoL) evaluation is relatively new in developing countries. It can be influenced by various factors including socio-economic status and may vary between populations (Diener, 1997). This broad definition incorporates the multi-dimensional concept of an individual's physical health, psychological state, level of independence, social relationships, personal beliefs and his and her environment. More recently health related quality of life (HRQL) has been defined as a measurement encompassing emotional, physical, social and subjective feelings of wellbeing that reflects an individual's subjective evaluation and reaction to his or her illness.(Fontaine, 1998). This definition recognizes a person's perspective on his or her disease and recently treatment outcomes have become a critical variable in the measurement of HRQL. The other influential factors include measurable changes in health parameters, disease status and the cost of care.

Diabetes Mellitus commonly referred to as Diabetes; is a metabolic disease that causes high blood sugar. The insulin hormone regulates blood sugar by moving sugar (glucose) gotten from food into cells to be stored or used for energy. It is suspected that individuals with diabetes either do not produce enough insulin or cannot use the insulin produced effectively. As such, when the glucose becomes too much in the blood or body, a lot of problems can arise which eventually may lead to death. Type 1 and type 2 diabetes are the common types of diabetes mellitus. The type 1 results from failure of the pancreas to produce enough insulin due to loss of beta cells which is caused by an autoimmune response (Norman and Henry, 2015) while Type 2 diabetes begins with insulin resistance, a condition in which the cells fails to respond or use the insulin properly (WHO, 2013). Diabetes mellitus (DM) is a disease of global public health importance associated with high morbidity and mortality (Wee, Cheung and Fong, 2005; Smith, Burnet and McNeil, 2003). According to International Diabetes Federation report of 2015, about 415 million people have DM globally with the figure projected to have increased to 642 million by 2040 or may be even doubled by the year 2040 (International Diabetes Federation, 2017). The greatest increase will be in developing countries (69%) compared with developed countries (20%) (Shaw, Sicree and Zimmet, 2010). Diabetes has been found to have two major types, Type 1 Diabetes Mellitus (T1DM) and Type 2 Diabetes Mellitus (T2DM). T1DM is a chronic disease, generally diagnosed in children and adolescents, which needs strict multidisciplinary treatment over the patient's lifetime. Over the last few eras, the incidence of T1DM has been increasing in many regions of the world (American Diabetes Association. Standards of medical care in diabetes—2012 (Aanstoot, Anderson and Daneman, 2007)

Nigeria, with a population of 158 million people, is the most populous country in Africa and accounts for one sixth of Africa's population. Approximately 50% of Nigerians are urban dwellers and the country has a cultural diversity and 398 documented ethnic groups (Cavan, Fernandes and Webber, 2015). In Nigeria, DM is a chronic disease that constitutes a significant health and socioeconomic challenges for the patients, patient families, health system, and the nation (Ogbera and Ekpebegh, 2014; Iloh, Amadi and Ebirim, 2015; Adetunji, Ladipo and Irabor, 2007). Nigeria has the greatest number of people living with DM (PLWD) in Africa, about 1.7 million, which is expected to increase to 4.8 by the year 2030, with varying prevalence rates ranging between 0.65% in rural Mangu to 11.0% in urban Lagos (International Diabetes Federation Atlas 7th edition 2015; Unadike, Eregie and Ohwovoriole, 2011). Individuals with diabetes are at greater risk of long-term complications such as kidney disease, peripheral vascular disease, lower extremity ulcers and amputations, retinopathy, and neuropathy. Diabetes is considered one of the most psychologically and behaviorally demanding of the chronic medical illnesses (Cox and Gonder-Frederick, 1992), and 95% of diabetes management is conducted by the patient (Anderson, 1985).

Diabetic Foot Ulcer (DFU) is probably the most preventable late complication of DM and it is associated with significant morbidity and mortality (Wagner, 1981). Although peripheral neuropathy is considered the predominant aetiological factor for DFUs (Boulton, 2005), ischaemia and neuroischaemia are also known to play a role (International best practice guidelines: Wound management in diabetic foot ulcers, 2013). Irrespective of the aetiology, DFU is a principal reason for hospital admission, amputation and mortality in DM patients. DFU impose an economic impact to the patients, their families and the society (Boulton et al., 2005) with cost of DFU care increasing with ulcer severity, number of hospitalizations and number of amputations. Furthermore, not only the DFU patients but also their caregivers are found to have a low quality of life (Gilpin and Lagan, 2008; Goodridge, Trepman and Embil, 2005; Nabuurs-Franssen, Huijberts, Kruseman, Willems and Schaper, 2005), especially due to fear of re-ulceration, repeated infections and potential lifelong morbidity (Prince, 2004).

DFU results mostly from the way healthcare providers care for the patients or the way the patients care for themselves. About 5-10% of DM patients are expected to have had past or present foot ulceration, which may result in annual incidence of amputations of 1-7% (Brownlee, Aiello, Cooper and Boulton, 2008).The ulcers result from a interplay of a number of factors, none of which, alone, is sufficient to cause ulceration: neuropathy, trauma, vascular disease and foot deformity (Boulton, Vileikyte and Kirsner, 2004). Previous studies on DFU in Nigeria, reported varying sex prevalence, but the condition is known to be common in lower socioeconomic group with an increase in the sixth decade, which is an increase from a previously reported occurrence in the fifth decade of life (Solagberu, 2003). A similar study of diabetes-related admissions conducted in Lagos, Nigeria reported a prevalence rate of 11.7% for DFU. Studying the pattern and classification of outcome of DFU cases managed at an Orthopaedic clinic of a tertiary care center, Musa proposed a new DFU grading system (Ogbera, Adedotun and Ohwovoriole, et al., 2005). The burden of DM is enormous, in terms of direct cost of intensive monitoring of blood glucose control as well as managing cardiovascular, renal and neurological complications. The average cost for treating patients with DFU, including the cost of medications and surgery, account for about 46% of the total cost of diabetes care, with indirect cost due to absence from work from morbidity and mortality (Musa, 2012). In addition, there is psychological complications poor treatment satisfaction; poor autonomy support will result to poor quality life which in turn may result to anxiety disorders, psychotic disorders and depression.

The prevention, early diagnosis and prompt treatment of DM are associated with significant reduction in DFU morbidity and mortality. Unless appreciated, severe DFU with life threatening limb gangrene will continue to result in increased morbidity and mortality necessitating major amputations and worsened mental state of affected individuals. (Isara and Okundia, 2015; Chinenye, Uloko, Fasanmade et. at., 2008). The study in Nigeria that has assessed the quality of life of patients with Diabetes did not account for those with foot ulcers, although other diabetes complications were reported. The previous research also used the World Health Organization Questionnaire short version (Isa and Baiyewu, 2006). In the research, most of the respondents performed fairly well on the WHO QoL instrument, short version. Poor quality of life was associated with some of the physical complications of Diabetes mellitus, lower income, and lower educational status and type 2 diabetes mellitus. In the management of DM, so many factors are to be considered, if not, poor treatment outcome will be encountered. Mayou et al. 1990 found little difference in the QOL between patients treated by diet, oral agents, or insulin therapy (Mayou, Bryant and Turner, 1990). Among patients with type I diabetes mellitus, QOL does not appear to be negatively influenced by the use of intensive treatment regimens. Long-term T2DM management requires continuous medication use and self-management and may meet with poor adherence and deterioration in glycemic control arising due to the inconvenience and poor patient treatment acceptability, poor patient satisfaction, multiple medications, and self-management burden (Krapek, King, Warren and Mihelich, et al., 2004).

Patient satisfaction and psychological issues along with the efficacy and safety of medications play a crucial role in effective disease management and help in achieving optimal clinical effectiveness (Anderson, Balkrishnan, Camacho, Bell, Duren-Winfield, Goff, et al., 2003; Lawson, Gerstein, Tsui, Zinman, 1999). For patients with type 1 and type 2 diabetes; studies have emphasized the importance of achieving optimal glucose control through strict adherence to medications, diet, and exercise in order to minimize serious long-term complications (Diabetes Care 19996). It is increasingly being recognized that a collaborative relationship between patient and provider may improve patient adherence and outcomes in chronic medical illnesses (Roter and Hall, 1992). Researchers have shown that satisfaction with the interpersonal quality of the patient-provider relationship is significantly associated with adherence to treatment in diabetes and increased quality of life (Sherbourne, Hays and Kravitz et al., 1992).

Clinician support of patient's autonomy and effective communication is another important factor that cannot be overlooked in the management of Diabetes. It has also been shown that clinicians play a major role in promoting treatment satisfaction through support and good communication with their patients (Auerbach, Clore and Kiesler, 2002). As patients become more autonomously motivated, they feel more competent and better able to attain relevant outcomes (Ryan and Deci, 2002). According to Self-Determination Theory, people experience a sense of competence when they know that they are able to control important health outcomes such as their glucose levels.

In line with WHO recommendations, WHO group proposed a shift to a more patient-centered model of chronic care, which emphasizes the importance of empowering patients to play an active role in self-management by enhancing their knowledge, motivation and skills for behaviour change, as well as their self-efficacy to carry out the behaviours necessary for long term self-care in their life context.

Autonomy is the individual's capacity to govern oneself and decision-making with regards to self-management. Autonomy is a central element of self-determination, independence, empowerment and social inclusion for people with disabilities (Beauchamp and Childress 1994; Wehmeyer, 1996). It also refers to the perception that one is the source of one's own behaviour and concerns the experience of initiating behaviours. Autonomy involves experiencing a sense of choice and volition when one behaves in a way that is congruent with one's deeply held values. Controlled motivation, in contrast, involves people behaving because of a demand or threat from an external agent (e.g., family member), or from a rigidly held belief that they must behave to avoid guilt or shame. People with diabetes perceive themselves to be competent when they feel personally able to control important outcomes such as maintaining their blood glucose levels in a healthy range. They perceive themselves to be incompetent when they feel they are unable to keep their blood glucose in a healthy range. When health care providers support patient autonomy, health-relevant behaviours and competence are enhanced (Williams, McGregor, Deci et. al. 2004).

It is crucial that practitioners support patient autonomy; for patients are expected to become more autonomous and to feel more competent. Autonomy support refers to the extent to which providers elicit and acknowledge patients' perceptions, support patients' initiatives, offer choice about treatment options, and provide relevant information while minimizing pressure and control. Autonomy support is measured by patient perceptions reported on the Health Care Climate Questionnaire (William, Deci et. al., 1996). It is somewhat related to the concept of patient-centeredness in that in order to be autonomy supportive it is necessary for the practitioner to elicit and acknowledge patient perspections, to support patient initiatives, and to avoid being controlling or judgmental of the patient. However, the concept of autonomy support differs from patient-centeredness in that, by specifying specific human needs, it gives greater guidance for a clinician's behaviour. For example, an autonomy supportive practitioner would: (1) in order to support the patients' perceived competence, offer as much structure as is needed by each patient, and (2) In order to support the patients' perceived autonomy, focus on the patient making their own choices about what to do after carefully considering their own feelings and values as well as the available options. Thus, a practitioner might provide information about the likely outcomes of various behaviours without providing pressure to do one of those behaviours. The practitioner would make a specific recommendation based on his/her best judgment for the patients' consideration. The patients' would then consider the pros and cons of behaviour from their own perspective, and the practitioner would support that process. When a patient makes a choice, the practitioner would respect the choice, asking only if he or she could revisit the issue in a future appointment to see how that has gone for the patient.

The concept of autonomy support is likely to be related to motivational interviewing (Miller and Rollnick, 2002). Motivational interviewing (MI) is a directive, patient-centred counselling technique, originally developed for the treatment of addictive behaviour. MI promotes a structure that focuses on minimizing practitioner behaviours that are more likely to elicit patient resistance (Miller, Benefield and Tonigan, 1993), and to this end it is consistent with practitioners being autonomy supportive. However, in traditional medical settings (e.g., treatment of chronic diseases like diabetes), where the majority of patients want physicians to make direct recommendations, patients are less likely to perceive these recommendations as controlling (Schneider et al., 1998). Autonomy support allows for a structure that is optimal given the patient's knowledge and competencies. Autonomy support shares elements with patient-centeredness, and motivational interviewing, but differs because it is structured as the provision of information specifically aimed at bringing patients to a place where they can make a clear and informed choice about treatment (including accepting no treatment), and in supporting them in reaching their health goals. Moreover, patients' understanding of the information they receive from their clinician correlates with both treatment satisfaction and communication (Brody, 1980; Osborne).

Another variable of like interest in this study is “treatment satisfaction”. Generally, quality of life is an individual’s perception of his or her position in life in the context of the culture and value systems in which he or she lives and in relation to his or her goals, expectations, standards, and concerns (WHOQOL, 1998), and on this note, patients autonomy support reflects the goals, expectations, standards, concerns, motivations, knowledge and perception about the treatment process through the support of the health care provider. Therefore the possible factors determining the relationship of patient’s autonomy support and their quality of life may have their underlying mechanisms of action. Treatment satisfaction has been viewed as patient’s satisfaction with treatment. Treatment satisfaction also entails a patients’ perception of the quality of their care. These are key contributors to optimal clinical outcomes (Doyle, Lennox and Bell, 2013; Al Shahrani and Baraja, 2014). Patient satisfaction with treatment is also strongly associated with treatment adherence and clinical outcomes (Ley, 1982; Haynes, Taylor, and Sackett, 1979). It simply means that the mediating role of treatment satisfaction on autonomy support and quality of life of patients with Diabetes Mellitus should not be underrated.

The meaning of the term satisfaction is not self-evident and this constitutes a major gap in patient satisfaction research (Hudak, Hogg-Johnson and Bombardier, 2004). Patient satisfaction is defined as the nature of an individual’s experience compared with his or her expectations (Pascoe, 1983).

Patient satisfaction with treatment is an important and desired outcome of healthcare encounters (Coulter and Fitzpatrick, 2000). Increasing patients' satisfaction with treatment has long been regarded as an important target in healthcare, including mental health care (Rossberg and Friis, 2004). Patient satisfaction with treatment also coincides with satisfaction with medication, resulting from factors such as the effectiveness, convenience (e.g. route of administration, dosing frequency), or side effects of the medication, is associated with better adherence to, and persistence with treatment (Barbosa, Balp and Kulich, 2012; Atkinson, Kumar and Cappelleri, 2005). These findings and its consistency across many diseases and clinical settings highlights the ongoing need to evaluate and improve patients’ treatment experience (Atkinson, Kumar and Cappelleri, 2005).

In Nigeria, similar to other low-income countries, satisfaction surveys are rare. Research on treatment satisfaction was found in mental health, and it showed that mental health professionals and administrators place a low premium on the assessment of patient satisfaction as an important indicator of hospital performance and service delivery. The dearth of satisfaction surveys deprives patients of the opportunity to provide input about service delivery to enhance sensitivity to their needs. Further, for patients who will need long-term follow-up and experience low satisfaction with treatment, otherwise regarded as service delivery can have a significant impact on their participation in and compliance with treatment interventions, appointment schedules, and the overall outcome of their care (Taiwo Afe and Mashudat Bello-Mojeed, 2014). A more recent study in Israel (Biderman and Levy, 2009) showed that lower treatment satisfaction is related to difficulties in adherence to taking medications and attending follow-up clinic visits, treatment with insulin or oral medications, any diabetes complication, being female and having had less than 6years of education. Several studies have evaluated the relationship of diabetic treatment satisfaction with different treatment modalities, its quality, patients' quality of life, and clinical outcome (Bradley and Lewi, 1990; Ken and Niessen et al., 2002; Biderman and Levy, 2009). Patients are inclined to make the best of their current treatment and only become aware of its drawbacks when they can compare it with something better (Bradley, 1997). A frequently observed feature in trials of new treatments for diabetes is therefore a relatively high level of patient satisfaction with pre-trial treatment (Bener and Harthy et al., 2012; Gafvels and Wandell, 2006; Bradley, 1999).

Patient satisfaction surveys produce little variation and most respondents express positive satisfaction (Bener and Al-Hamaq, 2009). Researchers evaluating diabetes treatment interventions have commonly used the Diabetes Treatment Satisfaction Questionnaire (DTSQ) in its original "status" form. Treatment satisfaction is an important fact of quality of care, especially in treating chronic diseases such as DM. (Biderman and Levy, 2009). Identifying factors that independently influence treatment satisfaction may help in improving clinical outcomes. Despite the growing understanding on treatment satisfaction and quality of life of patients, relationship between autonomy support and treatment satisfaction with diabetes patients (Auerbach, Clore and Kiesler, 2002; Deci and Ryan, 1985) and the role of autonomy support and quality of life (Baard, Deci and Ryan, 2004), little is known about the mediating role of treatment satisfaction in determining the influence of autonomy support on quality of life of patients with diabetes mellitus.

Statement of the problems

High longevity of the population, along with changes in lifestyle, especially regarding sedimentary lifestyle and alteration in feeding patterns, contribute to the growth of the risk profile to chronic diseases such as diabetes mellitus (DM). The prevalence of this disease has risen dramatically, and represents an important public health problem in developing country like Nigeria. Nigeria recorded about one million, seven hundred and two thousand, nine hundred cases of diabetes in the year 2015 (1.702. 900), (International Diabetes Federation (IDF), 2015). For chronic illnesses such as DM, where there is no cure, it is important to establish the therapy that makes people feel better. Therapeutic success is traditionally measured by disease-free and overall survival, and control of major physical symptoms. While these factors play a primary role in such evaluations. Efforts have been made to assess the patients' functional capacity, psychological and social health, and overall sense of well-being or quality of life (Mirjam and Aaronson, 1992).

Several other variables have been linked to Diabetes and Quality of Life (Lindsay, Inverarity and McDowell). Meanwhile, the importance of doctor–patient interactions and their potential influence on patients' behaviour and well-being has become widely recognized (Stewart, 1984). In studying the influence of such interactions, research has focused primarily on physicians' communicative behaviours, whereas patient's outcomes have been used to assess the extent of these influences. This study explored how patients with Diabetes Mellitus perceive physicians' communicative behaviour and how it supports them to be autonomous using the patients' outcome.

Patient satisfaction is by far the most recognized and widely used outcome. Patients have expectations when they visit their doctors; the degree to which these expectations are met influences patients' perception of the quality of care that they receive and, thus, patient satisfaction, which is defined as the nature of an individual's experience compared with his or her expectations (Pascoe, 1983). Despite a growing understanding of quality of life (QOL) and its determinants in diabetes patients, not so much is known about the effects and interrelationships concerning the perception of autonomy support and treatment satisfaction. Based on self-determination, social cognitive and attachment theories, we examined whether diabetes patients' autonomy support from health care practitioners (physicians) influence their quality of life through the mediating role of treatment satisfaction.

The following research questions will guide this study.

1. Would autonomy support have a statistically significant relationship with treatment satisfaction?
2. Would treatment satisfaction have a statistically significant relationship with quality of life?
3. Would autonomy support have a statistically significant relationship with quality of life?
4. Would treatment satisfaction mediate the relationship between autonomy support and quality of life?

Purpose of the study

The general objective of this study is to examine the mediating role of treatment satisfaction in linking autonomy support and quality of life.

But specifically, the study sought to determine whether patients'

(1) Autonomy support will statistically and significantly relate to treatment satisfaction of patients with Diabetes.

(1) Treatment satisfaction will statistically and significantly relate to the quality of life of patients with Diabetes.

(2) Autonomy support will statistically and significantly relate to the quality of life of patients with Diabetes.

(3) Treatment satisfaction will statistically and significantly mediate autonomy support and quality of life of patients with Diabetes.

Operational definition of terms

Quality of life: Quality of life refers to all aspects of patient's physical, psychological and social wellbeing as measured by scores on Diabetes Quality of Life Questionnaire (Jacobson, 1994).

Diabetes: Diabetes is a disease that occurs when the blood glucose, also called blood sugar, is too high.

Autonomy support: Is the support an individual receives to be able to govern himself or herself and decision-making underpin self-management as measured by scores on Health Care Climate Questionnaire (Williams et al., 1996).

Treatment Satisfaction: Patient satisfaction is defined as the nature of an individual's experience compared with his or her expectations as measured by scores on Diabetes Treatment Satisfaction Questionnaire (Bradley, 1990).

METHOD

Participants

Participants for this study were two hundred and seventy four (274) patients (Mean age of 58.80 years and Standard Deviation of 11.44 years) diagnosed of diabetes mellitus and receiving treatment at the Enugu State University of Science and Technology Teaching Hospital (ESUTH) Parklane. Participants were drawn from Medical outpatient department (MOPD) of the hospital (ESUTH). They were selected through purposive sampling method. Their ages ranged from 18 and above. Consent forms were distributed to three hundred and sixty nine (369) patients and out of the two hundred and eighty six (286) consented participants who accepted to participate in the study two hundred and seventy four (274) completed their questionnaires carefully and were selected for the study. Ninety four (94) males (34.3%) and one hundred and eighty (180) females (65.7%). Among the participants, (85.4%) were married, single (4.4%), widowed (7.3%) and divorced (2.9%). Those who resides in urban area were (30.3%) and rural (69.7%). Among ten who had type 1 diabetes were (3.6%) and two hundred and sixty four (264) had type 2 diabetes (96.4%). They mostly had two or more complications although two hundred and twenty nine (229) had foot ulcer (83.6%), other complications were represented such as retinopathy (53.6%), neuropathy (53.3%), erectile dysfunction (90.9%), hypertension (36.1%), arthritis (62.4%), and amputation (2.2%). Treatment types they received were as follows, lifestyle only (2.6%), tablets only (70.4), tablets and insulin (22.6%) and insulin only (4.4%).

Instruments

Three instruments were used for this study. They are Health Care Climate Questionnaire (HCCQ), Diabetes Quality of Life Questionnaire and Diabetes Treatment Satisfaction Questionnaire (DTSQ)

Health Care Climate Questionnaire: This was developed by Williams et al. (2000). The HCCQ has a long form containing 15 items and a short form containing 6 of the items. There are also variants to the questionnaire. Specifically, depending on the issue being examined, the HCCQ can be used to assess patients' perceptions of the degree to which their specific doctor is autonomy supportive, or it can be used to assess patients' perceptions of the degree to which their team of health care providers is autonomy supportive. The latter would be more appropriate for example, if patients are seeing several providers within a clinic to deal with a particular problem. For example, patients with diabetes may see a physician, a nurse educator, and a dietician, all working together to treat the disease. If a researcher were interested in the relation between a physician's interpersonal style and their patients' motivation, behaviour, and health, the questionnaire is best used with respect to the individual doctor. If the research question concerns the interpersonal climate of a clinic or group of providers, the word “providers” or “practitioners” is substituted for “physician” or “doctor.” Below, you will find the 15-item version of the questionnaire, worded in terms of “my physician. Scores on both the 15-item version and the 6-item version are calculated by averaging the individual item scores. However, for the long version, before averaging the item scores, you must first “reverse” the score of item 13 (i.e., subtract the score on item 13 from 8 and use the result as the item score for this item–for example, the score of 3, when reversed would become 5). Higher average scores represent a higher level of perceived autonomy support).

Diabetes Quality of Life Questionnaire: This scale was developed by the multicentre group Diabetes Control and Complications Trial (DCCT) in 1998. The original DQOL is a 60-iteminstrument to assess the diabetes-related QOL of participants. Of these items, 13 are limited to children and adolescents with diabetes. The instrument provides an overall scale score, as well as four subscale scores for *1*) satisfaction with treatment, *2*) impact of treatment, *3*) worry about the future effects of diabetes, and *4*) worry about social/vocational issues. Items are scored on a 5-point Likert scale and are of two general formats. One format asks about the frequency of negative impact of diabetes itself or of the diabetes treatment (i.e., “How often do you worry about whether you will pass out?”) and provides response options from 1 (never) to 5 (all the time). The second format asks about satisfaction with treatment and quality of life (i.e., “How satisfied are you with the time you spend exercising?”) and is scored from 1 (very satisfied) to 5 (very dissatisfied). Higher scores on DQOL items and subscales are, therefore, negatively valence, indicating problem frequency or dissatisfaction. The instrument has been shown to have excellent internal consistency (*r* = 0.78–0.92), test retest reliability (*r* = 0.78–0.92), and convergent validity for all four subscales for people with type 1 and type 2 diabetes (Jacobson, 1994; Jacobson, Samson and De Groot, 1994; DCCT Research Group, 1998).

Diabetes Treatment Satisfaction Questionnaire: The Diabetes Treatment Satisfaction Questionnaire (DTSQ) is a questionnaire used to assess patients’ satisfaction with their diabetes treatment (Bradley and Gamsu, 1994). DTSQ was developed by Clare Bradley, an English health psychologist, in the 1990s for the purpose of assessing patients’ satisfaction with their diabetes treatment (Bradley and Gamsu, 1994). It is composed of eight questions, each of which is scored by patients on a scale ranging from zero (e.g., “very dissatisfied”, “very inconvenient”) to six (e.g., “very satisfied”, “very convenient”). The questionnaire is composed of two different factors. The first factor assesses treatment satisfaction and consists of six questions (Q 1, 4, 5, 6, 7 and 8). These six questions ask about “satisfaction with current treatment”, “flexibility”, “convenience”, “understanding of diabetes”, “recommend treatment to others” and “willingness to continue”, respectively. These six questions showed good internal consistency, with a Cronbach alpha score of 0.90 (Ishii, Bradley, Riazi, Barendse and Yamamoto, 2000). The second factor consists of two questions (Q 2 and 3), which assess the burden from hyper- and hypoglycemia, respectively (zero being “none of the time" to six being "most of the time"). Treatment satisfaction is assessed as the sum of the scores of the six questions on the first factor (total score 36), with a higher score indicating higher treatment satisfaction.

Validation study for instruments

Reliability and validity were carried using one hundred and fifteen diabetic patients who volunteered to respond to the questionnaire. The scales were carefully analyzed using SPSS version 21.0. Results of item-total correlation of Health Care Climate Questionnaire (HCCQ) items showed that each of the items had approximately .30 and above. The general scale internal consistency reliability estimate was Crombach's alpha of .64, which is moderate

Diabetes Treatment Satisfaction Questionnaire (DTSQ) had a general, relatively high internal consistency reliability estimate of Crombach's alpha of .82 (see Appendix B). Its sub dimension also showed an alpha of .82 for treatment satisfaction and .63 for burden from hyper- and hypoglycemia. Kaiser-Meyer-Olkin Measure of Sampling Adequacy was .69, and Barlett's Crombach Test of Sphericity was 803.027 (p<.001), indicating the adequacy of the data for test of factorial validity.

Diabetes Quality of Life Questionnaire (DQOLQ) had a relatively high internal consistency reliability estimate of Crombach's alpha of .78, and the items had more than .30 item-total correlation, Kaiser-Meyer-Olkin Measure of Sampling Adequacy was .80, and Barlett's Test of Sphericity was 275.157 (p<.001), indicating the adequacy of the data for test of factorial validity.

Procedure

The researcher visited the medical outpatients department where he obtained permission, by giving the letter of ethical clearance from the hospital to the head nurse and consultant physician on duty. This was to enable the researcher conduct his research with their patients. The letter explained the purpose of the research to them. Having obtained permission, three research assistants were recruited and trained for the administration of the questionnaires and data collection. Patients with diabetes that came for treatment and checkups were addressed collectively. The purpose of the research was explained to them, their consent was sought and the questionnaires were administered to those who volunteered to participate in the study after signing the consent form. They were asked to follow the standardized instructions contained on each section of the questionnaire form. The researcher and research assistants addressed some questions raised by the patients. They were encouraged to respond honestly to the questions in order to make the research very relevant. Since the participation was strictly voluntary and patients were assured that the responses would be confidential and anonymous since there was no form of identification was required on the questionnaires. The participants took between seven and fifteen minutes to complete the set of questionnaires and all of them completed the questionnaires in the same order from the first to the last visit. It took the researcher about 7-8 weeks to distribute and collate the questionnaires. At the end of the exercise, the researcher appreciated the participants and the research assistants respectively for their participation and assistance and also the nurses and physicians for their permission and cooperation to conduct the research.

Designs and Statistics

This is a Cross-sectional design and Multiple linear regression and process macro was used to statistically analyze the study hypotheses.

Results

Table 1

Table of correlations of demographic variables, autonomy support, treatment satisfaction and quality of life (N = 274)

Mean SD 1 2 3 4 5 6 7 8 9 10 11
12 13 14 15 16 17

1. Age .58.80 11.44 .38** .32**
.43** .25**
2. Gender.6569 .4756
.14* .20**
3. Marital Status 1.27 .7235 .23**
4. Number of child 4.50 1.970 .38**
.26** .17**
5. Religion 1. 01 .1340 .11**
6. Highest Edu Qua 2.74 1.017 .11 .11
.45**
7. Employment sta .6569 .4756 .32**
.1O .21**
8. Occupation 3.81 4.735 .23**
9. Average Income 29096.71 37552.92 .45**
10. Duration of Diab 90.35 74.50 .27**
11. Type of Diabetes 1.87 .3556 .43** .26**
12. Herbal Treatment .9781 .1466 .25** .10 .21**
.22**
13. Suffered Amputa .9781 .1466 .20** .10
.22**
14. Family support .1022 .3034 .11
15. Autonomy Support 85.95 12.39
.18** .27**

16. Treatment Satis.	35.95	7.886	.18**	.38**
17. Quality of Life	52.18	6.718	.27**	.38**

* p < . 05; **p < .01

Table 2: Regression results of relationship of autonomy support (AS), treatment satisfaction (TS) and quality of life (QoL)

Outcome	1		2		3
	B	Beta (β)	B	Beta (β)	
1. Autonomy Support			.03	.18**	
2. Treatment Satisfaction			.00	.38**	
3. Quality of Life			.00	.27**	

(**p < 0.01)

Table 2; Showed that there were statistically significant positive relationship between autonomy support and treatment satisfaction at (B= .03; β= 18**, p< .05). Also between treatment satisfaction and quality of life (B= .00; β= 38**, p< .01) and quality of life and autonomy support at (B= .00; β= 27**, p< .01).

Table 3: Regression result of mediational role of treatment satisfaction on the relationship between autonomy support and quality of life.

Parameter estimate	Coeff	Total effect	Direct effect	Indirect effect
AS → TS	.13**			

TS → QoL	.30*			
AS → QoL	.13*			
AS → QoL		.09**	.13**	.04

(PM) *p <.01.

AS Autonomy Support, TS Treatment Satisfaction, QoL Quality of Life, Coeff Coefficient, FM Full mediation, PM Partial mediation

The path (direct relationship) from autonomy support to treatment satisfaction was positive and statistically significant (Coefficient= .13, se.= .03, p< .05). Indicating persons scoring higher on autonomy support are more likely to express satisfaction to treatment.

The path (direct relationship) treatment satisfaction and quality of life was positive and statistically significant (Coeff = .3022, se= .0522, p< .01). It indicates that persons scoring higher on treatment satisfaction are more likely to express a good quality of life.

The path (direct relationship) from autonomy support and quality of life was positive and statistically significant (Coefficient = .1335, se = .0314, p< .01), indicating that persons scoring higher on autonomy support are more likely to express a good quality of life.

Testing for significant mediation effect, the indirect effect is tested using non-parametric bootstrapping. If the null of 0 falls between the lower and upper bound of the 95% confidence interval, then the inference is that the population indirect effect is 0. If 0 falls outside the confidence interval, then the indirect effect is inferred to be non-zero.

In this case, the indirect effect (IE = .0401) is positive and statistically significant 95% = CI = (.0157, .0786) but shows partial mediation.

The effect size of the indirect effect can be calculated by dividing the direct total effect with the indirect effect and multiplying by 100. Therefore, total percentage of the effect
(Indirect effect) .0401 x 100 = 30.03= 30%
(Total effect) .1335

The proportion of the total effect of Treatment Satisfaction of patients with diabetes on the relationship between Autonomy Support and Quality of life to operate indirectly is 30%. It means that 70% experience an improved quality of life directly through Autonomy Support.

Discussion

The findings of the study reveal that the first hypothesis tested, which stated that there will be a statistically significant relationship between autonomy support and quality of life was accepted. This shows that the physicians' support of diabetic patient to be autonomous, significantly relate to their quality of life. The outcome of the study was found to be in line with Steckermeier (2021) findings in his study, the value of autonomy for the good life. The result showed that both individuals' perceived autonomy and opportunity, choice enhancing, societal condition increase individuals' life satisfaction. That is, autonomy strongly influenced life satisfaction which is a domain in quality of life. The outcome of this study was also found to be in line with De-Jumas, Romero & Goig (2020) finding in their study. They examined the relationship between autonomy and wellbeing and observed that there is statistically significant relationship between the dimensions of the psychological wellbeing and autonomy. Also, the outcome of the study was found to be in agreement with the study by Kaya et. al (2020) who examined the relationship between an autonomy support, life satisfaction and quality of life of cancer patients. They found that support of basic psychological need was significantly and positively associated with wellbeing and quality of life of cancer patients. Cancer patients who had higher levels of perceived support of basic psychological needs had lower levels of cancer-related problems.

Therefore, having observed a positive relationship between autonomy support and quality of life, there are possible factors that may have brought about this relationship. The first is the physicians' ability to maintain health appointments. Unlike in private hospitals and clinics where doctors take their time to attend to patients and patients may also enjoy the privilege of booking appointments with his doctor via telephone. Patients in teaching hospitals usually find it disturbing and frustrating when they come to clinic on their appointment days, but are denied by nurses or others, access from seeing their doctors. This denial or deprivation is as a result of large number of patients in the waiting room hoping to see their doctors, and also depending on the time the patient arrives the clinic. When patients are denied the opportunity to see the doctors, they will not come back the next time and it will most likely affect their relationship with their physician but when the doctor maintains appointment, they are more likely to retain their patient who will adhere to their treatment regimen while maintaining a good quality of life. Another factor that may have brought about positive relationship is the use of light jokes, and positive words. This helps to make the patients feel free to visit the hospital on appointments. Most of the patients who will continue to receive treatment for a long time may choose that on the basis of the way his or her discussion flow with the physician. When there is a good flow of discussion and frequent use of encouraging words rather than blaming or persecutory words, it will bring about adherence and a positive perception of the individual about himself or herself to the culture and value system which he or she lives in and in relation to their goals, expectations, standards, and concerns.

The second hypothesis tested which stated that there will be a statistically significant relationship between treatment satisfaction and quality of life was also accepted. This shows that the treatment satisfaction of patients with diabetes mellitus relates with their quality of life. Those who are satisfied with their treatment showed an increased quality of life. The outcome of the study was found to be in agreement with the study by Mauricio (2018) in a study of quality of life and treatment satisfaction in type 2 diabetes mellitus and it was found that adherence to a healthy dietary pattern is positively associated to treatment satisfaction and some quality of life dimensions.The outcome of this study was found to be in agreement with Al-Jabi, Zyoud, and Sweileh (2015) in their study "assessment of association between health-related quality of life and treatment satisfaction in a sample of 385 diabetic patients". The result showed a modest positive relationship between overall satisfaction and quality of life. Although after adjusting multiple covariates, the result was not statistically significant. Therefore, having observed that treatment satisfaction is related to quality of life, there are possible factors that may have brought about the positive improvement in quality of life. One of the factors is better understanding of the drug of treatment. As it entail a proper education of the symptoms and possible side effects of the drugs especially in the use of insulin. Patients' with diabetes mellitus have also shown in research to have a good quality of life in relation to treatment satisfaction. This can be attributed to their perception about the damages and complications the herbal can cause and hiving explored other options that didn't work. They, therefore succumb to treatment options that have been made available by their physician. Excellent relationship between treatment satisfaction and quality of life may have been achieved through dietary plans as endorsed by patients. A good number of patients indicated that they preferred lifestyle and dietary modification as part of treatment option and it could be a possible explanation as to why there was a positive relationship between treatment satisfaction and quality of life.

The third hypothesis tested which stated that autonomy support will mediate the relationship between treatment satisfaction and quality of life was also accepted. This shows that supporting patients with diabetes mellitus autonomously mediated the relationship between treatment satisfaction which involves satisfaction with the root of drug administration, drug type, satisfaction with side effect, possible duration of the use of preferred drug and quality of life. This research has succeeded in establishing a positive mediation effect of autonomy support in relating treatment satisfaction and quality of life among diabetes mellitus patients.

Implication of the findings

One of the implications of the findings is that supporting diabetes patients' autonomy will affect their perception about their treatment which will predict the outcome of the individuals' quality of life. Therefore, the communication pattern may affect the number of patients to be seen per day in clinics. In other words, it is possible that while ensuring a more detailed and effective communication with a diabetes patient, it will most likely affect the quality of time given to others who may visit the clinic that same day. Therefore, such will not benefit some patients rather it will bring about a less satisfaction with treatment.

Similarly, autonomously supporting diabetes patients will not and cannot be overemphasised. Both doctors and other health care professionals should endeavour to practise and master the skills of effective communication between themselves and their patients to ensure they attain same treatment goals as expected.

Limitations of the study

The major factor that militated against this study was the duration of data collection. The longevity of the questionnaire instrument also made it slightly difficult for the respondent to complete them on a short time given, while some of those that complied responded haphazardly. Another factor that worked against this study was people's attitude towards the research. Some people displayed unwillingness to respond because they weren't sure they would see their doctors that day considering their previous visits. The research was limited to one hospital in south-east Nigeria and this has affected the outcome of the research.

Suggestion for further studies

Future researchers should try to sample larger population size, also should sample from hospitals in other geopolitical zones in Nigeria. Future researchers should also try to use other covariates in analysing their research considering diabetes complication and comorbidities. Others to consider a futures research rest on the need to obtain information from patients in other units of the hospital involving the inpatients. This may help to increase the sample size and provide opportunity to obtain elaborate and most tentatively a comparative response from diabetes mellitus patients.

Recommendations

Based on the findings of this study, the researcher hereby recommends that doctors when consulted by patients should fix appointments for a specified number of people that they can be able to attend to on each clinic day.

They should not ignore their old patients while concentrating on the new ones because such practise may negatively affect their plans to achieve as successfully management for treatment. Attending to patients every time they come for checkups will discourage patients from dropping out if treatment and make them not to feel neglected.

Special quarterly training for doctors and other health care professional in communicating skills and psychological management of patients i recommended. Health care professionals should advocate for government involvement in providing and caring for patients with diabetes mellitus to help in reducing diabetes burden on individuals and families.

Conflict of interests

The authors declare that they have no financial or personal relationship(s) that may have inappropriately affected their report of the findings of this research.

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