PATIENT COMPLIANCE WITH PHARMACIST DISPENSED MEDICINES IN A NIGERIAN UNIVERSITY COMMUNITY

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KEY WORDS

Outpatients; Compliance; Medications; Pharmacists

ABSTRACT

Objective: The study seeks to determine the degree of compliance of outpatients with prescribed medicines and assess the possible role of the hospital pharmacist in facilitating client's compliance.

Methods: 450 outpatients attending various general and consultant clinics with prescriptions to be dispensed by pharmacists were selected through stratified sampling technique. A self developed questionnaire with a reliability coefficient of 0.87 was used for data collection.

Results: Over 80% of the study population, with 85% having post secondary education, had missed their doses while on prescribed medications. Prohibitive cost of prescriptions, unpleasant drug effects and long duration of therapy were some of the reasons adduced. Many of the subjects agreed that the instructions of the pharmacists were clear (75%) and the importance of following directions was emphasised (54%), but only 37% received information from the Pharmacist about use of drugs. About 50% of the subjects did not receive any information about the potential adverse effects of their medications.

Conclusion: Non compliance was prevalent in this largely literate population mostly due to the grossly inadequate information provided by the pharmacist as the prescription was dispensed.

Practice implications: The pharmacist should effectively communicate with the patient in order to encourage compliance.

1. INTRODUCTION

Non compliance has become one of the most significant reasons for failed therapy[1]. Estimates of the proportion of non compliant patients has been found to range from 30 to 90% as form of therapy varied[2]. Patient compliance with medication instructions is a critical factor in all aspects of medicine use. It also plays a major role in improving pharmaceutical care outcomes. Approximately 50% of patients with chronic diseases have been found not to obtain clinical benefit from treatment because of poor compliance with medication regimen[3]. The use of medication is an established part of most treatment regimens and the best treatment plan invariably fails without compliance[4].

The above notwithstanding a large proportion of health care professionals overestimate the degree of compliance of the patient. According to Dr. Smith in 2001 "the pharmaceutical industry is arrogant in that it issues labeling for directions and expects patients to comply. However, only one sixth of patients take drugs as they are prescribed"[5].

A. BRIEF CONCEPTUAL FRAMEWORK

Compliance problems in hospitals have decreased with the advent of pharmaceutical care and a shift in responsibility to the health care provider. Monitoring of the medication regimen of the in patient by hospital personnel has invariably led to increased compliance level. However results of studies on this category of patients cannot be extrapolated to the whole population as it does not show a true reflection of the extent of the problem of non compliance in the greater percentage of the population.

An understanding of the rationale behind the behavioural patterns observed in patients is a necessity in preventing and solving patient compliance problems. A definite consensus on the causes of non compliance however remains elusive as a result of the magnitude of the literature and difficulties in comparison of research results due to methodological differences[6]. In terms of the existing literature on the causes of non compliance two broad classifications have emerged. The classes are: (1) Patient related causes and (2) Drug related causes.

Patient Related Causes of non compliance

Studies carried out in the United States, the United Kingdom and in Nigeria have shown that the cost of prescription has an influence on patient behaviour. Research has revealed a plethora of strategies devised by the patient to reduce the cost of medication. Such strategies include substitution of OTC products for prescribed drugs, reduction of dosage prescribed and a delayed or non filling of prescription[7,8].

An intangible yet very important aspect of compliance behaviour which could be one of the most significant factors is the interaction between the health ▶

practitioner and the patient. The emergence of highly trained specialists in different fields of medicine with a great deal of expertise but minimal "bedside manners" has resulted in a lower degree of compliance. Research results however indicate that the highest degree of compliance was recorded in patients who declared a good relationship with the health care personnel[9].

The implications of these studies reinforce the theory recognizing the important role of the patient in ensuring efficacy of therapy.

Drug Related Causes of non compliance

Drug related causes are the preferred target of health care professionals in addressing compliance problems due to the high possibility of manipulation of prescription to achieve the desired goal of improving compliance.

Several authors agree on the negative effects of polypharmacy and complex regimen on patient compliance[10,11]. These invariably lead to an avalanche of other factors producing a "domino effect" which progressively increases the probability of non compliance. The expectation is that the prescriber would aim for optimum patient compliance in prescribing.

The causes of non compliance are obviously varied and multidimensional. However the importance of compliance in patient therapy makes it imperative to carry out a detailed study on this crucial issue that also reflects the effectiveness of the health care practitioner. The practitioner under focus in this study is the hospital pharmacist who is generally regarded as the "drug expert" responsible for all the prescriptions dispensed in the hospital.

Previous studies carried out on the same category of patients being investigated revealed that the level of ignorance of patients, and the lack of information about prescribed drugs have an effect on patient compliance[12]. There is a lack of adequate information on the role of the pharmacist in patient compliance in Nigeria. This is in direct contrast to the scenario in developed countries where the enhanced role of the pharmacist either through

pharmaceutical care or medicines management is the primary focus in patient compliance problems. It was therefore considered necessary for a work to be done on the possible role of the hospital pharmacist in influencing patient compliance behavior in Nigeria with relevant lessons for other developing countries.

This study sought to determine the degree of compliance of outpatients with prescribed medicines. It also examined the possible role of the hospital pharmacist in facilitating client's compliance.

2. METHODS
a. The Setting

The study was carried out in a University in Ile-Ife, a town in South Western Nigeria. Members of the University community have access to two tertiary healthcare institutions, and a university health centre that has pharmacists in their employment. The target population was members of the university community, who had visited a hospital/health centre to collect prescription drugs dispensed by a pharmacist.

b. The Research Instrument

The principal instrument used for this study is a questionnaire comprising of two key sections that reflected the thrust of the study. The pre-tested questionnaire was self developed and had a reliability of 0.87.

The first section was designed for the detection of non-compliance to prescribed medicines among respondents. To establish the past use of prescribed medicines by the respondents, questions such as "Have you ever sought medical help? and "Did the health provider recommend medication you used in a case of ill health? were asked.

To determine the extent of non-compliance, close-ended as well as leading questions were asked. For example, the question "Did you sometimes miss your doses? was followed by "If yes, what did you do next?".

A section of the questionnaire was devoted to evaluating the performance of the dispensing pharmacist and the consequent effect on compliance

behaviour. This was done by listing ten statements on a Lickert scale. The roles of the pharmacist are expected to include delivery of clear instructions concerning the use of prescribed medication, providing information about drugs as well as necessary caution. The pharmacist is also expected to be in the position to handle any query from the patient, alleviating any fears and encouraging proper use of the medication. These expected roles were reflected in the questionnaire.

c. Sampling and Data Collection

The population included in this study was obtained by stratified random sampling. The criteria for stratification were sex, age and educational status; ensuring that both sexes of varying age groups and of different educational levels were adequately represented. Once those criteria had been met, the number of respondents per group was randomly selected. The principal criteria in the study was that the respondent must have received medical attention for which medicines were prescribed and must have had their prescriptions dispensed by a pharmacist. A total of 450 questionnaires were administered.

d. Analysis

Questionnaires were sorted and those discovered to have excessive relevant missing items were discarded. Nine respondents, for instance, indicated they had never sought medical help while fifteen questionnaires had excessive missing items. The affected questionnaires were discarded. All the variables were thereafter coded and entered into an SPSS+ database. Statistical analysis was performed using the SPSS package for PC. The statistical analysis included percentages, means, cross tabulations and test for significance.

The possibility of a relationship between age, sex, educational level and compliance was tested using chi square tests at 95% significance level.

3. RESULTS

Four hundred and fifty questionnaires were administered of which 415 were returned. Twenty-four of these were incomplete and therefore discarded. A total of 391 questionnaires were analyzed. ▶

Table 1 is a compilation of the socio-demographic variables. The ratio of male to female was 4 to 5. Seventy percent of the subjects fell within the 19-25 years age bracket. Like a typical University community, majority of the subjects (85%) had post secondary education with 50% having at least a Bachelor's degree. Most of the subjects were also Christians which is the predominant religion in the community.

A. Determinants of Compliance
Table 2 shows the factors that affected compliance from the patients' perspective. A high percentage of the subjects (84%) occasionally missed their doses and majority (61%) would thereafter do nothing about it, while 11% would report to the prescriber. Occurrence of adverse drug reactions during therapy elicited varying responses. Forty seven percent of the subjects indicated they would go back to the prescriber, 33% would stop using the drug compared to 12% that would continue to use the drug as directed.

The cost of drugs appears prohibitive as about half of the population (48%) reported an inability to afford all prescribed drugs and most of them would opt to buy some and fill the rest of the prescription at a future date. The duration of treatment was also identified as a hindrance to compliance as majority of the population (83%) indicated that long duration of treatment would make compliance with prescriber's instructions difficult. Another factor identified as affecting compliance was the severity of the disease which 48% of the subjects indicated would affect their use of medication.

A rather interesting result was the size of the population (76%) that believed it was very important to follow directions given for drug use as well as the necessity of using drugs exactly as recommended (89%).

B. Respondent's Assessment of the Pharmacist
Table 3 shows the respondents' evaluation of the Pharmacists' professional service. Majority of the subjects (75%) agreed that the instructions of the pharmacist were clear, while 54% gave the pharmacist

credit for laying emphasis on the importance of following instructions on drug use.

However, only 37% of the population indicated they received information about the purpose of the drugs given. Similarly 51% of the subjects did not receive any caution concerning the possible side effects of the drugs dispensed to them and 33% did not have the opportunity to ask questions for further clarification. It is therefore a surprise that in spite of the above, 48% of the respondents believed that the information received from the pharmacist was adequate. This stands in contrast to the lower percentage that believed that the information provided by the pharmacist helped in subsequent recollection of prescribing instructions. The personal attention received from the pharmacist was rated relatively high. Fifty percent of the population was satisfied with the attention received from the pharmacist and 47% believed the attention received was a source of encouragement to use their medication properly. This probably explains why 62% believed that the pharmacist was interested in their well-being.

4. DISCUSSION AND CONCLUSION
4a. Discussion
The results of this study which showed a high percentage of subjects who admitted to missing their doses corroborate the claim that only one sixth of patients take drugs as they are prescribed[5]. The wide spread prevalence of non-compliance was further confirmed by the response of the subjects to varying issues associated with their drug use.

It is rather interesting that virtually all the subjects attested to the necessity of using drugs exactly as recommended despite the high proportion who either ignored or compromised prescribing instructions.

i. Improving Patient Compliance
A large percentage of respondents who tended to miss their doses thereafter did nothing about the missed doses. Only 11% returned to the prescriber to report. Rapid intervention by the health personnel would prevent non-compliance induced therapeutic failure if the cases of poor drug compliance were reported more often. Patient

education about the consequences of skipping some doses of their particular individual medication would also improve compliance[14].

Research and development in pharmaceutical companies undertake the constant modification of existing drugs to new drugs with less side effects and possibly higher efficacy. Drugs with least side effects should therefore be preferably prescribed. This problem of adverse drug reactions will result in 33% stopping the use of their drugs while 47% will give a feedback to the prescriber. Only 12% would continue to use the drug as directed. This observed response is in line with other reports about the effects of unpleasant side effects on compliance[6].

Patients should also preferably be allowed to participate in the decision-making process for their clinical management. Less than half of the subjects (44%) in this study reported they would have made different choices if they had been allowed to participate in the choice of drugs prescribed. Partnership between professionals and patients facilitates better medicines management.

The study showed that prohibitive cost led to delayed filling of prescription in 33% of the population while 15% had none or only a portion of their prescribed medicines dispensed. This could adversely affect patient outcome especially where non-dispensed items are drugs in which compliance is very important. It has been recommended that appropriate personnel should review drug policies and prescribing habits to discourage polypharmacy in a bid to curb the high cost of pharmacotherapy with their attendant barrier to compliance[8].

Non-compliance is an obvious drawback in long-term treatment. Eighty-three percent of the population in this study who claimed to have been on medication for a long time agreed that it had become difficult to use the drug as diligently as recommended. This suggests that compliance problems have to be thoroughly addressed in long term diseases where drug management is the only option and patients may be on long term medication. Health education on the consequences of poorly managed ►

disease conditions would markedly improve drug compliance.[16]

The poor attitude of patients to compliance is shown in the response of subjects to the questions "If your drug affects your lifestyle e.g. the kind of food you could eat or the kind of work you could do what would be your reaction? Only 10% of the subjects responded they would complete the medication as prescribed, suggesting that in 90% of the population, therapy induced alterations in lifestyle or inconvenience would likely lead to non compliance.

About 65% of the respondents would report to a prescriber if there were no changes after a time they considered appropriate for the expected action of the medication to have been. About half of the respondents would continue with their medications even when symptoms have disappeared. This study also suggests that the patients' perception of the severity of the disease would affect the use of medicines. The patient therefore has to be properly counseled to appreciate the severity of their illnesses.

Different reasons have been adduced for why the respondents did not comply fully to medication instructions. However Chi square test did not show any statistically significant relationship between age, sex and educational level and compliance. This is similar to results from other studies where it had been reported that none of the common demographic factors have any consistent relationship to non-compliance[17].
This study has shown that poor compliance with medication instructions is prevalent in the studied population.

ii. Assessment of the Work of the Pharmacist
The clarity of instructions given by the pharmacist was deemed satisfactory by a large proportion of the population. Respondents appreciated the importance of the Pharmacist's instructions but this did not seem to have a positive influence on compliance behaviour. It has also been reported that patient compliance is a factor of the comprehension of information during consultation as well as perception of the effects of not

taking medication[17]. Could it be that subjects received only a "standard" basic information about their drugs with no allowance made for individual disease conditions? This is a question that needs further investigation.

The information provided to the respondents was considered grossly inadequate considering the fact that 58% of the respondents had not received any information about the purpose of the drug(s) prescribed and similarly 51% did not receive any caution about the possible adverse effects of their drugs. It is therefore no surprise that 61% of the population believed the information received from the pharmacist was not instrumental in recollecting medication instructions given by the Pharmacist. The lack of adequate information may be implicated in the premature cessation of therapy by a large number of subjects on occurrence of adverse drug effects or when the therapy required adjustments in lifestyle.

In assessing the level of attention received from the pharmacist however, 47% of the respondents believed that the attention received from the pharmacist encouraged proper use of the prescribed drug(s) while 50% were satisfied with the attention received. The quality of attention received from the pharmacist could be an important factor in proper patient medication use as a previous study has shown that a very good relationship with health care personnel resulted in higher level of compliance in patients[9].

Communicating information related to medicines and illnesses is a major part of the role of a pharmacist. Information delivered to the patient is expected to be appropriate to the individual need of the patient producing better medicines management and greater patient satisfaction.[15].

The observed proportion of subjects (38%) who received caution about expected side effects is in contrast with a reported survey where 88% of the subjects believed that information about side effects and possible alleviation of such was essential[18].

In this study, 58% of the population did not receive information about the

purpose of the drug(s) given. There was therefore an apparent lack of knowledge of the dangers of ignoring or otherwise compromising instructions concerning their medication. This was evident in the very small proportion of respondents who indicated they would not continue the use of medication as directed if the medication proved incompatible with their lifestyles.

This study underscores the reality that the Nigerian pharmacist is still embracing the traditional role of the pharmacist i.e. interpreting the prescription and dispensing with basic instructions for use. The apparent lack of impact of the pharmacist on compliance shows the need for going beyond these traditional roles to the enhanced roles of the pharmacist. These enhanced roles are particularly essential in improving compliance as the provision of adequate drug information, patient education, counseling and monitoring ensure the optimum use of medicines by the patient.

The effect of a pharmacist led intervention on compliance has been demonstrated in many studies.[19]. Another study carried out on patients with moderate to severe heart failure also reported that a pharmacist-led intervention improved diuretic compliance even in patients with relatively high compliance.[20].

4b. CONCLUSION
This study has shown that patients' non compliance with medication instruction is quite pervasive in the population. The reaction of the average patient to one or a combination of these factors has been shown to lead to either compromising the drug dosage regimen or totally neglecting the prescriber's instructions.

The most crucial factor mitigating against patient compliance, however, appears to be failure on the part of the pharmacist to communicate effectively with the patient as regards the purpose(s) for which the drug is prescribed and what caution should be exercised while using the drug. The pharmacist needs to be more alert to his/her responsibilities as regards dissemination of adequate and appropriate information to the patients ▶

on the purpose of their drugs, caution as well as expected adverse effects of the prescribed medicines. The key challenge facing the hospital pharmacist in Nigeria is breaking out of the mould of traditional dispensers and contributing meaningfully to health care delivery.

4c. PRACTICE IMPLICATIONS
The following recommendations might help improve patient compliance with drug therapy and thus reduce the incidence of therapeutic failure.

i. There is a need to thoroughly educate the patient, just before he leaves the pharmacy, on the importance of complying with the prescribers instructions and the unpleasant result of failure to do so.

ii. In providing drug information, the pharmacist should also acquaint the patient with the degree of seriousness of his disease condition thereby justifying the seemingly long duration of therapy an important factor in patient compliance.

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Table 1: Social demographic data

ITEM	
Gender	**N391**
	%
Male	43
Female	57
Total	100

Age	N391
	%
12-18	4
19-25	70
26-32	18
33-39	4
40-46	2
Over 46	2
Total	100

Educational Status	N391
	%
None	1
Primary	1
Secondary	4
Post secondary	
NCE	5
OND	24
HND	6
B.Sc	50
Others	9
Total	100

Religion	N391
	%
Christian	88
Islam	10
Traditional	1
Others	1
Total	100

Table 2: Determinants of compliance

	Male		Female		Total	
	N	%	N	%	N	%
Did you miss some doses?						
a. Yes	142	84	186	83	328	84
b. No	26	16	37	17	63	16
Have you missed doses of prescribed medicines dispensed to you by a Pharmacist?						
a. Yes	121	76	195	84	316	81
b. No	38	24	37	16	75	19
What do you do when you miss your doses?						
a. Nothing	107	64	132	59	239	61
b. Increase the next dose	23	14	24	11	47	12
c. Report to prescriber	14	8	29	13	43	11
What is your reaction to unpleasant side effects?						
a. Report to the prescriber	69	41	115	57	184	47
b. Stop using the drug.	50	36	70	31	130	33
c. Reduce the quantity	5	3	7	3	12	3
d. Reduce frequency of use	11	6	8	4	19	5
e. Use as directed	23	14	23	10	40	12
Can you normally afford all prescribed drugs?						
a. Yes	86	51	119	53	205	52
b. No	82	49	104	47	186	48
If you were to participate in the choice of your drugs would you have chosen the drugs prescribed by the physician.?						
a. Yes	110	27	119	29	230	56
b. No	78	19	103	25	180	44
When you cannot afford all prescribed drug what do you do?						
a. Buy none	14	8	7	3	21	5
b. Buy some and others later	46	27	23	37	69	33
c. Buy some and ignore others.	24	14	18	8	42	11
What would you do if your drugs altered your lifestyle?						
a. Discontinue the drug	44	26	49	22	93	24
b. Reduce dose or frequency	32	19	32	14	64	16
c. Report to prescriber	81	48	114	51	195	50
d. Complete the medication as directed	11	6	28	13	39	10
Do you still find it easy to use the drug as recommended after using for a long time?						
a. Yes	6	13	9	21	15	17
b. No	40	87	33	79	73	83
What do you do when you feel you are cured?						
a. Report to prescriber	21	13	26	12	47	12
b. Stop the drug	70	42	76	34	146	37
c. Reduce dose or frequency	9	5	10	4	19	5
d. Complete the dedication as directed	68	40	111	50	179	46
If after a reasonable period of using the prescribed medicines you do not observe an improvement in your health condition what would you do?						
a. Report to prescriber	104	62	151	68	255	65
b. Stop the drug	35	21	40	18	75	19
c. Increase dose or frequency	5	3	4	2	9	2
d. Complete dose as directed.	24	14.	28	13	52	13
Does severity of the disease affect the way you use your drugs?						
a. No	55	33	92	41	147	38
b. Yes	87	52	99	44	186	48
c. Undecided	26	15	32	14	58	15
How important is it to follow directions for use?						
a. Very important	116	69	182	82	298	76
b. Important	51	30	40	17	91	23
c. Not important	1	1	1	1	2	1
Do you believe in the necessity of using drugs exactly as recommended?						
a. Yes	144	86	202	91	346	89
b. No	5	3	7	3	12	3
c. Not in all cases	19	11	14	7	33	8

Table 3: Respondents Evaluation of the Pharmacist

ITEM	N	%	ITEM	N	%
Clarity of instructions			**Information received about the drug was adequate**		
Very Clear	140	36	Strongly disagree	23	6
Clear	154	39	Disagree	104	27
Undecided	58	15	Undecided	78	20
Not clear	39	10	Agree	155	40
Importance of following instructions stressed			Strongly agree	31	8
Very Adequate	85	20	**Attention given encouraged proper use of the drug**		
Adequate	145	34	Strongly disagree	28	7
Inadequate	43	10	Disagree	105	27
Undecided	153	36	Undecided	76	19
Opportunity to ask questions			Agree	143	37
Strongly disagree	26	7	Strongly agree	39	10
Disagree	101	26	**The pharmacist was interested in my well-being**		
Undecided	50	13	Strongly disagree	15	4
Agree	172	44	Disagree	54	14
Strongly agree	42	11	Undecided	77	20
Information received made it easier to recall instructions			Agree	173	44
Strongly disagree	29	7	Strongly agree	72	18
Disagree	97	25	**Attention received was satisfactory**		
Undecided	110	28	Strongly disagree	26	7
Agree	126	32	Disagree	92	23
Strongly agree	29	7	Undecided	79	20
Caution received on possible Side effects			Agree	153	39
Very Adequate	46	11	Strongly agree	41	11
Adequate	63	15			
Nil	214	51			
Undecided	97	23			