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Research Article

EVALUATION OF PATIENT'S ANTIDIABETIC MEDICATION COUNSELLING PROVIDED BY PHARMACISTS IN A TERTIARY HEALTH CARE SETTING IN NIGERIA

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ABSTRACT
The objective of the present study was to ascertain the level of patient's anti-diabetic medication counselling provided by Pharmacists. Seventy two (72) outpatients that visited the consultant outpatient clinic of the endocrinology unit of the department of medicine, University of Maiduguri Teaching Hospital (UMTH), Maiduguri, Borno state, Nigeria were interviewed using a self-administered pre-tested structured, mostly closed ended questionnaire.The study participants had a mean (SD) age of 48.0 ± 1.2. Out of 49(68.1%) that received medication counselling majority 24(33.3%) were counselled by pharmacists, followed by sales personnel 15(20.8%). There was a significant association between the medication counselling provided and the providers. Only 8(11.1%) of the participants exclusively bought their anti-diabetic medications from the hospital pharmacies alone. Significant number of study participants 31(43.1%) did not know the names of the anti-diabetic medications they were taking. Slightly more than one half of the study participants 37(51.4%) did not know the duration of their therapy. Outstanding high number of the participants 50(69.4%) did not know the side effects of their anti-diabetic medications. Majority of the participants 58(80.6%) sometimes missed to take their medications, and most of them 44(75.9%) took the missed dose(s) of the anti-diabetic medications as soon as they remembered and took only that dose when it was almost time for the next dose. This study revealed a low level counselling of patients on their anti-diabetic medications by pharmacists in the study area.

Keywords: Antidiabetic medications, Counselling, Participants, Patients, Pharmacists.

INTRODUCTION

Diabetes is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. The chronic hyperglycemia of diabetes is associated with long-term damage, dysfunction, and failure of different organs, especially the eyes, kidneys, nerves, heart, and blood vessels.[1] Diabetes is a chronic illness that requires a combination of pharmacological and non-pharmacological measures for better control. Patient adherence to medication and lifestyle modifications plays an important role in diabetes management. Pharmacists being an important member of the healthcare system have an immense responsibility in counselling these patients. To be an effective counsellor, the pharmacist should update his knowledge regarding the latest developments and should possess adequate verbal and non-verbal communication skills.[2] Patient counselling is a key element of the pharmaceutical care process. Given the advertising for medication in the media and easy access to information on the Web, it is important for pharmacists to provide appropriate, understandable and relevant information to patients about their medication. The pharmacist is in a highly visible and readily available position to answer patient concerns and enquiries about their medications and alternate treatments they may read about or hear from others.[3]

Patient counselling is an important means for achieving pharmaceutical care. It is defined as providing medication related information orally or in written form to the patients or their representatives, on topics like direction of use, advice on side effects, precautions, storage, diet and life style modifications.[4] Patient counselling is interactive in nature and involves a one-to–one interaction between a pharmacist and a patient and/or caregiver. It should include an assessment of whether or not the information was received as intended and that the patient understands how to use the information to improve the probability of positive therapeutic outcomes.[3] The ultimate goal of counselling is to provide information directed at encouraging safe and appropriate use of medications, thereby enhancing therapeutic outcomes.[5] Counselling regarding medications and lifestyle modifications play an important role in diabetes management, it is well established by land mark studies that the chronic complications can be prevented by strict glycemic control. Hence, the pharmacist has an immense role in counselling diabetic patients regarding their medications. Counselling should be emphasized for oral anti diabetic agents as well as for insulin.[2]

Several guidelines have been published regarding the points to be covered while counselling the patients. The Omnibus Budget Reconciliation Act (OBRA)[6] guidelines specify that the pharmacist should discuss at least the following points while counselling the patients: Name and description of the medication, the dosage form, route of administration, duration of therapy, special directions and precautions for preparation, administration and use of the prescribed drugs by the patient, common side effects or adverse effects or interactions and therapeutic contraindications that may be encountered, including their avoidance, and the action required if they occur, techniques of self-monitoring of drug therapy, proper storage, prescription refill information, action to be taken in case of missed dose.

To the best of our knowledge evaluation studies on patient's anti-diabetic medication counselling provided by pharmacists have not been carried out in Nigeria, this fact underscores the pressing need for the present study. The objective therefore was to ascertain the level of patient's anti-diabetic medication counselling provided by Pharmacists

METHOD

Setting

The study was conducted at the consultant outpatient clinic of the endocrinology unit of the department of medicine, University of Maiduguri Teaching Hospital (UMTH),

Maiduguri, Borno state, Nigeria. This area lies between latitude 1150 N and longitude 1350 E with an altitude of 345 meters above sea level and shares borders with three (3) West African countries namely Chad, Niger, and Cameroun, whose indigenes often reside and trade in Maiduguri. The vegetation falls under the Sahel zone of West Africa. It is a semi-arid region with a short period of rainfall.

Data collection process

Ethical clearance and verbal informed consent were obtained from the Ethics and Research Committee of the hospital and participants respectively before the commencement of the study. Randomly sampled seventy two (72) outpatients that visited the consultant outpatient clinic of the endocrinology unit of the department of medicine, UMTH, Borno state, Nigeria were interviewed using self-administered pre-tested structured, mostly closed ended questions from August – November, 2011. The questionnaire was divided into two parts. Part A was aimed at obtaining the demographic profile of the participants. Part B was aimed at obtaining information on the anti-diabetic medication counselling, and was however designed using a 2-point Likert options format consisting of Yes, No responses and a few open ended questions.

Data Analysis

Statistical Package for Social Sciences (SPSS) version 16.0 for windows® was used for analysis. For the 2-point Likert scale used, a mark of two (2) was awarded for Yes, one (1) for No, and zero (0) for no response. Chi-square analysis was used to test for statistical significance. A P-value of ≤ 0.01 was considered statistically significant.

RESULTS AND DISCUSSION

Socio-demographic characteristics

The participants' ages ranged from 19-76 years with a mean(SD) age of 48.0 $\pm$ 11.7 years, and more than one half 47 (65.3%) of them were females (Table. 1). The majority of the participants 56(77.8%) were married, and slightly above one third of them 25 (34.7%) had tertiary education as the level of education attained. Most participants 27 (37.5 %) were business people. The mean (SD) of duration with diabetes since diagnosis was 5.4 $\pm$ 5.5 years with a range 0.30 – 29 years. Demo-socioeconomic characteristics of the participants are summarized in Table 1.

Anti-diabetic medication counselling personnel

On purchase of anti-diabetic medications, 23(31.9%) of the participants did not receive medication counselling. Out of 49(68.1%) that did 10(13.9%), 24(33.3%), and 15(20.8%) were counselled by physicians, pharmacists, and sales personnel respectively. There was a significant association between medication counselling provision and the provider (Table 2). This finding is consistent with the finding of a study[7] that was undertaken in Iran which revealed that most of the participants received medication information either from pharmacists or physicians. This shows that patient's anti-diabetic medications taking behaviours was dependent on the personnel that provided the counselling. Clear and accurate information to patients regarding the use of medications to control diabetes mellitus provided by qualified health professionals may encourage patients to self-care and adherence to medication therapy.[8]

Place of purchase of anti-diabetic medications

In Table 3; the majority of the participants 42(58.3%) buy their anti-diabetic medications from pharmacy shops in the city, followed by patent medicine stores 20(27.8%). Only 8(11.1%) of the respondents exclusively bought their anti-diabetic medications from the hospital pharmacies where the presence of pharmacists are guaranteed. The vast majority bought their anti-diabetic medications from pharmacy shops in the city of Maiduguri or environs where pharmacists that registered the premises could hardly be seen, let alone provision of medication counselling, and patent medicine stores which in the first place are not licenced to sell ethical (prescription) drugs. The ugly trend revealed by this study was as a result of out of stock syndrome experiences in the pharmacies of the area of study. Therefore, patients are compelled to source their drugs form pharmacy shops and patent medicine stores in the city, where trained medication counsellors could be hardly seen.

Patient's knowledge of names of anti-diabetic medications

Nearly one half of the participants 31(43.1%) did not know the names of the anti-diabetic medications they were taking (Table 4). This finding is consistent with the finding of a study[9] carried out in patients with diabetes admitted in a big hospital from the countryside of São Paulo, Brazil, which showed that over one third of the patients could not say the name of the medication they took to control diabetes. The implication of this finding is that in an event of adverse drug reaction or problem with medications, these participants would not be able to tell the physicians or pharmacists which drug was causing the problem. Common practice of sales personnel and some pharmacists in this part of the globe is to tell patients, "take this medication once or twice or thrice daily" during dispensing of medications.

Patient's knowledge of purpose of anti-diabetic medications

Majority of the participants 52(72.2%) knew the purpose of their drug therapy (Table 4). This is not in agreement with the finding of a study[9] in São Paulo, Brazil which showed that 71.0% of the study participants gave unsatisfactory answers regarding the end and purpose of medications used. The finding of the present study revealed that the participants were aware of their disease condition, and the awareness translated to good knowledge on the purpose of the anti-diabetic medications.

Patient's knowledge of dose/frequency of anti-diabetic medications

Most of the participants 52(72.2%) knew the dose/frequency of their anti-diabetic medications. There is an agreement between the finding of this study and the some studies[8, 9]which showed that more than one half of the participants 54.3% and 51.6% knew the frequency of their anti-diabetic medications, but not in agreement with the findings of studies[7, 10] which showed that most of the patients were not informed on the frequency of use and dose of their medications and another study[8] that reported that only 39.1% correctly knew the dose of their anti-diabetic medications. The higher number of participants that knew the dose/frequency of their anti-diabetic medications was as a result of greater emphasis usually laid on the dose/frequency of medications by pharmacists and sales personnel during dispensing in this part of the world.

Patient's knowledge of side effects of anti-diabetic medications

However, it was surprising to note that most of the participants 50(69.4%) did not know the side effects of their anti-diabetic medications (Table 4). This finding is consistent with the finding of a study[7] carried out in Iran which revealed that very few patients (6%) were appropriately informed about the frequency of use, dosage, duration of treatment, and potential side effects, allergies and drug interactions. This is

one of the causes of medication non adherence with its attendant consequences on the health of patients suffering from diabetes mellitus. As a result of this many patients stop their anti-diabetic medications when they feel worse due to the fact that their minds were not prepared for the worrisome/common side effects of the medications and action to be taken when they manifest; hence they stop their medications once such side effects start manifesting. The consequence of these side effects ignorance is increase in diabetic morbidity and mortality as a result of anti-diabetic medication non-adherence.

Patient's knowledge of duration of therapy of anti-diabetic medications

As regards the duration of therapy, more than one half of the study population were not aware of the duration of therapy, while some were wrongly informed that they would stop the medications after a while. This finding is in line with the finding of an Iranian study[7] that showed that very few patients (6%) were appropriately informed about the frequency of use, dosage, duration of treatment, and potential side effects, allergies and drug interactions. Poor knowledge on the duration of anti-diabetic therapy leads to medication non adherence, due to fact that when diabetic patients that are ignorant of the duration of therapy feel well, they will automatically stop taking their medications with an assumption that they have been healed.

Patient's actions towards missed dose(s) of anti-diabetic medications

Out of 58(80.6%) participants that sometimes missed to take dose(s) of their anti-diabetic medications as prescribed, 44(7.9%) took their anti-diabetic medications as soon as they could and took only that dose when it was almost time for the next dose, 14(24.1%) forgot the dose completely (Table 5). This finding revealed that the majority of the participants were well counselled on what to do in an event of missed doses of their anti-diabetic medications. It is the professional responsibility of a Pharmacist to inform patients about what to do if they miss a dose – either to take their anti-diabetic medications as soon as they could and take only that dose when it is almost time for the next dose, and not to take double or extra doses. For these reasons; counselling about anti-diabetic medications is very useful in improving patients' medication adherence[11] thereby eliminating or minimizing morbidity and mortality that are associated with anti-diabetic medications non adherence.

Incorrect use of medication can be due to, among other factors, lack of knowledge regarding medication therapy, that is, not knowing the name of the medication used, the dose prescribed, the correct time of intake, the correct number of pills and how many times they should be taken a day,[8] side effects/ interactions profile, contraindications, and duration of therapy . Thus, patients that understand and know their medication treatment may use it correctly although it does not ensure correct use. Knowing how a drug should be used does not guarantee patients to choose it correctly, since adequate use entails several other factors.[9, 12, 13]

Study limitations

Some of the study limitations worth of mentioning were the use of self-reporting questionnaires which only rely on the honesty of those reporting them. Secondly, all aspects of medication counselling were not covered in this study. The study population was small. More so, iinterpreters bias was another potential limitation due to fact that those who had no formal education filled the questionnaire with the help of interpreters, though we believe that this effect should be minimal as all of them were trained before the commencement of the study and they were highly experienced in this regard. Finally the cross-sectional nature of the study creates difficulties in ascertaining casualty.

CONCLUSIONS

The findings of this study are not acceptable at this era of pharmaceutical care which ensures that patients have all the relevant information about their medication therapy, in order to adhere to their medications regimen. such relevant information among others include the name of the medication used, the strength/dose prescribed, the correct time of intake, the correct number of pills and how many times they should been taken a day, side effects/ interactions profile, contraindications, and duration of therapy . We recommend an overhauling of the pharmacy department of the study area to empowering pharmacists to fully implement pharmaceutical care by employing pharmacists with the relevant knowledge and skills required to provide pharmaceutical care to patients. Secondly, the management of pharmacy department should review their medication procurement and stocking programmes, in order to surmount the challenges that out of stock syndrome poses to the pharmacy department of the study area in particular, and at large to the standard of pharmacy practice in Nigeria, therefore not subjecting patients to be at the mercies of sales boys/girls in the pharmacy shops and patent medicines stores in the city for medication information.

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APPENDIX
QUESTIONNAIRE
PART A
Filling in the blank spaces and Tick [√] the appropriate option(s)
AGE: _____Years
SEX: (a) Male [ ] (b) Female [ ]
Marital status: (a) Married [ ] (b) Single [ ] (c) Divorced [ ] (e) Widowed [ ]
Occupation: (a) Civil servant [ ] (b) Retired worker [ ] (c) Businessman/woman [ ] (d) Unemployed [ ]
Level of education: (a) Not educated [ ] (b) Primary [ ] (c) Secondary [ ] (d) Tertiary [ ]
PART B
1. Where do you buy your anti-diabetic medications from?
(a) Hospitals [ ] (b) Pharmacy shops [ ] (c) Patent medicine stores [ ] (d) Drug vendors [ ]
2. When you buy your medications do you receive adequate information on the anti-diabetic medications and how to take them? Yes [ ] No [ ]
3. If yes who gives you the information?
(a)Medical doctor [ ] (b) Pharmacist [ ] (c) Lab scientist [ ]
(d) Sales boys/girls [ ] (e) Drug vendors [ ] (f) Others specify_____
4. Do you know the name(s) of the anti-diabetic medication(s) that you are taking? Yes [ ] No [ ]
5. Do you know the reason(s) while you are taking anti-diabetic medications? Yes [ ] No [ ]
6. Do you know the dose/frequency of your anti-diabetic medications? Yes [ ] No [ ]
7. Do you know some common side effects of your anti-diabetic medications? Yes [ ] No [ ]
8. How long were you told that you are going to take the anti-diabetic medication(s)?
(a) Less than 6 months [ ] (b) 6months -1 year [ ] (c) 1 -2years [ ]
(d) Life time [ ] (e) others specify _____
9. Do you sometimes miss taking your anti-diabetic medications? (a) Yes [ ] (b) No [ ]
10. What do you do when you miss a dose of your anti-diabetic medications?
(a) Taking it as soon as you could and taking only that dose when it is almost time for the next dose [ ]
(b) Forgetting it completely [ ]
(c) Taking double or extra dose [ ]

Table 1: Socio-demographic data of the study participants (n = 72) of mean (± SD) age of 48.0 (± 1.2) and duration with diabetes mellitus since diagnosis of 5.4(± 5.5)

Variables	Frequency	Percent (%)
Gender		
Male	25	34.7
Female	47	65.3
Age group(years)		
≤ 20	2	2.8
30-39	15	20.8
40-49	25	34.7
50-59	15	20.8
≥ 60	15	20.8
Marital status		
Married	56	77.8
Single	10	13.9
Widowed	6	8.3
Educational level		
Not educated	17	23.6
Primary	6	8.3
Secondary	24	33.3
Tertiary	25	34.7
Duration with diabetes(Years)		
No response	2	2.8
≤ 1	17	23.6
2-10	43	59.7
11-20	9	12.5
21-30	1	1.4

Table 2: Cross tabulation of anti-diabetic medications information providers and did you receive adequate information on the anti-diabetic medications including how to use them on purchase?

		Did you receive adequate information on the anti-diabetic medications including how to use them on purchase?		Total
		No	Yes	
If yes, who provided the information?	No response	23	0	23
		31.9%	0.0%	31.9%
	Medical doctor	0	10	10
		0.0%	13.9%	13.9%
	Pharmacist	0	24	24
		0.0%	33.3%	33.3%
	Sales boys/girls	0	15	15
		0.0%	20.8%	20.8%
Total		23	49	72
		31.9%	68.1%	100.0%

$X^2 = 72.000$; df = 3; P =0.000

Table 3: Cross tabulation of place of purchase of anti-diabetic medications and Did you receive adequate information on the anti-diabetic medications and its use on purchase?

		Did you receive adequate information on the anti-diabetic medications including how to use them on purchase?		Total
		No	Yes	
Where do you buy your anti-diabetic medications from?	Hospital Pharmacy	5	3	8
		6.9%	4.2%	11.1%
	Pharmacy shops	8	34	42
		11.1%	47.2%	58.3%
	Patent medicine stores	10	10	20
		13.9%	13.9%	27.8%
	Hospital Pharmacy and Pharmacy shops	0	2	2
		0.0%	2.8%	2.8%
Total		23	49	72
		31.9%	68.1%	100.0%

$X^2 = 10.587$; df = 3; P = 0.014

Table 4: Patient's knowledge variables of anti-diabetic counselling (n = 72)

Variables	Frequency	Percent (%)
Name of anti-diabetic medication(s)		
No response	2	2.8
No	31	43.1
Yes	39	54.2
Purpose of anti-diabetic medication(s)		
No	20	27.8
Yes	52	72.2
Dose/Frequency		
No	20	22.7
Yes	52	72.2
Side effects of anti-diabetic medication(s)		
No response	2	2.8
No	50	69.4
Yes	20	27.8
Duration of anti-diabetic therapy		
Life time	35	48.6
Not told	33	45.8
When better	4	5.6

Table 5: Participant's attitudes towards missed dose(s) of anti-diabetic medications (n= 58)

Actions taken	Frequency	Percent (%)
Taking it as soon as remembered and if it is almost time for the next dose, taking only that dose	44	75.9
Forgetting it completely	14	24.1
Taking double or extra dose	0	0.0

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