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ASSESSMENT OF PATIENTS' KNOWLEDGE TO THEIR DISPENSED MEDICATIONS AT PORT MORESBY GENERAL HOSPITAL, PAPUA NEW GUINEA

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ABSTRACT:

Limited information on drug use indicates that medicines are not optimally used. Inadequate knowledge of medication uses may lead to overuse of medicines or patient non-compliance with a medicine regimen, and result in serious outcomes. The aim of this study was to assess the patients' knowledge on dispensed medications in pharmacy at Port Moresby General Hospital (PMGH). This was a descriptive cross-sectional study utilizing a self-administered questionnaire adapted from the WHO "Guide to Good Prescribing Practical Manual". The questionnaire sought to elicit major classes of medicines prescribed, knowledge of patients on indications, how to use the medicines, precautions and possible adverse events. A total of 130 patients from PMGH participated in this study. Although majority of patients (94.6%) knew the instructions on the use of the dispensed medicines in terms of route of administration, dosage and frequency of usage; only 74.6% of them knew the duration of medicines use. Further, 19.2% of participants did not know the indications for which their medicines were prescribed. Knowledge on adverse effects was also significantly low i.e 34.7%. Lack of understanding of warnings and precautions was rated at 42.3%. These figures may contribute to poor patient compliance and cause possible harm to the patients. The results demonstrated lack of adequate information given to patients on their prescribed medicines. It is recommended that prescribers be re-trained on the importance of giving adequate information on medications given to patients, particularly to patients with low educational background.

Keywords: Patients' Knowledge, prescribed medicines, WHO guideline, PMGH, Papua New Guinea

INTRODUCTION:

Patients need information and adequate instructions to accept and follow the treatment and to acquire the necessary skills to take the drugs appropriately [1]. Unfortunately, researchers found that most patients do not understand their diseases or the consequences of not adhering to a medication regime [2]. Data show that in 2002 more than 50% of all medicines prescribed worldwide were dispensed inappropriately, while 50% of the patients failed to take them correctly [3]. Poor understanding of instructions inhibits a patient's ability to adhere to therapy as prescribed [4].

Findings on patient knowledge of medicines dispensed in developing countries are diverse, probably because the number of dispensing attributes recorded and literacy levels varied from study to study [5]. In a study in Ghana, 59% of the patients did not know what their conditions were, 81.8% did not know the right dosing schedule, while only 41% of the patients had received information about their conditions. This was despite the large number of patients who had expressed interest in getting information about their medicines.

Similar study in India by Singh J et al [7], a considerable number of patients were reported to be aware of the therapeutic effects of the drugs and the manner of administration; but the patients lacked information regarding the side effects, and warnings on overdose. In addition, a study in Brazil by Samant Frohlich et al reported the highest levels of patients'

knowledge in drug administration frequency, therapeutic indication and duration of treatment. The lowest level of knowledge was in drug dosage, adverse effects and what to do when one or more drug doses were missed [8]. In a related study in South Africa by Ramathuba in 2008, it was evident that although more than 70% of interviewed patients took their medications correctly, almost 80% had not been warned of the side effects of the medicines [6].

Lack of knowledge on side effects would potentially affect medication compliance and medication safety particularly in older patients with chronic diseases, and more likely to be taking multiple medications [10].

Other studies have revealed patients' increased desire for information on medication risks, adverse effects, and on medical conditions being treated [11-12]. A limited study carried out at PMGH in Papua New Guinea (PNG) reported out of 21 patients only 2 (9.5%) knew what to expect therapeutically from their medications. How the medicines would alter the disease process, possible side effects and what to do when these occur and any possible interactions with other prescribed and non-prescribed medications, including impacts of alcohol were not discussed with the patients [13]. While a number of similar studies have recently been conducted overseas, there has been insufficient published information in PNG. The PNG National Medicines Policy aims to make available to the public and health

professionals, practical information on medicines, including instructions for their proper usage in order to achieve patient adherence to treatments and consequently good therapeutic outcomes [14]. Anecdotal evidence suggests that medicines are often given to patients with little or no verbal instructions. Seemingly, the pharmacist assumes that the patient has already received adequate instructions from the prescriber and has understood it. Currently there is no published data on assessment of patients' knowledge on the prescribed medicine at an outpatient level, particularly in PMGH, a major referral hospital in the country.

The aim of this study was to assess the patients' knowledge on dispensed medications in pharmacy at Port Moresby General Hospital. The objectives of the study are to use the data obtained to assess patient's knowledge on the precaution and warnings of the medicine, and their knowledge on adverse effects of the medicine. In addition, to determine the patients' primary source of obtaining information on prescribed medicines.

METHODOLOGY:

The present study was conducted in PMGH, which is the major referral, specialist and teaching hospital in PNG. It is located in the National Capital District (NCD), PNG. The staff members included leading physicians and surgeons in PNG and specialists in all areas in

medicine. There are eight pharmacists (4 full time and 4 interns) and two pharmacy technicians in the pharmacy department. On average, 200-300 prescriptions are received and processed daily.

This was a descriptive cross-sectional study that utilized questionnaire for data collection. The questionnaire was adopted from the WHO "Guide to Good prescribing - A Practical Manual", with some modifications.[15]. The answers to questions were either "Yes" or "No". Yes, means the patient was aware of the required information, while No, indicated that the patient did not know the information requested. The questionnaire was pre-tested on 15 patients in the first week of data collection and thereafter, refinements were made. This research was approved by the Research and Ethics Committee of School of Medicine and Health Sciences, and also approved by the Director of Medical Services PMGH. Data was collected over a period of two weeks. Patients who had collected medicine from the outpatient pharmacy and those who were older than 19 years of age were included in the study. Using a linear systematic random sampling procedure, every third patient leaving the hospital pharmacy was approached and asked to participate in the study. Also included were patients prescribed one of the following; Anti-Diabetics, Anti-Hypertensive's, Anti-epileptics, Anti-parkinsonism, Anti-psychotic, Eye preparations, Inhalers, Macrolides (Erythromycin), Nitroimidazoles (Metronidazole),

H2 Antagonist (Ranitidine/Cimetidine), and Non-Steroidal Anti-inflammatory Drugs (NSAID). These target drugs were chosen as they required definite information on usage, side effects, important interactions or entailed complex regimens or techniques for use. If a patient did not fulfill the above criteria the next one on the row was considered. The pharmacists were aware of the study in progress but to avoid bias, they were not shown the questionnaire.

Exclusions: Patients were excluded if they were medical or nursing staff, if they could not communicate, and if they refused to participate. If more than one medicine was prescribed, only the first one on the row was selected.

The nature and scope of the study was explained to the participants and those that consented were given the questionnaire. The patients answered the questions themselves. In the case of illiterate patient the questions were read and explained to the patients in tok-pisin language and answers were recorded in English.

Data were tabulated in Excel spreadsheets. Chi square tests were used; p values were calculated to determine the significance ($p < 0.05$).

RESULTS:

A total of 130 patients consented to participate in the study. The demographic characteristics of the patients are presented in Table 1. A chi-square test of independence was performed to

examine the relation between gender and the age groups (2x5 tables). There were no significant differences between males and females among the age groups who participated in the study; ($X^2 = 3.1387$; $p = 0.5349$ at $p < 0.05$). Majority (74.6%) were within the age of 40 years and above. Furthermore, most of the participants had primary (37.7%) or high school education (50%), while 12.3% had no formal education.

Of the 130 patients 80 (61.5%) were provided information by the prescribing health professional (doctor or nurse). The fact that a significant proportion of patients (28.5%) obtained information from the product package labels pose a huge challenge for the patients literacy needs. In this study 23% (16/130) of the patients had no formal education and would need medicines information from the prescriber or pharmacist. Apparently, the dispensing pharmacists provided staggering low information to a proportion of only 6.2% (8/130) of the patients. Such a low pharmacist participation could be explained by the high workload of a small number of pharmacists (4 permanent and 4 interns) engaged in the largest referral hospital, where they process between 200 – 300 prescriptions per day.

Table 2 outlines the therapeutic classes of medicines encountered in the study. Prevalence of life saving medicines such as anti-hypertensives, treatments for diabetes and for various psychoses has been highlighted as categories of medicines on which special

attention must be paid. Other results about the patients' knowledge on a number of medicines' events and medication requirements constitute

the core of this study and the findings are depicted in Tables 3 and 4. Table 5 highlights sources of medicines information.

Table 1: Demographic characteristics of the patients (n=130)

Age Category	Total (%)	Males (%)	Females (%)
Total	130 (100)	62 (47.7)	68(52.3)
19-29	15 (11.5)	7 (5.4)	8 (6.2)
30-39	18 (13.8)	7 (5.4)	11 (8.5)
40-49	20 (15.4)	13 (10.0)	7 (5.4)
50-59	27 (20.8)	12 (9.2)	15 (11.5)
>60	50 (38.5)	23 (17.7)	27 (20.8)

(Chi-square = 3.1387; p=0.5349; result not significant at p< 0.05).

Education	Total (%)	Males (%)	Females (%)
Primary/High school	49 (37.7)	23 (17.7)	26 (20.0)
Secondary Ed. & above	65 (50.0)	37 (28.5)	28 (21.5)
No formal Education	16 (12.3)	6 (4.6)	10 (7.7)
Total	130 (100)	66 (50.8)	64 (49.2)

Chi- square = 2.3996 ; p = 0.3013 result not significant at p < 0.05)

Occupation	Total (%)	Males (%)	Females (%)
	130 (100)	66 (50.8)	64 (49.2)
Student	5 (3.9)	2 (1.5)	3 (2.3)
Unemployed	39 (30.0)	17 (13.1)	22 (16.9)
Employed	28 (21.5)	19 (14.6)	9 (6.9)
Retired	43 (33.1)	25 (19.2)	18 (13.9)
Subsistence Farmer	15 (11.5)	3 (2.3)	12 (9.2)
	130 (100)	66 (50.8)	64 (48.2)

Chi-square = 10.9238; p = 0.027434: results are significant at p < 0.05).

Table 2: Frequency of therapeutic classes of medicines prescribed based on number of patients at Port Moresby General Hospital

Class of Medicine	N (%)
Anti-hypertensives*	39* (30.0)*
NSAID	21 (16.2)
Anti-Diabetic*	15* (11.5)*
Nitroimidazoles	14 (10.8)
Anti- Psychotics*	11* (8.5)*
Inhalers	8 (6.2)
Macrolide	7 (5.4)
Eye Preparations	4 (3.1)
H2 Antagonists	4 (3.1)
Anti-Parkinson's	4 (3.1)
Anti-Epileptic	3 (2.3)
	130 (100)

Figures in parenthesis are percentages * Lifesaving medicines

Table 3. Participants' Knowledge on Medication Instructions

	Male	Female	Total	p - value
	N (%)	N (%)	N (%)	
Knew the amount to take, route & frequency				
Yes	59 (45.5)	63 (48.5)	122 (93.9)	0.0319
No	7 (5.4)	1 (0.8)	8 (6.1)	X ² =4.6015
Knew the duration of the medication & when to stop				
Yes	51 (39.2)	46 (35.4)	97 (74.6)	p=0.4796
No	15 (11.5)	18 (13.6)	33 (25.4)	X ² =0.4998

Table 4: Knowledge of participants on indicated uses, effects and precautions of Medicines at PMGH (N=130)

	Males	Females	Total	p-value
	N (%)	N (%)	N (%)	
Knew the indication of the medicine				
Yes	52 (40)	53 (40.8)	105 (80.8)	p = 0.5605; X ² =0.3388
No	14 (10.7)	11 (8.5)	25 (19.2)	
Knew what to do when dosage missed / forgotten				
Yes	32 (24.6)	36 (27.8)	68 (52.3)	P=0.3755 X ² =0.7854
No	34 (26.2)	28 (21.5)	62 (47.7)	
Understood precautions or warnings of the medicine				
Yes	12 (9.2)	63 (48.5)	75 (57.7)	p< 0.05 X ² =82.49
No	54 (41.5)	1 (0.8)	55 (42.3)	
Knew adverse Effects of the medicines				
Yes	24 (18.5)	21 (16.2)	45 (34.6)	p=0.6705 X ² =0.181
No	42 (32.3)	43 (33.1)	85 (65.4)	

Table 5: Patients sources of medication information

Sources	N (%)
Prescribers (doctors & nurses)	80 (61.4)
Label on Medicine Package	37 (28.5)
Relatives/Friends	5 (3.9)
Pharmacists & intern pharmacists (4+4)	8 (6.2)
Total sources	130

DISCUSSIONS:

As shown in Table 1, almost equal numbers of males and females participated in this study. It was noted that majority of the respondents were 40 years and above (75%), retired (43%), and were on recurrent treatments. Thus, they were supposedly more familiar with their

medications. Most remarkable is the relatively larger proportion of unemployed women 22 (16.9%) and relatively larger proportion of women working in the informal sector as subsistence farmers (n=12 (9.2%) against men (n=3 (2.3%). These unfavorable indications are a reflection of low participation of women in the socioeconomic sectors of the country and

related gender inequalities, which must be addressed separately by PNG government.

Knowledge on Medication Instructions:

As in Table 3, a fairly high proportion of the patients were well aware of the route of administration, and dosage schedule (93.9%). These results were similar to the findings of similar study by Singh et al., where knowledge on dose and on frequency of administration was found to be 85.4% and 86.4% respectively for dispensed medicines [7]. In our study most patients were aware of the timing (93.9%) and the duration (74.6%) of the treatment regimens, given that they had taken the medicines before. These basic findings are consistent with knowledge related factors that affect patient adherence to medication regimens as pointed out by Antonia Kalogianni [17], and Beata Jankowska-Polanska et al [18]. In Table 4, of the 130 patients in the study, 105 (80.8%) knew the indications of their medicines. However, only 45 (34.7%) of them knew about important adverse effects of the medicines ($\chi^2 = 0.181$; $p = 0.6705$). Furthermore, 68 (52.3%) of them knew what to do when dosage is inadvertently missed. Knowledge on the therapeutic indications and on adverse effects enables patients to assume adherence to medication as an important part in disease control and treatment.

These findings are in similar pattern to results of a study carried out by Samanth Frohlich et al. in Brazil although the latter scenario

indicated even much lower proportion of 23.3% patients who did not know what to do when a dose is missed or forgotten [8]. Undoubtedly, lack of information is one of the factors contributing to treatment failure; hence the findings of this study underscore the need and provision for such information to patients as stressed by Antonia Kalogianni [18] and on the study by Beata Jankowska-Polanska et al where knowledge on hypertension was found to be a significant determinant of good adherence [19].

Knowledge on Precautions and Warnings:

Overall, only 75 (57.7%) of the 130 participants were aware of the warnings and precautions linked with the prescribed medications, while 55 (42.3%) were not. Despite the low educational level, relatively more women 63 (48.5%) than men 12 (9.2%) knew the precautions and warnings, and the difference was significant ($\chi^2 = 82.49$ Yates corrected; $p < 0.05$), demonstrating a reassuring scenario, where women would in most circumstances be the ones expected to administer medicines to children or help minors with their medications. A high proportion of the participants; 55 (42.3%) exhibited no knowledge of the precautions and warnings. Although our study demonstrated a relatively higher (57.7%) knowledge than a similar study by Samant Frohlich et al in Brazil [8] with only 31% knowledge about the precautions and warnings; it suggests the need for increased

information and awareness to patients and clients in order to improve adherence to medication. Further assessment of medicines therapeutic classes in Table 2 revealed that categories of medicines prescribed were mostly lifesaving medicines such as: anti-hypertensives, anti-diabetics, antipsychotics, anti-epileptics, which must be used continuously to achieve desired therapeutic actions with lesser complications. It could therefore be suggested that patient education and information would increase the knowledge and awareness needed to improve adherence with treatment regimens, hence improving self-care and quality of life. In addition, possible adverse drug reactions (ADRs) and drug-drug or food-drug interactions could actually be prevented by improvements through patients' medication information and counseling. In this study, patients (65.4%) appear to be most uninformed about the adverse effects of their medicines.

The high percentage of "No" knowledge of adverse effects is likely due to the lack of provision of information by the prescribers and other health professionals, such as the pharmacist. Possible reasons for the lack of information regarding adverse effects may be due to the fear of alarming the patients. The results in the present study corroborates well with results of other studies where deficiencies in knowledge of adverse effects were documented [2, 3, 4].

CONCLUSIONS:

The percent of patients who knew the correct dosage of their medication was very low. The dispensing time and dispensing counseling time was very short to give adequate drug information for the patient. Highest levels of knowledge were observed in route of administration, dosage of the medicine, schedule of administration. Considerable numbers of participants were aware of the duration of the treatment whilst lowest levels of medication knowledge occurred about adverse effects, what to do when one or more doses are missed and about the precautions and warnings. In addition, the prescribers, package label and information leaflet were the two main sources of patients' knowledge on medicine's actions.

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