



Risk assessment of adherence in hypertensives and diabetics in a sub-Saharan African outpatient clinic

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SUMMARY

Medication non-adherence is a significant burden to health care utilization[1], in addition to poor disease control. But there is a paucity of structured adherence counselling as a thematic area of care. We have used a modified adherence tool for patients living with HIV and AIDs which incorporates social background, treatment preparation, adherence habits, disclosure of illness, the use of treatment partners, and assessment of potential barriers to adherence. This form was designed only to explore known characteristics that are important for adherence, but patients were asked to make judgement on their own level of adherence.

Of the one hundred and eighty one eighty six (47.5%) were males while 95(52.5%) were females. The mean age was 50.83years (SD 12.54). Majority of the patients were married (81.8%) and had at least primary education. Most of the patients whom we interviewed were hypertensives (65%). One hundred and twelve (61.88%) were taking medications during a daily routine, such as eating. Most of the patients, 116(64.10%) had some knowledge about their illness and the medications they were taking by names. Majority of patients (72.4%) had disclosed their illness to their spouses. Many patients self-report that their adherence is good.

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Introduction

Adherence to medications used for treatment of chronic illnesses such as hypertension and diabetes mellitus has generally be regarded as poor[2-4], even though these diseases account for great burden of morbidity and mortality world-wide, and particularly in sub-Saharan Africa[5]. This is despite the fact that medications for treatment of hypertension and diabetes are cheaper due to availability of generic products. Adherence factors are generally patient/caregiver or health provider related. Patient related factors are very important and are the most effective in overcoming barriers to adherence. They are also the most

significant modifiable factors [6, 7]. Medication non-adherence is a significant burden to health care utilization[1] in addition to poor disease control. Although health awareness is a prominent feature of patient's participation in management of chronic diseases in most clinics now, there is a paucity of structured adherence counselling as a thematic area of care. This is a key feature in the care of patients living with HIV and AIDS where a near perfect adherence to antiretroviral therapy is critical for viral suppression. This model of care provides an opportunity to first explore factors that may enhance or hinder adherence in our hypertension/diabetic clinic and then incorporate



this as part of the comprehensive care for hypertension and diabetes. These factors include gender, age, marital status, educational status, treatment preparation, level of awareness of illness, and patients' perception of sources of barriers to medication adherence. We assessed these factors in our hypertensive and diabetic patients in order to determine medication adherence among them later.

Methods

As part of the scale-up of HIV and AIDS care in Nigeria, a comprehensive approach to patient management was institutionalized. There was development of manpower in the areas of clinical care, counselling, prevention of mother to child, laboratory services, community care, and adherence counselling. Because of the biology and interaction of the virus with the anti-retrovirals, a rigorous adherence counselling was deemed critical for the overall success of the programme. The aim was to achieve $\geq 95\%$ adherence to the medications [8]. A tool was developed for patients' assessment at every clinic visit. This is called *Medication Assessment and Work Plan*. It incorporates social background, treatment preparation, adherence habits, disclosure of illness, the use of treatment partners, and assessment of potential barriers to adherence. Two adherence counsellors for patients living with HIV and AIDS were trained for the purpose of administering a modified form of this tool for the hypertension/diabetes clinic. The questionnaire was translated into patient's language where necessary. This form was designed only to explore known

characteristics that are important for adherence, but patients were asked to make judgement on their own level of adherence. Knowledge of patient characteristics and adherence habits will be important in instituting a work-plan tailored for the hypertension and diabetes clinic. The questionnaire was divided into three parts: patients' demographic and clinical characteristics, measures to improve adherence, and patients' own opinion about their adherence. An approximate calculated adherence was made based on days of missed doses in the previous one month as follow: 5–8 days or can't remember = poor, 1–4 days = good, none = excellent. The questionnaire was pretested.

Two hundred patients were randomly selected in our hypertension clinic and interviewed using the questionnaire. No formal adherence education or any form of additional intervention had been given to these patients.

Results:

A total of one hundred and eighty one (90.5%) questionnaires had complete data and these were analysed (Table 1). Eighty six (47.5%) were males while 95(52.5%) were females. The mean age was 50.83years (SD 12.54). Majority of the patients were married (81.8%). Thirty four (18.8%) were illiterate or had no formal education while 41 (22.7), thirty seven (20.4%) and 38(21.0%) had primary, secondary and tertiary (but not university) education respectively. Thirty one (17.1%) had university education. Most of the patients whom we interviewed were hypertensives (65%).



Table 1. Patients' demographics

	Number (%)	Mean (SD)
Gender		
Male	86 (47.5)	
Female	95 (52.5)	
Age		
		50.83(12.54)
Male		51.73(12.28)
Female		50.35(12.82)
Marital status		
Single	13 (7.2)	
Married	148 (81.8)	
Widows/widowers	20 (11.0)	
Highest level of education		
None/illiterate	34 (18.8)	
Primary	41 (22.7)	
Secondary	37 (20.4)	
Tertiary but not University	38 (21.0)	
University	31 (17.1)	
Diagnosis		
Hypertension	119 (65.7)	
Diabetes	21 (11.6)	
Hypertension and Diabetes	41 (22.7)	

On self-help measures and other means of enhancing adherence, one hundred and twelve (61.88%) were taking medications during a daily routine, such as eating (Table 2). Seventeen had (9.40%) had treatment

partner, only three (1.66%) used electronic devices such as alarms to enhance adherence. Forty eight (26.52%) did not use any specific means to enhance adherence to medication.

Table 2. Measures to improve adherence

Treatment Preparation	Number (%)
Treatment partner	17 (9.40)
Alarm/text messages	3 (1.66)
Taking medications during daily routine	112 (61.88)
Educational module	1 (0.55)
None needed	48 (26.52)



Awareness of illness and medication

Personal knowledge of illness and medication

Yes	116 (64.10)
No	65 (35.90)

Who is aware of illness?

Nobody	3 (1.70)
Spouse	131 (72.4)
Children	32 (17.6)
Siblings	9 (5.0)
Parents	4 (2.21)

Perceived sources of barriers to adherence

Patient/caregiver related

Knowledge of disease	40 (22.1)
Cost of drugs	35 (19.3)
None	106 (58.6)

Health facility/Health team related

Trust and confidence	32 (17.7)
Poor communication	17 (9.4)
Waiting time	68 (37.6)
None	64 (35.4)

Most of the patients, 116(64.10%) had some knowledge about their illness and the medications they were taking by names. One hundred and thirty one (72.4%) said their spouses were aware of their illness, while in thirty two (17.6%), the children were aware.

Regarding perceived sources of barriers to adherence related to the patients themselves or their relatives, forty (22.1%) and thirty five (19.3%) said that knowledge of the disease and cost of drugs respectively could be factors affecting adherence. One hundred and six (58.6%) said that they did not perceive anything in themselves that could potentially affect adherence. For 32 (17.7%) patients, trust and confidence in the health team/facility, communication in 17 (9.4%) and waiting time in 68 (37.6%) and could be factors affecting

adherence. Sixty four (35.4%) did not perceive anything in the health team/facility that could be a factor affecting adherence. One hundred and eight (59.67%) judged their own adherence to be good based on their own assessment, while 60 (33.1%) said it was excellent. When we then asked them to recall how many days in the past one month they had missed their doses, thirty eight (20.99%) had missed in 1–4 days, 12 (6.63%) in 5–8 days and one hundred and nineteen (65.75%) said they had not missed any doses. Based on the number of days doses of drugs were missed, we made an approximate calculation of levels of adherence. Twenty four patients (13.26%), 38 (20.99%) and 113 (65.75%) had poor, good and excellent adherence respectively.



Table 3. Levels of adherence

	Number (%)
Self-assessment of adherence	
Poor	13 (7.2)
Good	108 (59.67)
Excellent	60 (33.1)
Days of missed doses in the past one month	
1-4 days	38 (20.99)
5-8 days	12 (6.63)
Can't remember	12 (6.63)
None	119 (65.75)
Approximate calculated adherence based on days of missed doses in the past month	
Poor	24 (13.26)
Good	38 (20.99)
Excellent	119 (65.75)

Discussion

This study has investigated the common known risk factors for poor adherence to medication in our adult hypertensive and diabetic patients who attend our clinic. As previously documented, medication adherence is not generally optimal, and many factors are responsible for this, especially in developing countries where non-adherence may be as low as 63.4%[9]. Even in developed world, adherence to antihypertensive medications is relatively poor, particularly among the minorities[10]. The mean age of our study population is about 51 years. Challenges of adherence are not similar for both adolescent and adult population. For example in adolescents, stage of maturity and certain emotional problems are very relevant[11]. Younger age is a factor of poor adherence [12]. Majority of patients (81.8%) interviewed in this study were married. A

spouse would be an ideal treatment partner in a chronic disease such as hypertension or diabetes, especially when disclosure of illness would not be a challenge in a marriage relationship. Even in adolescents or unmarried people, disclosure enhances adherence to therapy[13].

Most of the patients had some level of education (only 34% having no form of education or completely illiterate), and this is a key factor in improving adherence, as demonstrated by Burge, SK et al in their study which demonstrated that higher education, among other things, were associated with medication knowledge and adherence[14]. Higher level of education would facilitate communication and understanding of illness, medications and lifestyle modification.



Treatment preparation involves education of patient on the nature of their illness, focused group discussion on how to enhance adherence, psychological assessment on readiness, possible side effects of drugs, addressing patients' fears and apprehension about medications, awareness on the need to take medications and self-help measures to enhance adherence[15]. Majority of the patients interviewed (61.88%) take medications during a daily routine such as eating. Most people would intuitively take their medication at the most convenient time which is during or after a meal, usually the breakfast and or dinner when they are at home. Fortunately most anti-hypertensive and anti-diabetic drugs are taken once or twice a day. Only a minority of patients use self help measures such as treatment partner (someone who, among other things, reminds and encourages patient to take medications) and electronic devices or alarms, possibly because they are more complex even though this have been demonstrated to improve adherence in a study of elderly patients[16]. It seems, then, that one of the best ways to enhance medication adherence is reinforcing the practice of taking medications during a daily routine such as meals.

Almost two thirds of the patients interviewed had some knowledge about their medications and illness. This would normally arise from adequate information and interaction by all staff of the clinic with patients. Health talk is a part and parcel of our clinic activities. During this period, patients ask questions about their illness and medications. When patients are pleased with their clinic consultation they are more likely to adhere to therapy[17]. Conversely, when patients are not motivated, have not received adequate health education, and are not fully aware of the nature of their illness, their adherence to medications would be poor[3].

Family and social support, and hence disclosure of illness which is easier in non-stigmatizing illnesses like hypertension and diabetes, are known to enhance adherence[18, 19]. Majority of those interviewed said their spouses were aware of their illness. Though this in itself is not a guarantee of support, but in a relatively stable family set-up, this can be a focus of intervention for improving adherence. A spouse may lend support by reminding the other about taking medication, or a husband providing financial support to attend clinic and purchase medication. A woman in purdah or in a culture where she cannot go out without permission or a company would get a better support if her husband is aware of her illness. Only a minority of patients believe that knowledge of disease and cost of drugs could not be factors affecting adherence, nor do they also believe that factors relating to the health facilities could be factors affecting adherence. This agrees with an earlier report demonstrating that interviews have lower concordance compared with questionnaires or diaries[20]. Therefore, without an intervention such as peer education, focused group discussion, provision and availability of educational materials this may not be appreciated. Furthermore, patients are more likely to exaggerate their adherence or have the sense that they are doing all that needs to be done. It is not surprising that 59.67% and 33.10% judged their adherence to be good and excellent respectively. Sixty five percent said they had not missed any dose of their medications in the previous one month. An estimate of adherence based on self-report showed an excellent adherence in over 65% of the interviewees.

Conclusions

Our study has identified certain factors of adherence to antihypertensive and anti-diabetic medications. This study has only explored factors that may affect adherence which may be areas of attention and



intervention in our hypertensive and diabetic patients; we have not objectively assessed adherence in them. We hope to introduce this tool for intervention in order to improve adherence in our hypertension clinic.

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