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A Survey on Inpatients' Preferred Methods of Receiving Information about Medicines in London, United Kingdom

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Abstract

Background: Medication education programmes are often developed without input from patients and therefore did not provide what the patients want. This study aimed to identify inpatients' preferred methods of receiving information about their medicines and to determine the relationship between different preferences with regards to age group and education level.

Methods and findings: A cross-sectional study was conducted at Lewisham Hospital and Queen Elizabeth Hospital. 100 inpatients were recruited in June 2017 across oncology, medical, surgical, cardiology, respiratory, and gynaecology disciplines. Patients' preferences for methods of receiving information was assessed with a newly constructed questionnaire. Patients indicated if a method to receive information about medicine was not desirable, somewhat desirable, desirable, very desirable or extremely desirable. Descriptive parameters and chi-square test were used in the data analysis.

71 patients completed the questionnaire. The top 2 'extremely desired' methods of receiving medication information were 'face to face discussion with a doctor while in ward' (n=31, 43.7%) and 'a written memo or letter on important information about medicines' (n=26, 36.6%). 'Online discussion with a pharmacist after discharge' was least desirable (n=33, 46.5%). Younger patients and patients with higher education level were likely to accept the online discussion than older patients (p=0.004) and patients with less education level (p=0.005).

Conclusions: The study suggests that patients should be offered face to face discussion about their medicines with health care providers before they were discharged home. Personalised written information about medicines is highly preferred and should be considered for the dissemination of medicines information for inpatients.

Keywords: Inpatients; Preferences; Medicines information; Health care providers; Questionnaire

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Introduction

There is a rising trend of chronic medical conditions among people in the United Kingdom (UK), which poses a great challenge to the National Health Service (NHS) [1]. Medications are the main treatment that could control these chronic medical conditions. However, about 30-50% of medicines prescribed by healthcare providers (HCP) are not adhered to by patients [2]. It was found that inadequate information can lead to poor adherence to medications and education is identified as one of the intervention strategies to improve medication adherence [3].

Medication education programmes are often developed without input from patients and therefore did not provide what the patients want [4]. For medication education to be effective, patients should not be treated as a homogenous group and HCP should consider delivering patient-centred medication education based on patient's needs and through formats supported by

patients and providers. Furthermore, having a patient-centred organisation is one of the nine key elements identified in developing a model hospital [5]. The Institute of Medicine defines patient-centred care as: "Providing care that is respectful of, and responsive to, individual patient preferences, needs and values, and ensuring that patient values guide all clinical decisions" [6].

Yi et al. reported that the delivery formats most desired by patients for medication education consist of both verbal communication and written communication, which includes physician counseling, pharmacist counseling, consumer medication information, auxiliary labels and patient-focused handouts [7]. Patients were also keen on telephone consultation, which was proven by a study in which most patients value telephone counselling by the pharmacist and would like to be contacted when they are started on new medicines [8]. This method is worth exploring as regular phone counselling by a pharmacist was shown to improve compliance and reduced mortality [9]. A combination of written and oral information was also shown to be appreciated by patients [10,11]. There studies were done for the patients in community setting, and there are limited studies on patients' preferences on inpatients' preferences on the delivery format of medication education in the UK.

It is unclear from the literature whether patients prefer to speak with HCP about their medicines while they are still in hospital or to their GP or community pharmacist after they are discharged from the hospital. Although the findings suggested that patients preferred to receive information while they were still in the hospital, this study was done in Israel which may not represent the society in UK due to differences in the structure of healthcare delivery [12]. The Royal Pharmaceutical Society sets the standard that patients should be given information about their medicines in a form they can understand before discharge [13]. NICE also gives guidance that inpatients should receive the same pharmaceutical information as patients in other settings [14].

From the literature we found strong evidence support for combination of verbal and written delivery of medication information, therefore we would like to explore inpatients' preference for verbal and written information [10,11]. The preference for new models of delivering medication education such as telephone consultation as well as inpatients' preferred HCP for provision of medication information is also worth exploring. The aim of this study was to explore inpatients' preference for different ways of receiving information about their medicines and the relationships between different preferences with regards to age group and education level.

Materials and Method

Study design, setting and study population

This descriptive, cross-sectional study was conducted at Lewisham Hospital and Queen Elizabeth Hospital, two district general hospitals in South East London during June 2017. The patients enrolled in this study met the following criteria: adult inpatients aged 18 and above. Patients who were confused or unable to read and write in English were excluded. Convenience sampling method was employed in this study. Questionnaires were distributed across oncology, surgical, cardiology, respiratory, gynaecology, geriatric and general medical wards. Patients' preferences for methods of receiving information was studied with a newly constructed questionnaire. Different methods of information provision included in the questionnaire were selected based on the literature which reported the delivery format desired by patients [7-11]. The contents of the questionnaire were reviewed by two senior pharmacists, one medical consultant, and one senior nurse for relevance, appropriateness, and acceptability. The questionnaire was pretested with ten patients to ensure clarity in the wording of the questions and the final survey questions were assessed and modified accordingly.

Data collection and analysis

Patients staying in adult wards were asked to participate in a questionnaire regarding their preferred methods in receiving information, such as face to face discussion with doctors before discharged home, face to face discussion with a pharmacist before discharged home and so on. Patients indicated if a method to receive information about medicine was not desirable, somewhat desirable, desirable, very desirable or extremely desirable. Patients who indicated 'somewhat desirable', 'desirable', 'very desirable' and 'extremely desirable' were categorised as patients who express preference to a particular method in receiving information about medicines, while patients who indicate 'not desirable' were categorised as patients who expressed no preference to a particular method in receiving information about medicines. Association between age group and education level with patients' desirability for different methods to receive medications was examined using chi-square test.

General demographic information such as gender, age and educational level were also collected. Statistical Package for the Social Sciences (SPSS) software was used to perform the descriptive analysis and chi-square test.

Ethical approval

This research was approved by the ethics board of Lewisham and Greenwich NHS Trust Clinical Audit Department (Audit number=5179) as well as ethics board of School of Pharmacy, University College London on 27 May 2017.

Result

Demographic of the study population

100 patients were approached with questionnaires, and 100 questionnaires were returned (100% response rate) and 71 completed all sections (71% completion). Patients who did not completed all sections were excluded. Majority of study participants (69%) were white and aged between 65-84. A descriptive profile of participants is shown in **Table 1**.

Patients' preferred method in receiving medication information

Patients' preferred method of receiving medication information was assessed. The top 2 'extremely desired' methods of receiving medication information were 'face to face discussion with a doctor while in ward' (n=31, 43.7%) and 'a written memo or letter on important information about medicines' (n=26, 36.6%) (**Table 2**). 'Online discussion with a pharmacist after discharge' (n=33, 46.5%) and 'contacting a pharmacist via phone text messages' (n=20, 28.2%) were the top 2 least desirable method (**Table 2**). More inpatients expressed desirability to have 'face to face discussion with a pharmacist while in ward' (n=69, 97.2%) than 'speaking to community pharmacist or General Practitioner after discharge' (n=65, 91.5%) (p=0.014). 11.3% (n=8) of the inpatients regarded 'face to face discussion with a nurse while in ward' as extremely desirable, which was less than those who regarded 'calling a pharmacist on a telephone helpline' (n=12, 16.9%) and 'follow up phone call after discharge from a pharmacist' (n=10, 14.1%) as extremely desirable.

Relationship between patients' preferred method of receiving information with regards to age group and education level

There was a significant association between patients' desirability on obtaining information through 'online discussion with a pharmacist after discharged home' with age group and education level. Patients aged 18-44 were more likely to desire this method than patients aged 45-64 and 65 and above [P=0.004]. Patients whose education level was college and above were more likely to favour this method than those whom graduated secondary school and below (P =0.005) (**Table 3**).

It was found that the preference for 'follow up phone call after going home from a pharmacist to check if you have any problems' is related to education level. Patients whose highest education level is secondary school or below were more likely to not favour this method (P = 0.005) (**Table 3**).

Table 1: Patient demographic characteristics (n=71).

Characteristics	Frequencies
Gender, Male	25 (35.2)
Female	46 (64.8)
Age group	
25 and below	2 (2.8)
26-44	8 (11.3)
45-64	26 (36.6)
65-84	34 (47.9)
85 and above	1 (1.4)
Ethnicity	
White or White British	49 (69.0)
Asian or Asian British	5 (7.0)
Black or Black British	16 (22.6)
Others	1 (1.4)
Education levels	
Below secondary school	2 (2.8)
Secondary school	44 (62.0)
College	6 (8.5)
University	19 (26.8)

Table 2: Patients' preferred methods of receiving information about medicines.

	Number of patients, n (%)				
Ways to receive information	Not desirable	Somewhat desirable	Desirable	Very desirable	Extremely desirable
Face to face discussion with a doctor while in ward	3 (4.2)	4 (5.6)	21 (29.6)	12 (16.9)	31 (43.7)
Face to face discussion with a pharmacist while in ward	2 (2.8)	6 (8.5)	28 (39.4)	17 (23.9)	18 (25.4)
Face to face discussion with a nurse while in ward	6 (8.5)	10 (14.1)	28 (39.4)	19 (26.8)	8 (11.3)
Online discussion with a pharmacist after discharge	33 (46.5)	9 (12.7)	13 (18.3)	14 (19.7)	2 (2.8)
Follow up phone call after discharge from a pharmacist	11 (15.5)	14 (19.7)	15 (21.1)	19 (26.8)	12 (16.9)
Contacting a pharmacist via phone text messages to ask questions about medicines	20 (28.2)	8 (11.3)	20 (28.2)	16 (22.5)	7 (9.9)
Calling a pharmacist on a telephone helpline to ask questions about medicines	9 (12.7)	6 (8.5)	18 (25.4)	28 (39.4)	10 (14.1)
Reading the label and leaflets on/in the medication box	3 (4.2)	6 (8.5)	17 (23.9)	24 (33.8)	21 (29.6)
A written memo or letter on important information about medicines	7 (9.9)	3 (4.2)	9 (12.7)	26 (36.6)	26 (36.6)
Speak to a pharmacist in regular community pharmacy or GP clinic	6 (8.5)	7 (9.9)	25 (35.2)	16 (22.5)	17 (23.9)

Discussion

Patients' preferred methods of receiving information about medicines

Face to face discussion with a doctor achieved the highest preference among patients in which 43.7% thought it is 'extremely desirable', compared to 25.4% who believed it is extremely desirable to see a pharmacist and 11.3% thought it is extremely desirable to see nurses. Face to face discussion was valued over written information as it is a more interactive medium which could be tailored to the needs of patients [15]. It was reported that patients preferred to obtain information about medicines from health professionals, followed by patient information leaflets (PILs) supplied with medicines [16]. Our result was supported by evidence that 45% of patients thought that the best person to tell about their medicines while in the hospital was a doctor [17]. Patients may have different views on who had the responsibility to provide important information about medicines [18]. Patients may see that doctors had the overall responsibility for their treatment, or there is a lack of awareness

Table 3: Association between age groups and education levels with patients' preferred method to receive information about their medicines.

Method of receiving information about medication	Variable			No preference expressed	Preference expressed	*P* value
				n(%)	n(%)	
Face to face discussion with a doctor while in ward	Age group	18-44		0 (0)	10 (100)	0.371[b]
		45-64		0 (0)	26 (100)	
		65 and above		3 (8.6)	32 (91.4)	
	Education level	Secondary school and below		3 (6.5)	43 (93.5)	0.266[b]
		College and above		0 (0)	25 (100)	
Face to face discussion with a pharmacist while in ward	Age group	18-44	0 (0)		10 (100)	0.634[b]
		45-64		0 (0)	26 (100)	
		65 and above		2 (5.7)	33 (94.3)	
	Education level	Secondary school and below	2 (4.3)		44 (95.7)	0.537[b]
		College and above		0 (0)	25 (100)	
Face to face discussion with a nurse while in ward	Age group	18-44	0 (0)		10 (100)	0.851[b]
		45-64		2 (7.7)	24 (92.3)	
		65 and above		4 (11.4)	31	
	Education level	Secondary school and below	4 (8.7)		42 (91.3)	1.000[b]
		College and above		2 (8.0)	23 (92.0)	
Online discussion with a pharmacist after discharge	Age group	18-44	0 (0)		10 (100)	0.004
		45-64		16 (61.5)	10 (38.5)	
		65 and above		17 (48.6)	18 (51.4)	
	Education level	Secondary school and below	27 (58.7)		19 (41.3)	0.005
		College and above		6(24.0)	19 (76.0)	
Follow up phone call after discharge from a pharmacist	Age group	18-44	0 (0)		10 (100)	0.405[b]
		45-64		4 (15.4)	22 (84.6)	
		65 and above		7 (20.0)	28 (80.0)	
	Education level	Secondary school and below	11 (23.9)		35 (76.1)	0.005[b]
		College and above		0 (0)	25 (100)	
Contacting a pharmacist via phone text messages to ask questions about medicines	Age group	18-44	1 (10.0)		9 (90.0)	0.079
		45-64		5 (19.2)	21(80.8)	
		65 and above		14 (40.0)	21(60.0)	
	Education level	Secondary school and below	15 (32.6)		31 (67.4)	0.259
		College and above		5 (20.0)	20 (80.0)	
Calling a pharmacist on a telephone helpline to ask questions about medicines	Age group	18-44	0 (0)		10 (100)	0.383[b]
		45-64		3 (11.5)	23 (88.5)	
		65 and above		6 (17.1)	29 (82.9)	
	Education level	Secondary school and below	8 (17.4)		38 (82.6)	0.146[b]
		College and above		1 (4.0)	24 (96.0)	
Reading the label and leaflets on/in the medication box	Age group	18-44	1 (10.0)		9 (90.0)	0.152[b]
		45-64		2 (7.7)	24 (92.3)	
		65 and above		0 (0)	35 (100.0)	
	Education level	Secondary school and below	3 (6.5)		43 (93.5)	0.266[b]
		College and above		0 (0)	25 (100)	
A written memo or letter on important information about medicines	Age group	18-44	0 (0)		10 (100)	0.156[b]

Method of receiving information about medication	Variable			No preference expressed	Preference expressed	*P* value
		45-64		5 (19.2)	21 (80.8)	
		65 and above		2 (5.7)	33 (94.3)	
	Education level	Secondary school and below	6 (13.0)		40 (87)	0.409[b]
		College and above		1 (4.0)	24 (96)	
Speak to a pharmacist in regular community pharmacy or GP clinic after discharge	**Age group**	18-44	0 (0)		10 (100)	0.071[b]
		45-64		5 (19.2)	21 (80.8)	
		65 and above		1 (2.9)	34 (97.1)	
	Education level	Secondary school and below	5 (10.9)		41 (89.1)	0.414[b]
		College and above		1(4.0)	24 (96)	

[a]Chi-square test for independence [b] Fisher's exact test.

of the skills of a pharmacist in an inpatient environment. Patients can also be confused about who they are speaking to while in the hospital as a hospital pharmacist does not dress differently to doctors. A study conducted in the UK showed that only 13% of patients reported being counselled by a pharmacist [19]. This may contribute to the unfamiliarity towards pharmacist's role in providing medication information among the inpatients.

A written memo or letter on important information about medicine was the second highest ranking in preference this shows that most patients would like written information about their medications. Although medicine information leaflets were known to improve patient knowledge, satisfaction and adherence to therapy, patients had expressed that the language of the package insert was complicated and preferred simplified information [10]. A study also reported that about 70.4% of patients read the package inserts only when they were taking the medications for the first time, while 35.5% read leaflets for refilled medications [20]. Patients prefer leaflets that tailored to their condition or disease, age, and gender [21].

In fact, a combination of verbal and written information were highly preferred by patients [10]. Written information can be retained and referred if needs arise. In our study the elderly population aged 65 and above constitute for 49.3 percent. Within this population, misunderstanding, poor memory and impaired cognitive functions are often present. Patients also tend to forget or ignore almost half of what they were told by HCP [22]. The elderly population also felt that written information has been particularly helpful for people with hearing or memory problem [23]. Besides, written information makes it easier for patients to ask questions during consultations with health professional [24].

Patients have more interactions with HCP in the community setting than in hospital setting in obtaining information about medicines. It was reported from a study in UK that the most common source of information about medicines was the GP, followed by community pharmacists, hospital doctors and community nurses [16]. From our study, face to face discussion with doctors and pharmacists while in ward achieved higher preferences than speaking to a pharmacist in a regular community pharmacy of GP clinic. This is in line with the study that most patients preferred to receive information during hospitalisation than in community [12]. Although patients are usually referred to the primary GP in the community after discharge where patient will get additional medication education from the GP or community pharmacist, patient will be left on their own to take personal responsibility for their treatment during the transition process. Therefore, it is important for HCP to educate patients on their medicines before patients are discharged home.

Follow up phone call after discharge was favoured by 64.8% of the patients who rate from 'desirable to extremely desirable'. This finding is consistent with a study that reported about 63% of patients who would like to be contacted by the pharmacist by phone when they are started with a new medication [8]. Our results also showed that more inpatients prefer speaking to pharmacists than to nurses about their medications. This is an interesting finding which warrants further investigation.

Relationship between patients' preferred method in receiving information with regards to age group and education level

The Internet has been recognised as an important tool in transforming medical care [25]. The Trust could consider the provision of information through online chatting platform or social media to the young population aged 18-44 as well as patients who graduated from college and above. Older adults may have problems in recalling specific webpage location and links [26]. Our finding was also supported by a study that demonstrated higher rates of internet use for health information among people with higher education level [27]. Patients who graduated from college and above may be more confident in navigating the online chatting platform as they have more exposure and experiences with digital technologies.

According to our result, telephone consultation may not be desired by patients who graduated from secondary school. They may be more reluctant to receive a phone call from the pharmacist. Further study is needed to explore the viewpoints of this group of patients in depth.

Strengths and limitations

The ethnic demographics of our study participants were comparable to the actual ethnic demographics of Lewisham, in which there is 53.6% of white, 9.3% Asian, 27.2% Black, and 7.4% of mixed ethnicity [28]. In our study, there was potential

bias with the convenience sampling method which may reduce the generalisability of this study. Young patients aged 25 and below were underrepresented in this study, which was only 2.8% compared to 32.8% in the actual population. Majority of the participants aged 65 and above, which consisted of 48.8% compared to 9.8% in the population [28]. There may be a potential bias of patients who responded by providing socially desirable answers in front of the researcher, although they had been informed that the questionnaire response was confidential.

Due to the limited study duration, only 100 patients were approached in data collection. Reliability, content validity and construct validity were not established for the newly constructed questionnaire of the study.

Study implications

Providing medication information should be an integral part of treatment during patients' hospitalisation. Individual needs should be identified to communicate the essential information to patients. Patients should be offered to hear about the potential problems of medications apart from the action and usage. Some hospital inpatients may benefit from a printed medicines information leaflet as it may reinforce the information provided verbally.

There is a lack of consensus between the roles of doctors, pharmacists, and nurses when providing medicines information to patients. As lack of time was often perceived as the biggest barrier to providing detailed information [29], HCP should re-examine their roles in medication education and discuss possible collaborations between different HCP. For example, a cooperative pharmacy-nursing program for discharge medication counselling using printed information has proved to be an effective and efficient way of sharing necessary medication information with patients [30]. This study also provides an opportunity to reflect on how a pharmacist is identified in a hospital setting and how to enhance the roles of the pharmacist in providing medication information in wards.

Conclusion

This service evaluation has provided a useful insight into general inpatients' perceptions and preferences in receiving information about their medicines. Inpatients should be offered face to face discussion about their medicines with HCP before they were discharged home. Personalised written information about medicines is highly preferred and should be considered for dissemination of medicines information for inpatients. The roles of different HCP in inpatient medication education should be examined and discussed to find a consensus to improve the delivery of medication information to hospitalised patients.

Conflict of Interest

The authors declare that there is no conflict of interest.

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