WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 10, Issue 4, 170-180. Research Article ISSN 2277– 7105

EVALUATION OF LEVELS OF ADHERENCE AND FACTORS INFLUENCING PATIENT'S ADHERENCE TO MEDICATION

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Article Received on
09 Feb. 2021,

Revised on 02 March 2021,
Accepted on 23 March 2021

DOI: 10.20959/wjpr20214-20064

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ABSTRACT

Introduction: Poor medication adherence has been shown to be a major cause of increased morbidity and mortality. Ineffective management as well as deterioration of patient's health, increased admissions are some of the consequences of non adherence. **Objectives**: Evaluate levels of adherence to medication as well as patient behaviors and demographic factors that impact adherence. **Method:** The study was done in three pharmacies across Freetown using a purposive sample of 200 patients that matched the inclusion criteria of the study. Validated questionnaires that were adapted which included questions on patient behavior and demographic factors, were administered to respondents. This was used to evaluate levels of adherence and factors influencing patient's adherence to medications. The data was analyzed using SPSS and Microsoft excel to produce figures and tables. **Results:** About 90 respondents exhibited the highest form of non-adherence, 63 scored medium and 46 exhibited the highest levels of adherence. Of the 50(25%) respondents with tertiary education, 17(34%) had the highest levels of non-adherence and 9(18.0%) had the highest levels of adherence. For those with vocational training, 26(26.8 %) had the highest levels of non-adherence and 25(25.8 %)had the highest level of adherence. Women were generally more adherent to medications than men. For instance 53(55%) of the men stopped taking their medications when they felt better and 59(61.2%) of men also stopped taking their medications when they felt worse, whereas only 46(44.3%) of the women stopped taking their medications when they felt better and

57(55.7%) of the women stopped their medications when they felt worse. **Conclusion:** This study showed that while illiteracy impacted adherence negatively, there was no direct relationship between education and adherence levels Also the levels of non-adherence were very high and levels of adherence were low. It also shows that, apart from sex no specific set of patient demographics could be used to accurately predict levels of adherence. Patient behaviors promoting non-adherence were commonly practiced

KEYWORDS: Adherence, Medication, Behavior.

INTRODUCTION

Adherence

Adherence (also compliance, capacitance) describes the degree to which a patient correctly follows professional healthcare advice.

Sub-standard adherence to medications prescribed for long term conditions has been cited as an international challenge that may lead to increased morbidity and mortality.[1,2] Poor adherence increases the costs within healthcare systems and contributes to significant worsening of disease control and quality of life because patients who stop treatment are more likely to experience worsening of their disability.[3] In addition, adherent patients have improved quality of life and less neurological and psychological impairment.[4]

The World Health Organization (WHO) estimates an average rate of only 50% adherence for patients with chronic medical conditions[1], and some studies showed that more than 25% of all prescribed doses are not taken by patients.[5,6] Poor adherence has also been implicated in unnecessary and costly procedures and hospitalizations.[7]

Adherence is generally taken to be the use of prescription drugs or other procedures for at least 80 percent of the treatment time. It is the extent to which the patient adheres to the instructions of the healthcare preofessional with respect to the use of a particular intervention.[8]

Various models suggest that the primary factors in adherence to treatment are treatment regimen,: state of illness, high costs of medicines, patient's relationship with health professionals and deficient access to medications in the public service.[9,10]

Several studies show that the less often the patient has to take the medication(s) ,the greater the compliance.[11]

Main objective of study Evaluation of levels of adherence to medications, patient behavior and factors that influence levels of adherence.

MATERIALS AND METHODS

A questionnaire given to patients was used to evaluate adherence/non-adherence using adapted versions of the Morisky-Green-Levine (a validated instrument) and Haynes-Sackett tests also validated) as well as a questionnaires to assess patient behavior and demographic factors.

The scoring scale on the adapted version of the Morisky-Green-Levine test ranges from zero to four. An answer of Yes is given a score of zero and an answer of no is given a score of one. A score of zero (highest score) on the four questions means the respondent is exhibiting the highest levels of non-adherence whereas a score of 4 (lowest score) means that the respondent exhibits the highest levels of adherence.

The questionnaire also included a section on compliance communication, a section on patient behavior regarding their illnesses, health problems and drug use as well as a section on demographic characteristics of respondents.

Study site – The study was done in three Pharmacies in Freetown. These were pharmacies that offered pharmaceutical care services and also rendered chronic disease services.

A descriptive cross sectional study design was used for this study targeting either chronic disease (hypertension, diabetes, arthritis etc) patients in the central part of Freetown or patients who had used the medications they were questioned about previously. The inclusion criteria were, patients on medications for chronic diseases and or patients on medications that had been prescribed or recommended for them previously.

Those excluded were patients below 16 years and patients receiving their medications for the first time, patients using medications not recommended/prescribed by a health care provider/professional as well as patient above 80 years and Medications obtained on behalf of another person.

A purposive sampling method was used. A total of 200 patients were used as sample size. This did not include the 6 patients on whom a pilot study was conducted. Previous records from these three pharmacies showed that approximately 200 patients came to obtain repeat prescriptions or medications for chronic ailments and other conditions within the time frame used for the study

Outcomes measured were, levels of adherence, patient behaviors and demographics of patients.

The data collection process involved explaining to respondents the rationale of the study and also seeking their consent to be involved in the study.

The data was collected using validated questionnaires to determine the levels of adherence of respondents, evaluate patient behaviors that influence adherence levels and evaluate demographic characteristics of the patients.

The data was analysed by SPSS and descriptive statistics using tables and figures.

Microsoft excel was also used to prepare some graphs and tables .Microsoft excel was also used to prepare some graphs and figures.

RESULTS AND DISCUSSION

Of the 200 respondents 103(51.5%) were females and 97(48.5%) were males. Thirteen of the respondents had no education, 36(18%) had secondary education and 97(48.5%) had vocational education with 50 (25%) having tertiary education.

Sixteen (8%) of the respondent were divorced, 94(46.8%) were married, 4(2.2%) were separated, 69(34.5%) were single and 7(3.5%) were widows and 10(5%0 were widowers.

Sixteen (8%) were in the high income bracket, 24(62%) in the medium income bracket and 60(30%) in the low income bracket.

Thirty one(15.5%) were on single medications, 109(54.5%) on two medications and 60 (30%) on three medications.

Levels of Adherence and non-adherence

On the PRMAS (Patient Response to Medication Adherence Scale) based on the questions answered the highest possible score is 4 and the lowest is 0. A score of 0 means the respondent answered yes to all the questions(zero is the highest score on the scale) - that means the respondent exhibits the highest levels of non adherence. A score of 4(four is the lowest score on the scale), means that the respondent answered no to all the questions and exhibits the highest level of adherence. A high score on the PRMAS means the patient is highly non-adherent. The highest level of non –adherence is a score of 0 and a low score on the scale means the patient is highly adherent the highest level of adherence being a score of 4.

Forty five point eight percent of the respondents scored high on the scale which means they exhibited the highest form of non-adherence, 31.3 percent scored medium and 22.9 percent scored low which means they (22.9%) exhibited the highest levels of adherence.

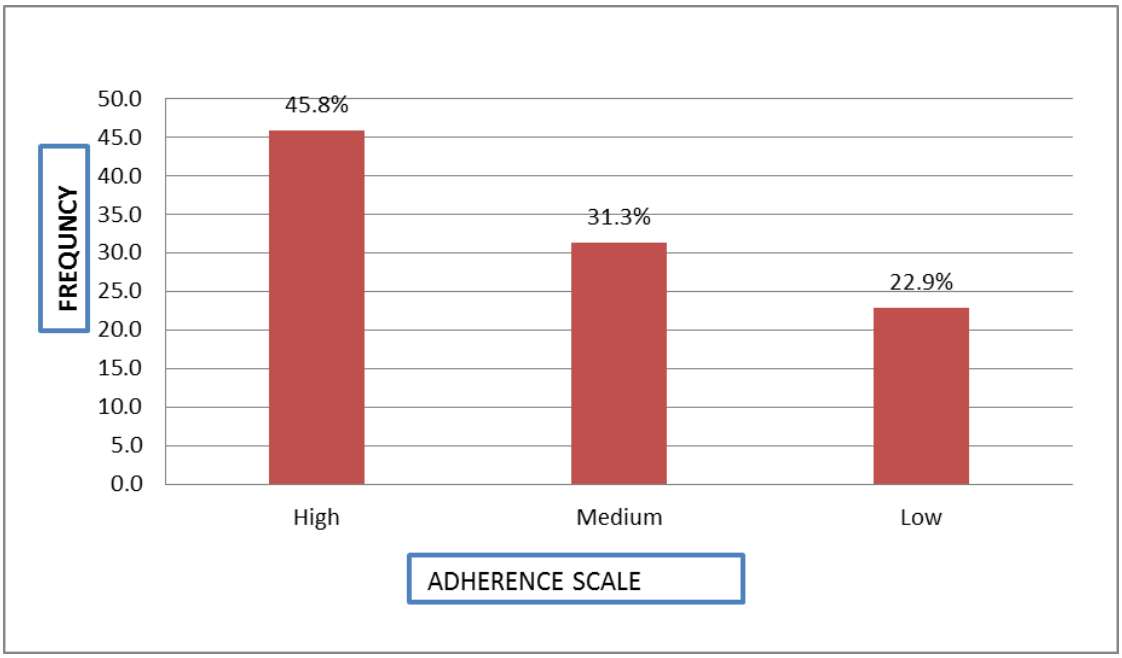

Fig. 1: Patient responses to medication adherence Scale.

For those with no education, 30.8% of them had the highest level of non-adherence on the PRMAS - that is a score of zero and 15.4 percent of them had the highest level of adherence – a total score of 4.Of those with primary education 75.0 percent had the highest level of non-adherence and none had the highest level of adherence.

Of those with secondary education, 22.2 percent had the highest levels of non-adherence and 27.8 percent had the highest levels of adherence.

Of those with tertiary education 34.0 % had the highest levels of non-adherence and 18.0 % had the highest levels of adherence. For those with vocational training 26.8 % had the highest levels of non-adherence and 25.8 % had the highest level of adherence.

Table 1: Education Level and Patient responses to Medication Adherence Scale.

Education Level	Patient responses to Medication Adherence Scale				
	.00(High)	1.00(High)	2.00(Medium)	3.00(Medium)	4.00(Low)
None	30.8%	15.4%	7.7%	30.8%	15.4%
Primary	75.0%	0.0%	0.0%	25.0%	0.0%
Secondary	22.2%	19.4%	13.9%	13.9%	27.8%
Tertiary	34.0%	10.0%	22.0%	16.0%	18.0%
Vocational	26.8%	20.6%	13.4%	13.4%	25.8%

Table 2: Patient Behaviour-Forgetfulness and difficulty taking medications over the past 30 days.

	No	Yes
Do you forget to take your medication(s)	49.3%	50.2%
Over the last 30 days have you had any difficulty taking your medication(s)	56.7%	42.8%

Table 3: Do you stop taking your medication when you feel better – by sex.

	Males	Females
When you feel better do you sometimes stop taking your medications	(55.3) YES	(44.3) YES
When you feel better do you sometimes stop taking your medications	(44.7) NO	(55.7) NO

Fifty five point seven percent of females stopped taking their medications when they felt worse and 61.2% of males stopped when they felt worse also

Table 4: Sometimes if you feel worse when you take the medicine, do you stop taking it? By sex.

	Males	Females
When you feel worse do you sometimes stop taking your medications	(61.2) YES	(55.7) YES
When you feel worse do you sometimes stop taking your medications	(38.8) NO	(44.3) NO

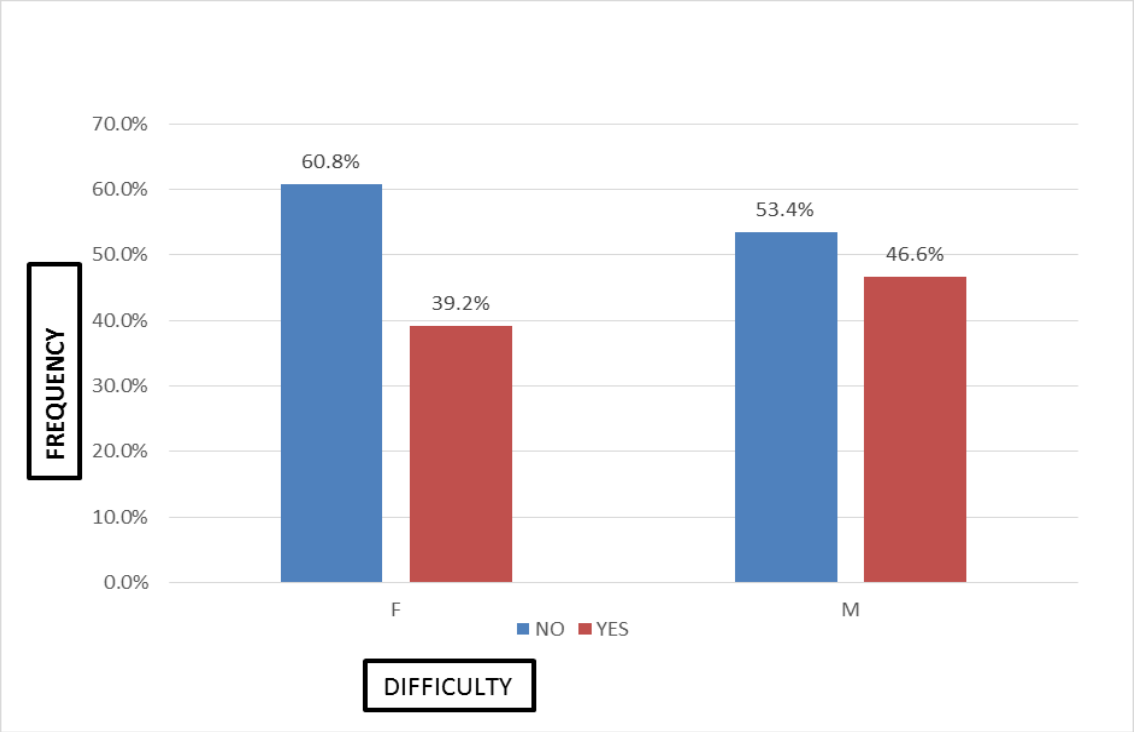

Fig. 2: Most people, for one reason or another, have some kind of difficulty taking their medication. Over the last 30 days have you had any difficulty taking your medications? By sex.

Table 5: Behavior.

Variables	Variables	Frequency
Proper use of medication	No	12(6%)
	Sometimes	3(1.5%)
	Yes	185(92.5%)
Dose used by respondent	At prescribed	159(79.5%)
	Half of prescribed	15(7.5%)
	At recommended	23(11.5%)
	Above prescribed/rec	3(1.5%)
Experience when medications	Great	6(3%)
Were used	Not well	52(26%)
	Okay	66(33%)
	Well	76(38%)
Discomfort	A little	90(45%)
	A lot	12(6%)
	No	98(49%)

Typically, adherence rates of 80% or more are needed for optimal therapeutic efficacy. However, it is estimated that adherence to chronic medications is around 50% DiMatteo*et al*, (2002).[12] Only 22.9% of patients in this study were sufficiently adherent for optimal therapeutic efficacy.

This study shows that while illiteracy impacted adherence negatively, there was no direct relationship between education and adherence levels when the data for secondary ,vocational and teriary education is compared.

Most of the findings of this study are very similar to the findings of other studies. Prevalence of medication non-adherence is on the ascendancy especially in LMICs (Low and Medium Income countries), where adherence averages less than 50% Hogerzeil*et al* (2013).[13] For instance only 22.9 percent of the respondents showed the highest degree of adherence to medications and this level of adherence is what is needed to optimize therapeutic outcomes of a medication regimen. Studies have consistently shown that level of education and other patient characteristics cannot be used to predict level of adherence and this is also evident in the table showing the relationship between the educational levels and adherence.

Typical strategies have assessed global patient characteristics or "personality" traits, but these have proven to be poor predictors of adherence behavior Farmer, (1999).[14] There are no stable (i.e. trait) factors that reliably predict adherenceFarmer, (1999).[14]

It has also been observed that patient non adherence varies between and within individuals, as well as across time, recommended behaviors and diseases Sewitch*et al*, (2004)[15]

The literature concerning adherence reports in elderly patients reports that compliance rates range roughly from 38% to 57%.[16]

A major reason for non adherence is higher patient-physician discordance leading to decreased patient satisfaction Weingarten *et al*, (1995)[17]

Non adherence can also occur when the medication regimen is complex which could include improper timing of drug administration, or administration of numerous medications at frequent or unusual times during the day. These patient behavioral factors may or may not be perceived by the physician and results in decreased therapeutic outcome. Most deviations in taking medication occur as omission of doses (rather than additions) or delays in the timing of doses. Burnier, (2000).[18]

Economic cost of non-adherence in the US is $100 billion per year, with direct medical cost accounting for $30 billion and $70 billion in lost wages, productivity and other losses.[19]

A meta-analysis of 569 studies of medication adherence revealed an average nonadherence rate of 25%.[20] Adherence is highest in patients with human deficiency virus infection, arthritis, gastrointestinal disorders, or cancer, and lowest in patients with pulmonary disease, diabetes mellitus, or sleep disorders. It is generally thought that the gravity of the disease motivates patients to take their medication exactly as prescribed.[21]

As a consequence of non adherence, substantial numbers of patients do not benefit optimally from medication, resulting in increased morbidity and mortality as well as increased societal costs.[22]

The elderly are a patient group that is vulnerable to negative health outcomes due to lack of adherence. Because older patients often use a variety of drugs for a number of chronic diseases, the consequences of nonadherence may be more serious, but nonadherence may be less easily detected and resolved than in younger age groups.[23]

Patient behavior, treatment type, health professional are all factors that influence adherence. For instance the patient might believe the treatment is unnecessary or a complex treatment plan may increase the chances of non-adherence[24] and viable communication and rapport between the patient and health professional might be non-existent.[25]

CONCLUSION

This study shows that levels of non adherence are high and patients exhibit behaviors that enhance non-adherence to their medications. The implications of this are serious and has a negative impact on the health delivery system.

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