ASSESSMENT OF ADHERENCE TO MEDICATION AMONG CARDIOVASCULAR DISEASE OUTPATIENTS IN JOS UNIVERSITY TEACHING HOSPITAL, JOS, NIGERIA

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ABSTRACT

Aims: To assess the levels of adherence among patients receiving cardiovascular disease(s) therapy, determine how reliable is the Morisky Medication Adherence Scale in assessing adherence in this population and identify demographic factors associated with adherence. **Study design:** A cross sectional survey Place and Duration of Study: Medical Out Patient Department of Jos University Teaching Hospital, between January and April, 2017. **Methodology:** Data was collected from all patients who were 18 years and above that were being managed for cardiovascular disease(s) who consented to participate in the research on each clinic day (Tuesdays) from February 2017 to April 2017, a total of 161 questionnaires were fill and retrieved. The data was analyzed using the Statistical Package for Social Sciences (SPSS) version 20. **Results:** Only about 15% of the patients adhered well to their medications. There was statistically significant association between adherence and gender, occupation and marital status but no significant association between adherence, age and education. Morisky Medication Adherence Scale-8 was found to be reliable in assessing adherence in the population studied with Chrombach's alpha 0.713. **Conclusion:** With this low level of adherence, there is high risk of failure to achieve optimum therapy outcome as well as increased risk of disease progression, occurrence of complications and high mortality rate. The Morisky Medication

Adherence Scale-8 can be used in such population as in this study to assess adherence due to high reliability.

KEYWORDS: Cardiovascular diseases, Medication Therapy, Adherence, Reliability, Morisky.

INTRODUCTION

Non-infectious chronic diseases have long been thought to primarily affect affluent populations. However, these conditions are responsible for more deaths, both in absolute numbers and relative proportions in resource limited settings.[1] Its prevalence in these regions is increasing at more than twice the rate observed in resource-rich countries.[1] Cardiovascular disease (CVD) is a significant cause of mortality and disability worldwide.[2] Reports from the Global Burden of Disease Study 2010 revealed that it contributed 43% to the global mortality figure. The total global burden of CVD in terms of disability adjusted life years (DALYs) stood at 15% in 2010.[2] It is still the leading killer in America, accounting for more than 33% deaths, as more than 2,000 Americans die of CVD every day.[3] In the United Kingdom, one person experiences a heart attack every three minutes and CVD underpins 25% of the mortality in the United Kingdom.[4] It imposes a particular burden and is the leading cause of death in all age groups in virtually all low and middle income nations.

Cardiovascular disease accounts for 9.2% of total deaths in the African region in 2001.[5] where they are the leading cause of death in those over the age of 45 years.[6] By 2020, the burden of CVD faced by African countries is expected to double.[6] CVD accounts for 7-10% of all adult medical admissions to hospitals in Africa. The reported hospital mortality is high, reaching 9.2% in Cameroon.[7]

In Nigeria, CVD total death in 2014 stands at 7% of all ages in both sexes, it is the number four cause of mortality in Nigeria.[8]

Thus, the prevention and management of cardiovascular illness has become a major focus of healthcare providers worldwide.[1]

Medications are the primary tools used to prevent and effectively manage chronic illnesses; however, despite their importance and known benefits, appropriate medication use remains a challenge for both patients and providers. Patients frequently do not adhere to essential medications, resulting in poor clinical outcomes, increased cost of care and deleterious

consequences for workforce productivity and overall public health.[9] Approximately 50% of patients with cardiovascular disease and/or its major risk factors have poor adherence to their prescribed medications.[10] Medication adherence can be defined as a patient conforming to recommendations from the provider on timing, dosage and frequency during the time prescribed.[11] Finding novel methods to help patients improve their adherence to existing evidence-based cardiovascular drug therapies has enormous potential to improve health outcomes while potentially reducing health care costs.[10]

MATERIAL AND METHODS

study site

The study was carried out in Medical Outpatient Department (MOPD) of the Jos University Teaching Hospital (JUTH), Jos, Plateau State among cardiovascular diseases patients.

study design

A cross sectional survey was employed.

study population

All cardiovascular diseases patients from 18 years and above receiving treatment at Medical Outpatient Department (MOPD) of the Jos university teaching hospital (JUTH) at the time of the study were employed in the study.

sampling procedure

161 patients who were willing to participate and who met the inclusion criteria were enlisted for the study.

inclusion and exclusion criteria

Included in this study were, all patients who have been diagnosed with cardiovascular disease(s) by a medical officer, who were 18years and above that were present at the time of the study and were willing to participate in the study, while excluded were patients that did not have cardiovascular disease.

study instrument

The 8-item Morisky Medication Adherence questionnaire was used to obtain information from the respondents (patients).

data collection

Three research assistants were trained on the use of the questionnaire. Data was collected on each clinic day (Tuesdays) from February 2017 to April 2017. Those who could not understand English very well were assisted by explaining the questions to them in their local dialect. A total of 161 questionnaires were filled and retrieved.

data analysis

The data was analyzed using a Statistical Package for Social Sciences (SPSS) version 20. Descriptive statistics which included frequency, percentages, mean and standard deviation were used for general description of study respondents profile and to obtain the level of adherence to cardiovascular disease(s) management regimens. Chi-square was used to test the association between adherence and demographic variables. Internal consistency was assessed using Cronbach's alpha. A P-value of <0.05 was considered statistically significant.

ethical clearance

An ethical approval was obtained from the ethical committee of Jos University Teaching Hospital (JUTH), Jos, before the commencement of the study.

RESULTS

table 1: Demographic characteristics of respondents

Variable	Frequency	Percentage (%)
Sex		
Male	74	46.00
Female	87	54.00
Age (Years)		
Below 20	3	1.90
20-29	14	8.70
30-39	39	24.20
40-49	37	23.00
50 and above	68	42.20
Marital status		
Single	16	10.00
Married	97	60.20
Separated / Divorce	20	12.40
Widowed	28	17.40
Education		
No formal education	18	11.20
Primary education	14	8.70
Secondary education	38	23.60
Tertiary education	91	56.50
Occupation		

Unemployed	12	7.50
Student/ apprentice	14	8.70
Civil service	41	25.50
Retired	34	21.00
Professional	16	10.00
Farmer/ petty trader	30	18.60
Other	14	8.70

table 2: Association between demographic characteristics of respondents and adherence

Demographic characteristics	High adherence 24 (14.90%) N	%	Moderate adherence 72 (44.70%) N	%	Low adherence 65 (40.40%) N	%	p-value
Sex Male	9	12.0	31	42.0	34	46.0	0.0047
Female	15	17.0	41	47.0	31	36.0	
Age							
< 20	1	33.0	2	67.0	-	-	
20 -29	2	14.0	6	43.0	6	43.0	
30 -39	9	23.0	13	33.0	17	44.0	0.4410
40 -49	5	14.0	15	40.0	17	46.0	
> 50	7	10.0	36	53.0	25	37.0	
Marital status							
Single	1	6.0	4	25.0	11	69.0	
Married	20	21.0	36	37.0	41	42.0	0.0001
Separated	1	5.0	12	60.0	7	35.0	
Widowed	2	7.0	13	46.5	13	46.5	
Education							
No formal education	-		9	50.0	9	50.0	
Primary education	1	7.0	7	50.0	6	43.0	0.2850
Secondary education	14	37.0	15	39.0	9	24.0	
Tertiary education	19	21.0	34	37.0	38	42.0	
Occupation							
Unemployed	1	8.0	7	58.0	4	33.0	
Student	1	7.0	4	29.0	9	64.0	
Civil servant	9	22.0	11	27.0	21	51.0	
Retired	3	9.0	17	50.0	14	41.0	0.0480
Profession	4	25.0	4	25.0	8	50.0	
Farmer	1	3.0	17	57.0	12	40.0	
Others	5	36.0	5	36.0	4	28.0	

table 3: Reliability Statistics

Cronbach's Alpha	N of Items
0.713	8

table 4: Item statistics

	Mean	Std. Deviation	N
do you sometimes forget to take y0ur medication	2.15	.957	161
was there any day when you didnt take your medication	1.89	.953	161
Have you ever stopped taking your medication	2.04	.951	161
decreased the dose	1.93	.959	161
travelled or leave the house	2.06	.976	161
cardiovascular medication yesterday	1.10	.300	161
condition id relieved	1.99	.949	161
felt tired for following treatment	2.09	.954	161
difficulty to remember taking all your medication	1.96	.951	161

How often do you have difficulty to remember taking all your medication	8.91	3.973	.625	.802

DISCUSSION

In this study, it was observed that more than half (54%) of the patients with cardiovascular disease(s) attending the medical outpatient clinic were female. This may be due to the fact that females are usually more obese than males.[12] This is similar to the study by Osamor et al,[13] where the percentage of females (65.2%) were higher than males as well as finding by Plakas et al,[14] where the percentage of females (51%) is a bit higher than that of males, and it also corresponds to the finding by de Oliveira-Filho et al,[15] where 71.5% of the respondents were female, but differ from a study by Gouranga Santra[16] where the male outpatients outnumbered the female outpatients.

Majority (>42%) of the patients were above 50 years of age, this is similar to a study carried out by Osamor et al in 2011[13] and that carried out by de Oliveira-Filho et al,[15] this is also in accordance with a study done by Plakas et al.[14] This is in line with the established fact that

age is a risk factor for cardiovascular disease which may be due to possible decrease in physical activities as people advance in age.

Majority (56.5%) of the patients had tertiary education and 11.3% were without formal education which is contrary to a study carried out by Osamor et al,[13] where 51.1% of the respondents had no formal education. This did not also support the finding by Plakas et al,[14] (67.3%) and that of de Oliveira-Filho et al,[15] in which they found out that majority of the patients that attended cardiovascular disease clinic were those with no formal education.

Most of the patients (60.2%) were married, this is also similar to a study by Osamor et al and Plakas et al.[13,14]

Based on the MMAS-8 (Morisky Medication Adherence Scale 8), only 14.90% of the patients in this study had high adherence level (=8) to their medication(s), this is not too far from a previous study where 19.7% had a high adherence level.[17] However this is in contrast to other earlier studies such as those reported by the World health organization where 51% of the patients with hypertension in united states adhered to their treatment, while in China, the rate of adherence among these patients was 43%,[18] in a similar study with MMAS-8 applied to patients with hypertension, it was found out that 35.6% of patients adhered completely to their medication.[19]

40.40% of patients in this study had low adherence level (<6), this is a bit higher than a study where 34.9% level of non adherence to antihypertensive medications was reported.[20]

Furthermore, the percentage of moderate adherence (6 to 7) was 44.7% which was higher than a finding by Oliveira-Filho et al,[17] which was 33.20%. It is also far higher than the 25.80% of moderate adherence reported by Plakas et al.[14] Patients who scored high on the adherence scale were more likely to have their cardiovascular disease(s) under control.

Internal consistency of the MMAS-8 was assessed using Cronbach's alpha and it was found to be 0.712. The item-total correlations ranged from 0.821(item 1) to 0.233(item 3). The high level of internal consistency of the MMAS-8 implies that this tool can detect various levels of cardiovascular diseases medication adherence among patients receiving treatment at the Jos University Teaching Hospital (JUTH). Prior published reports on reliability of the MMAS-8 have reported internal consistency reliability with Cronbach's Alpha of 0.54 and 0.79 by

Korb-Savoldell V. et al,[21] and Asilar R.H. et al.[22] respectively in hypertensive patients and in patients with myocardial infarction a Cronbach's alpha of 0.77 was found.[23]

There was statistically significant association between adherence to medication(s) and Marital status as well as occupation among the patients, with low adherence least associated with married people, this could be as a result of support from their spouses. It was discovered that students, civil servants, professionals and Farmers had a low adherence level, this could be as a result of tight schedules, while unemployed and retired had better adherence to their medication(s). However, there was no association between adherence and age, gender and educational status, this is contrary to finding by Plakas et al.[14]

CONCLUSION

The overall level of adherence for low, moderate and high were 40.40%, 44.70% and 14.90% respectively. With only 14.90% of the respondents adhering well to their medications, it leaves about 85% of respondents not adhering properly to their medication, this could result in failure to achieve optimum therapeutic outcome, increased risk of treatment failure, disease progression, complications and high mortality rate.

The morisky instrument was reliable in this setting according to this study, having a high Cronbach alpha of 0.712.

A statistically significant association was observed between adherence, marital status and occupation.

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