Assessment of Health-Related Quality of Life of Cardiovascular Patient Caregivers in Obafemi Awolowo University Teaching Hospitals Complex, Nigeria

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Abstract – Patients with Cardiovascular diseases (CVDs) frequently suffer from physical and psychological complications, while providing informal care for patients is a difficult and time-consuming task that necessitates time, dedication, and perseverance. Contemporary studies addressing health quality of life in relation to CVDs have traditionally focused on the individual who has the illness or condition rather than that of the caregivers. The study addresses this limitation, with a view of providing empirical evidences of Health Related Quality of Life (HRQL) of CVDs patient caregivers in the study area. The outcome variable was HQRL and the independent variable was psychological distress. The HQRL was captured as psychological physical functioning, mental functioning, dimension support and physical outlook. The study employed both descriptive survey and the experimental designs. The study was a hospital-based cross sectional approach. The study adopted a multi-stage sampling technique, and it sampled quantitative data from eighty-four (n=84) CVDs patient caregivers in Obafemi Awolowo University Teaching Hospital (OAUTH) complex, Ile-Ife, Nigeria. Statistical analysis of data was performed using the IBM SPSS version 25, with the level of significance put at .05. Results of the descriptive analysis showed that 40.5% (n=34) of the caregivers had severe /poor level of HRQL. Results of the regression analysis showed that psychological physical functioning (β = 0.31, t=2.10 p<.05), mental functioning (β = 0.30, t=211 p<.05) and dimension support (β = 0.35, t=2.15 p<.05) were significantly associated with psychological distress. The study concluded that psychological distress had a significant predictive role on HRQL among CVDs patient caregivers.

Keywords – Health-Related Quality Of Life (HQRL), Cardiovascular Disease (Cvds), Psychological Distress, Caregivers, Patient Caregiver

I. INTRODUCTION

Cardiovascular diseases (CVDs) are a leading cause of death worldwide, with rates of CVD-related death rising rapidly in Nigeria and other low- and middle-income nations (Benjamin, Muntner, & Bittencourt, 2019). Cardiovascular disease accounts for more deaths than any other disease (Benjamin, Muntner, & Bittencourt, 2019). About 17.7 million people die from CVDs every year, which indicates approximately one-third of all deaths around the world (Menotti, Puddu, Maiani & Catasta, 2015). Experts projected that by 2030, heart disease will be accountable for 23.6 million deaths of people globally. The burden of this

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disease is considered to be a vicious threat in developing countries, including Nigeria (Ahmadi, Alimohammadian, Yaseri, Majidi, Boreiri & Islami, 2016). CVDs are a group of disorders of the heart and blood vessels and include coronary heart disease, cerebrovascular disease, rheumatic heart disease and other conditions. More than four out of five CVD deaths are due to heart attacks and strokes, and one third of these deaths occur prematurely in people under 70 years of age.

Patients with heart disease frequently suffer from physical and psychological complications (Wang, Lau, Chow, Thompson, & He, 2014). Patients with heart disease might experience a variety of physical symptoms, including decreased physical ability, weariness, pain, and shortness of breath (Nouhi & Jahani, 2017). Anxiety, depression, psychological distress, and anger are all very prevalent (Alvarenga & Byrne 2016). These patients are also more prone than the overall population to express financial concerns (Muhammad, He, Koh, Thompson, Kowitlawakul, & Wang, 2014). A significant impairment in the patient's lifestyle and future objectives can result in social isolation (Nouhi & Jahani, 2017). Most of the time, ill-patients are incapable and helpless to take care of themselves as a result of the problems they face as a result of their chronic diseases. Caregivers, whether informal (family members) or formal (professionals), are frequently compelled to provide care for these patients (Okoye & Asa, 2011).

Providing informal attention, primarily for a person needing help with daily happenings due to a chronic illness such as CVDs, can be a difficult and time-consuming task that necessitates time, dedication, and perseverance (Okoye & Asa, 2011). As a result of the exhaustion and stress involved in caring for this patient, few people are prepared for the responsibilities and tasks involved, which may harm the caregiver's well-being and health-related quality of life (Okoye & Asa, 2011). Caregivers' traumatic experiences, psychological distresses, and exhaustion have all increased as a result of this burden, resulting in a decrease in caregivers' health-related quality of life (HRQL).

The term "health-related quality of life" (HRQL) was coined to describe and unify measures relating to the assessment of health status, ideals, and discerned levels of contentment and all-round well-being in relation to either a specific health condition or life as a whole from the perspective of the individual (Marinelli, Savarino & Inferrera, 2019). In general, health-related quality of life can be defined as the ratio of an individual's actual status to their desired status, which is inherently subjective. That is, it is discussing how a person's experiences, beliefs, expectations, and perceptions influence their physical, psychological, and social health state. Unlike morbidity, which refers to specific complications or effects of a condition, mortality refers to the number of people who die as a result of their sickness.

In recent years, observations have shown that the health-related quality of life of caregivers of CVDs sufferers has continued to deteriorate on a daily basis, as constant exposure to a variety of stressors in the course of performing their duties, as well as managing family and work roles, has caused psychological distress and uncomfortable emotional reactions, which have influenced the caregiver's short- and long-term behavior (Marinelli, Savarino & Inferrera, 2019). These difficulties have exacerbated caregivers' feelings of not being fulfilled and unhappiness, which has invariably reduced their overall quality of life. It is therefore of great concern to consider this group of people's (caregiver) well-being in light of their role in the resuscitation of the ill-health patient's and well-being, as well as their overall state. Many quality of life studies have traditionally focused on the individual who has the illness or condition. Some studies, however, have begun to focus on the quality of life of caregivers who provide care to someone who is acutely or chronically ill (Babatunde, Bankole & Yinusa, 2019; Besharat, Ramesh & Moghimi, 2018). In the caregiving role, psychological distress is one of the negative indicators encountered by caregivers of this illness because, in the long run, it has a negative impact on the caregivers' health-related quality of life.

Psychological distress is a broad term that refers to unpleasant feelings or emotions that interfere with the caregiver's ability to function. In other words, psychological discomfort interferes with daily living; that is, psychological distress is regarded as an emotional disturbance that may have an impact on caregivers' social functioning and day-to-day living (Babatunde, Bankole & Yinusa, 2019; Wheaton, 2007). For the reason that it is a subjective experience, it can result in a negative view of the environment, others, and oneself, which is invariably the most depressive. Just as no two people experience events in the same way, no two people manifest psychological distress in the same way. However, most of the time, caregivers or healthcare providers experience the most distress because they are after the positive outcome of the patient after a lot of effort to care for, but if the positive outcome is not obtained in the quest to care for, psychological distress results (Babatunde, Bankole & Yinusa, 2019; Wheaton, 2007).

The brunt of the global burden of cardiovascular disease (CVDs) now falls on low- and middle-income countries, including Nigeria. The ongoing demographic transition, combined with epidemiological and nutritional transitions, is contributing to the continued shift of the CVDs burden from developed to developing countries (Ezzati, Hoorn, Lawes, Leach, James, 2005; Gersh, Sliwa, Mayosi, Yusuf, 2010). It remains the major cause of infirmity and premature death worldwide and conduce to significantly upsurge in health care cost. The underlying pathology is atherosclerosis, and it progresses over many years then it also progresses as at the time signs ensue, most times in the average age. From an expected 58 million demise worldwide from all causes in 2005, CVDs totaled for 30%. This summation corresponds to that due to infectious diseases, nutritional dearth as well as matriarchal and antepartum states altogether (WHO, 2007). More so, it's also imperative to understand that significantly out of 17 million premature death (under the age of 70) due to non-communicable disease in 2015 in the more productive period of life 82% are in the low-and middle-income countries, and 46% were caused by CVDs (WHO, 2007).

In emerging countries, which Nigerian is inclusive, up to average of the illness burden is attributed to non-communicable diseases of which CVDs is foremost root with brief life duration (WHO, 2007). Therefore, our purpose was to examine the level of health-related quality of life of caregivers of cardiovascular diseases (CVDs) patients and also to examine the predictive role of psychological distress on health-related quality of life of CVDs caregivers using an experimental approach. The study focused on the general assessment of all CVDs caregivers in OAUTHC, Ile-Ife, Nigeria.

II. MATERIALS AND METHODS

Study design

The study population consist of caregivers (relatives, friends, family members and significant others) of CVDs who stayed and assisted CVDs patients admitted and registered at the wards of the hospital during the data collection phase of the study. The study was conducted at the cardiology clinic and ward of the Obafemi Awolowo University Teaching Hospitals Complex (OAUTHC).

The study adopted a multi-stage sampling technique. At the first stage a purposive sample technique was adopted in the study because of the nature of the participants. In the second stage, convenient sample technique was also employed to select respondents from both ward and clinic during the clinic days for a period of six (6) weeks. Because of the peculiarity and the sensitivity of the study due to our findings at the preliminary visit over three times that we visited, we discovered that respondents in these regards are not that available and ready to be part of the study. A total population of one hundred (100) copies of questionnaires were printed, shared and given out conveniently together with the assistance of a research assistant to the CVDs patient caregivers who were available on the Tuesdays and Wednesdays ward and clinic days that was agreed on as at the time of the preliminary visit and also on the agreed time discussed with the consultant cardiologist who is the consultant cardiologist on ground, together with the matron and nurses on duty when we were given the opportunity to meet with them back altogether. At the end of sixth weeks, a total of eight four (n=84) copies of questionnaires (36 males and 48 females) were successfully retrieved and only this was available for analysis.

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A total population of 100 questionnaires were printed, shared and given out conveniently together with the assistance of a research assistant to the CVDs patient caregivers who were available on the Tuesdays and Wednesdays ward and clinic days that was agreed on as at the time of the preliminary visit and also on the agreed time discussed with the consultant cardiologist who is the consultant cardiologist on ground, together with the matron and nurses on duty when we were given the opportunity to meet with them. On collection back per week after three weeks by the researcher and the assistant, we were able to retrieve 84 questionnaires (36 males, 48 females) back altogether, some absconded with the questionnaire, some grumbled and reluctantly returned the questionnaire blanked and while others did not return it at all. At the end of sixth week, a total of 84 (forty-two) questionnaires were successfully retrieved and only this was available for analysis.

Outcome Measure: health-related quality of Life

HRQL was quantified using the established and widely used 15D Health-Related Quality of Life. The 15D Health-related of life scale is a 15-item self-report inventory that was adapted from the original scale of the 15D Health-related quality of life scale (Sintonen, 1993) to sooth the purpose of the study and also to have the required items needed to elicit information as regards the focus of the study. Each item is rated on a 3-point response format ranging from 1-3. Scores of the 15 items are then summed, yielding a minimum score of 1 and a maximum score of 15. Low scores indicate a minimal level of health-related quality of life and high scores indicate severe levels of health-related quality of life.

Independent variables

Our key time-varying explanatory variable was Psychological distress which is seen as an emotive disturbance that may impact on the overall functioning and day-to-day living of individual (Wheaton, 2007). This variable is an independent variable in the study and will be measured the Kessler Psychological Distress Scale (K10) (Kessler & Mroczek, 1992). It's a simple measure of psychological distress. The K10 scale involves 10 items about emotional states each with a five-level response scale. The measure can be used as a brief screen to identify levels of distress. The scale is given to patients to complete, or alternatively the questions can be read to the patient by the practitioner. Each item is scored from 1 'none of the time' to 5 'all of the time'. Scores of the 10 items are then summed, yielding a minimum score of 10 and a maximum score of 50. Low scores indicate low levels of psychological distress and high scores indicate high levels of psychological distress.

Statistical Analysis

The study employed a descriptive survey design method based on the specific objective of assessing the health-related quality of life of CVDs patient caregivers. Qualitative data was also be gathered using standardised psychological scales during the clinic days of the patients through the respondents (caregivers). A multi-stage sampling technique was also employed. At the first stage a purposive sample technique was adopted in the study because of the nature of the participants. In the second stage, convenient sample technique was also employed to select respondents from both ward and clinic during the clinic days for a period of six (6) weeks. Because of the peculiarity and the sensitivity of the study due to our findings at the preliminary visit over three times that we visited, we discovered that respondents in these regards are not that available and ready to be part of the study. A total population of eighty-four (84) copies of questionnaires were printed, shared and given out conveniently together with the assistance of a research assistant to the CVDs patient caregivers who were available on the Tuesdays and Wednesdays ward and clinic days that was agreed on as at the time of the preliminary visit and also on the agreed time discussed with the consultant cardiologist who is the consultant cardiologist on ground, together with the matron and nurses on duty when we were given the opportunity to meet with them. Eligible respondents for the study were caregivers (relatives, friends, family members and significant others) of CVDs who stayed, support and assisted CVDs patients admitted and registered at the cardiology wards and clinic of the hospitals and were also present at this phase of the study.

III. RESULTS

The table 1 below presented the age of 84 respondents ranged from 35 to 65 years. About 58% (n=48) of the CVDs patient caregiver females, and approximately 43% (n=36) were males. About 64% (n=54) of the CVDs patient caregivers had school education, while approximately 36% (n=30) only had the first school leaving certificates. Results by occupational distribution of respondents showed that 43.2% (n=38) of the CVDs patient caregivers were civil servants, 16.7% (n=14) were self-employed, 26.2% (n=22) were retirees, while about 12% (n=10) were farmers. The results further showed that 64.3% (n=54) of the CVDs patient caregivers were married, while about 36% (n=30) were divorcees. Results by diagnosis distribution of respondents showed that 26.4% (n=22), 21.4% (n=18), 38.1% (n=32), 9.5% (n=8) and 4.8% (n=4) of the CVDs patient caregivers were taking care of patients who had stroke, hypertension, coronary artery disease, heart failure and cardiac arrest respectively.

Table 1: Socio-demographic Characteristics of Respondents of Study *(N=82)*

Variables	Groups	Frequency	Percentages
Gender	Male	36	42.9
	Female	48	57.1
Educational Status	Primary	30	35.7
	Secondary	54	64.3
Marital Status	Married	54	64.3
	Divorced	30	35.7
Occupation	Civil servants	38	43.2
	Self-employed	14	16.6
	Retirees	11	26.2
	Farmers	5	11.9
Diagnosis	Stroke	11	26.2
	Hypertension	9	21.4
	Coronary heart disease	16	38.1
	Heart failure	4	9.52
	Cardiac arrest	2	4.76

Source: Authors' field reports (2022).

Table 2 below presented the descriptive analysis of the levels of respondents' health-related quality of life. The analysis was carried out with simple frequency counts. This was done by summing up the items on the 15D Health-Related Quality of Life scale. The total score ranged from 1 to 15. The cut off points for 15D health quality of life item; minimal 1- 5, moderate 6 – 10 and severe 11 – 15 levels were adopted in the study. The result showed that majority 34 (40.47%) of the respondents have severe level of the health quality of life, 28 (33.33%) have moderate level of health quality of life, while the remaining 22 (26.19%) have a minimal health quality of life.

Table 2: Summary of the Levels of the Caregivers Health-related Quality of Life *(N = 84)*

Levels	Score-Range	(n)	%
Minimal	1 – 5	22	26.2
Moderate	6-10	28	33.3
Severe	11-15	34	40.5

Source: Authors' field reports (2022).

The table 3 below result revealed that there was significant prediction of psychological distress on dimension of physical functioning ($\beta = 0.31$, t=2.10 p<.05). Furthermore, psychological distress accounted for 10% of the change observed in the self-report of physical functioning. The result also revealed that there was also a significant predictive impact of psychological distress on mental functioning ($\beta = 0.30$, t=211 p<.05). Furthermore, there was a significant prediction of psychological distress on the dimension of support ($\beta = 0.35$, t=2.15 p<.05). Finally, psychological distress did not have any predictive role on psychological outlook ($\beta = 0.25$, t=0.82 p>.05).

Table 3: Results of Multiple Regression Analysis Showing the Predictive Role of

Psychological Distress in Dimension of HRQL

DV	Predictor	β	t-test	p-value	R	R²	Ftest	p-value
Physical functioning	Psychological distress	0.31	2.10	<.05				
					0.31	0.10	4.41	<.05
Mental functioning	Psychological distress	0.30	2.11	>.05				
					0.30	2.11	4.39	<.05
Support	Psychological distress	0.35	2.15	>.05				
					0.35	2.15	4.86	<.05
Psychological outlook	Psychological distress	.14	.91	>.05				
					0.14	0.02	0.82	>.05

IV. DISCUSSION

The study objective that sought to determine the level of health-related quality of life of CVDs patients' caregivers found that 40.47% of the respondents have severe level of the health quality of life out of 42 study participants. The result showed that majority of the participant of the study has severe level of the health quality of life. The current evidence further suggests that providing care for a CVDs patient is a challenging and huge chore, which requires time, commitment and perseverance; the exhaustion, traumatic experiences, psychological distresses and enervation experienced by caregivers damage their well-being and health-related quality of life (Okoye & Asa, 2011). This is evident from the above result that caregiving stimulates emotive discomfort and bring about unwanted consequences on the self-worth of the caregivers life and therefore ultimately telling on their health-related quality of life of CVDs caregivers.

The evidence also corroborates the assertion made in the literature that health-related quality of life of caregivers of cardiovascular disease (CVD) sufferers has continued to deteriorate on a daily basis as constant exposure to all manner of stressor in the course of carrying out their duties as well as managing family and work roles; have in one way or the other causes psychological distress, uncomfortable emotional reactions which have affected the caregiver short-and-long-term behavior as reported by (Marinelli, Savarino & Inferrera, 2019). The finding is in line with the fact that caregiving role bring about exasperation in bodily health status, interruption in family and conjugal relationships, disruption in communal and recreation events, and finally, discontent with life if the expected result is not achieved. It also positions manifold energy coming from communal, bodily, emotive, financial and other health problems originating from taking care for others (Okoye & Asa, 2011).

Also, the hypothesis state that psychological distress (physical functioning dimension) will predict health related quality of life of caregivers of CVDs patients. The result of the hypothesis found that psychological distress (physical functioning dimension) has psychological distress on health-related quality of life of caregivers of CVDs patients. The study findings was in line (Mourad, Alwin, Jaarsma, Strömberg, & Johansson, 2020) who found that anxiety, depressive symptoms, and somatization had weak significant negative associations with HRQL.

The study was also in line with (Liu, Schandl, Markar, & Lagergren, 2021) who found that there was significant association between psychological distress and HRQL. The study was also in accordance with (Vlake, Wesselius, van Genderen, van Bommel, Boxma-de Klerk & Wils, 2021) who found that there was no difference between PTSD, anxiety, or overall HRQL.

Similarly, in 2012, Lambert and colleagues reported that caregivers' symptoms of anxiety decreased over the year period, yet symptoms of depression remained stable over time (Lambert, Girgis, Lecathelinais, & Stacey, 2012). The finding confirmed the assertion of (Hudson, Aranda, & Hayman-White, 2005) in the study that reported that caregivers experienced more psychological distress than CVD patients while the patients were receiving treatment (Hudson, Aranda, & Hayman-White, 2005). Thus, in assessing quality of life, social indicators such as health status, subjective well-being measures, psychological outlook and mental functioning indices are very important to expatiate on to serve as a leverage to whether or not the caregivers is experiencing a severe quality health status and stable psychological well-being. The current study has been able to establish all these indices that serve leverage to determining a hampered and affected health quality of life status of CVDs patient caregivers.

The finding also supports (Drapeau, Marchand & Beaulieu-Prévost, 2012) that psychological distress is seen as an uncomfortable feeling of depression or anxiety in tandem to bodily, mystical or emotive demands, or mixture of manifold request that bring about momentary or perpetual damage (Drapeau, et al., 2012). Psychological distress is in form of depression and anxiety during pregnancy can have devastating consequences not only for the woman experiencing it, but also for her children and family (Karunanithi, Sagar, Joy & Vedasoundaram, 2018).

Our study has strengths and limitation. This is the first experimental study that looked at the assessment of the health-related quality of life of CVDs patient caregivers, we explored with psychological distress as independent variable. The problem we observed majorly was the unavailability of the respondents for assessment for the study because of the time constraint, the exhaustion and stress involved in caring for this patient, majority were persuaded and encouraged before participation at every level. However, further variables (e.g., personality factors such as extraversion) could be included in future studies.

V. CONCLUSION

The severe level of health-related quality of life was among CVDs patient caregivers in the study setting validated the adverse influence of psychological distress on the physical and well-being of caregivers in the country. The empirical evidences emanating from this study is therefore, an indication that providing care for CVDs patient is an arduous and enormous ,which requires time, dedication and perseverance. The study, therefore, concluded that psychological distress, their mental functioning and the support have significant predictive role on health-related quality of life.

VI. ACKNOWLEDGEMENTS:

VII. AUTHORS' CONTRIBUTIONS:

BSI conceived the concept, designed methods, engaged in data analysis and discussion of findings. He also contributed to methods, reviewed literature, engaged in data analysis, interpretation, and discussion of findings. Finally, he reviewed literature, edited and validated the analysed data. All the authors proofed read the manuscript and consented to its publication

VIII. FUNDING

IX. DATA AVAILABILITY

Approval and ethical clearance NHREC/27/02/2009a was received from the Ethical and Research Committee of the Obafemi Awolowo University Teaching Hospital Complex, Nigeria for the authenticity of the data and for us to have access to the respondent targeted for the study.

X. DECLARATIONS OF CONFLICT OF INTEREST:

The authors have no relevant financial or non-financial interests to disclose."

XI. Ethical Approval

Approval and ethical clearance NHREC/27/02/2009a was received from the Ethical and Research Committee of the Obafemi Awolowo University Teaching Hospital Complex, Nigeria for the authenticity of the data and for us to have access to the respondent targeted for the study.

XII. Consent to participate

Written informed consent was given prior to participation by individuals

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