

# Ghanaian Pharmacists' Knowledge and Perception of Medication History Taking

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## ABSTRACT

The role of pharmacists in the recording of accurate and comprehensive medication histories cannot be overemphasised. As experts in medicines, pharmacists are believed to be especially suited to acquire and supervise the recording of accurate medication histories due to their familiarity with drug names, doses, dosage forms, among others. Pharmacists involvement in the medication history taking process in health facilities, especially in developing countries is however not common. This study assesses the knowledge and perception of pharmacists about the medication history taking process and their role in it. Data were gathered through the administration of questionnaires to 55 pharmacists at Komfo Anokye Teaching Hospital, a tertiary care institution in Ghana. Findings from the study show that pharmacists have an excellent knowledge (Mean = 4.32, SD = 0.78) and a positive perception (Mean = 3.90, SD = 0.89) of the medication history taking process. They are willing to be involved in the medication history taking process at health facilities.

**Keywords:** Medication history, knowledge, perception, pharmacists.

## INTRODUCTION

A medication history, defined as a written record of a patient's drug therapy, is a vital part of patient assessment and hospital admission process. A careful assessment of patient's medication history helps improve the efficiency and quality of patient care (Nester and Hale, 2002; Tam *et al.*, 2005).

Historically, documentation of medication histories has been undertaken by physicians and sometimes nurses. The general observation from studies done mainly in developed settings is that, the medication history information documented by physicians is often inaccurate and incomplete (Beers *et al.*, 1990; Batty *et al.*, 1997; Bedell *et al.*, 2000). This probably stems from the relatively long time required to take a comprehensive medication history in relation to the busy schedule of physicians. Yusuff and colleagues (2010) found that it takes nine to thirty minutes on average to complete a comprehensive medication history. This makes it a potentially overwhelming task for busy physicians. The perception of drug history documentation being an additional burden on physicians' work schedule as well as the problem of insufficient manpower may also be a contributing factor to the inaccuracy and incompleteness of medication histories taken by physicians (Yusuff and Awotunde, 2005).

In many countries today, there is a compelling need to improve the quality of drug history documentation. This has necessitated the exploration of several options to ensure that the best possible medication history is recorded for patients. One such option is for medication histories to be taken by pharmacists. Being custodians of medicines, pharmacists are known to compile such histories with a high degree of precision and reliability (Nester and Hale, 2002). Several studies have also demonstrated that pharmacists' involvement in medication history taking, yielded significant improvement in the quality of medication histories documented (Hocking and Kalyanaraman, 1998; Montpetit and Roy, 1998; Nester and Hale, 2002). Notwithstanding, it is also important to take cognisance of the fact that, the willingness of pharmacists to get involved in medication history taking, and the quality of medication histories they take depends heavily on the knowledge of pharmacists in medication history taking and their perception of their role in the process.

Currently in Ghana, as in many other developing and some developed countries, the involvement of pharmacists in the medication history taking process is not routine. With the current call for pharmacists to get more involved in the medication history taking process, documented empirical evidence on pharmacists' knowledge and perception of this process and their role in it is needed to inform policy decision on the issue. This direction of research is currently unexplored. The current study is an attempt to fill this gap. Thus, the objective of this study was to assess the knowledge and perception of pharmacists about the medication history taking process and their role in it.

## METHODS

### Study Design

The study employed the case study research design in the sense defined by Yin (2003). According to him, a case

study is an empirical investigation into a contemporary phenomenon within its real-life context, over which the investigator has little or no manipulative control. Creswell (2009) explains that in a case study the researcher explores in depth a programme, event, activity, process, or one or more individuals. Emphasizing the topic of investigation, Hitchcock and Hughes (1995) suggest that case studies are distinguished less by the methodologies that they employ than by the subjects/objects of their enquiry. Case studies are set in temporal, geographical, organizational, institutional and other contexts that enable boundaries to be drawn around the case (Cohen, Manion & Morrison, 2007). According to Merriam (2002), what characterizes a case study is the 'unit of analysis' which circumscribes the topic of investigation (the case). This makes the object of a case study research usually a specific, unique, bounded system (Stake, 2003).

### **Study site and participants**

The phenomenon of medication history taking is naturally observed in the "real-life context" of health facilities. This study about medication history taking was carried out at the Komfo Anokye Teaching Hospital (KATH), a 1000-bed tertiary care institution in the Ashanti region of Ghana. The study population comprised all pharmacists (a total of 61) employed at this institution during the time of study. Three pharmacists were on leave during the study period and three others did not consent to be part of the study. Hence, a total of 55 pharmacists (31 males and 24 females) participated in this study.

### **Development and validation of research instrument**

A three-sectioned questionnaire developed from scratch was used to collect data on pharmacists' knowledge and perception of the medication history taking process. Section one was designed to collect the bio-data of the pharmacists including their gender, age, highest qualification in the field of pharmacy, years of experience in hospital pharmacy practice, and training in medication history taking. Section two dealt with pharmacists' knowledge of the medication history taking process including the components of a good medication history, sources of a good medication history and the steps involved in conducting a good medication history interview. The general perception of pharmacists on medication history taking in health facilities, especially by pharmacists, was the focus of section three of the questionnaire. The questionnaire was pre-tested among a convenience sample of twenty hospital pharmacists present at a meeting organised by the Pharmaceutical Society of Ghana. The questionnaire was revised based on the feedback obtained from the pilot study.

### **Ethical Considerations**

Ethical clearance was obtained for the study from the Research and Development Unit of KATH and the Committee on Human Research Publication and Ethics (CHRPE) of Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana. All participants were given the opportunity to go through an informed consent process during which adequate information on the study was given.

### **Data collection and analysis**

The questionnaire was administered to the 55 pharmacists to assess their knowledge of three aspects of medication history taking, namely: sources of information for taking a good medication history, components of a good medication history and steps involved in taking a patient's medication history.

The completed questionnaires were coded and the data analysed with the Statistical Package for Service Solutions (SPSS) windows version 20.0. The results of the data analysis were presented in frequencies and percentages and in descriptive statistics such as means and their standard deviations, and presented in tables and graphs.

With regards to the knowledge and perception of pharmacists in medication history taking, pharmacists' responses were scored and the direction and strength of their knowledge and perception were determined by the means (*M*) with their standard deviations (*SD*). This approach was recommended by Cohen *et al.*, (2007) and Oppenheim (1992), and has been used in many studies that sought to measure participants' level of knowledge, attitude or perception (e.g. Ayaaba, 2013; Cobbold, 1999; Monney and Krueger, 2009).

## **RESULTS**

### **Knowledge of pharmacists in medication history taking**

With regards to pharmacists' knowledge in the sources of information for a good medication history, pharmacists were provided with a list of sources of information for medication history and asked to indicate which ones they would use when taking a patient's medication history (Table 1).

**Table 1: Pharmacists' knowledge of sources of information for taking a good medication history**

<b>Source of information (Multiple sources accepted)</b>	<b>Number of respondents</b>	<b>Percent (%)</b>
<b>Patient's previous health records</b>	2	3.60
<b>Patient, family members</b>	1	1.80
<b>Patient, patient's previous health records</b>	4	7.30
<b>Patient, vials and other medication packages</b>	1	1.80
<b>Patient's previous health records, vials and other medication packages</b>	1	1.80
<b>Patient, family members, healthcare professionals involved in patients care</b>	1	1.80
<b>Patient, family members, patient's previous health records</b>	6	10.90
<b>Patient, healthcare professionals involved in patients care, patient's previous health records</b>	3	5.50
<b>Family members, healthcare professionals involved in patients care, vials and other medication packages</b>	1	1.80
<b>Patient, family members, vials and other medication packages</b>	1	1.80
<b>Patient, family members, healthcare professionals involved in patients care, patient's previous health records</b>	18	32.70
<b>Patient, healthcare professionals, patient's previous health records, vials and other medication</b>	1	1.80
<b>Patient, family members, patient's previous health records, vials and other medication packages</b>	2	3.60
<b>Patient, family members, healthcare professionals, patient's previous health records, vials and medication packages</b>	11	20.00
<b>No response</b>	2	3.60
<b>Total</b>	<b>55</b>	<b>100.0</b>

Inferring from Table 1, two pharmacists (3.6%) said in order to document the best possible medication history, they would use only one source and seven (12.7%) said they would use two sources. Apart from two pharmacists who did not indicate any source, the remaining 44 (80%) indicated that they would use more than two of the sources provided.

In assessing pharmacists' knowledge of the components of a good medication history, they were asked an open ended question requiring them to list all the questions they would ask a patient when taking his/her medication history. Components of a good medication history listed by pharmacists were compared to a nine-component list of medication history components compiled by the researchers through an extensive literature search as shown in Table 2. For each component, a pharmacist was scored 2 if he/she listed it, while a score of 1 was given if the component was not listed. The level of knowledge was determined by the mean (M) with its standard deviation (SD), and rated using the following mean ranges: 0 - 1 = Not knowledgeable and 1.1 - 2.0 = Knowledgeable (Table 2).

**Table 2: Knowledge of pharmacists in medication history components**

Component	Components listed (2) n (%)	Components not listed (1) n (%)	M	SD
Chronic medical conditions	48 (87.3)	7 (12.7)	1.87	0.34
Names of prescribed medications	51 (92.7)	4 (7.3)	1.93	0.26
Names of non-prescribed medications	50 (90.9)	5 (9.1)	1.91	0.29
Dosage regimen of medications	51 (92.7)	4 (7.3)	1.93	0.26
Duration of therapy	51 (92.7)	4 (7.3)	1.93	0.26
Indication of medications	50 (90.9)	5 (9.1)	1.91	0.29
Allergies (drug and non-drug) and adverse drug reactions	21 (38.2)	34 (61.8)	1.38	0.49
Social/ recreational drug use	6 (10.9)	49 (89.1)	1.11	0.32
Level of compliance to medications	5 (9.1)	50 (90.9)	1.09	0.3
<b>Grand Mean</b>			<b>1.62</b>	<b>0.32</b>

Table 2 reveals that, more than 90% of the pharmacists listed details of a patient's prescribed and non-prescribed medications, dosage regimen of medications, duration of therapy and the indication for all of the patient's medications as part of the components of a patient's medication history. However, 49 (89.1%) and 50 (90.9%) of the respondents did not mention that a patient's social/ recreational drug use and compliance of patients to their medications respectively should be recorded. The grand mean was 1.62 (SD = 0.32), which fell within the range, 1.1 – 2.0. This meant that the pharmacists were knowledgeable in the components of a good medication history. Pharmacists' knowledge of the steps in taking a good medication history was assessed using five items on a 5-point Likert scale. Their responses were scored as follows: Strongly agree (SA) = 5, Agree (A) = 4, Uncertain (U) = 3, Disagree (D) = 2, Strongly disagree (SD) = 1. The level of knowledge was determined by the mean (M) with its standard deviation (SD), and rated using the following mean ranges: 4.0 – 5.0 = Excellent knowledge, 3.0 – 3.9 = Very good knowledge, 2.0 – 2.9 = Some knowledge, 1.0 – 1.9 = Very little knowledge, 0– 0.9 = No knowledge (Table 3)

**Table 3: Pharmacists' knowledge of the steps in medication history taking**

Steps	Mean	SD
Identify the source of information to be used prior to the interview	3.95	0.89
Introduce yourself to the patient or care giver	4.40	0.68
Tell the patient/ care giver about the purpose of the interview	4.59	0.50
Obtain as much background information as possible about the patient prior to seeing him/ her	3.93	1.11
Counsel the patient on his/her medications	4.69	0.70
<b>Grand mean</b>	<b>4.32</b>	<b>0.78</b>

From Table 3, the least mean recorded was 3.93 (SD = 1.11) for the step "Obtain as much background information as possible about the patient prior to seeing him/her" and the highest mean recorded was 4.69 (SD = 0.70) for the step "Counsel the patient on his/her medications". The grand mean was (M = 4.32, SD= 0.78). The grand mean was within the range, 4.0 – 5.0, implying that the pharmacists had an excellent knowledge of the process of taking a good medication history.

### Pharmacists' perception of the medication history taking process

Eight statements on a 5-point Likert scale were used to measure pharmacists' perception of the medication history taking process. The responses of pharmacists were scored as follows: Strongly Agree (SA) = 5, Agree (A) = 4, Uncertain (U) = 3, Disagree (D) = 2, Strongly Disagree (SD) = 1.

**Table 4: Pharmacists' perception of the medication history taking process**

Statement	Mean	SD
<b>A record of an accurate and detailed medication history is an important part of patient assessment and should be encouraged in health facilities</b>	4.91	0.29
<b>There should be a formalised process for taking medication history</b>	4.29	0.66
<b>Recording a patient's medication history is far from simple and requires a lot of expertise</b>	3.85	0.93
<b>Pharmacists can elicit a more complete medication history than physicians</b>	4.04	0.88
<b>Pharmacists can allocate more time to the medication history taking process than physicians</b>	3.98	0.93
<b>Medication history interviews at the hospital should be the duty of the hospital pharmacist</b>	3.78	1.03
<b>Recording medication history by pharmacists brings an added burden on pharmacists and must attract extra allowance</b>	2.64	1.38
<b>Since physicians take a patient's medical history, taking the drug history should also be their duty and not the duty of pharmacists</b>	3.75	0.99
<b>Grand Mean</b>	<b>3.90</b>	<b>0.89</b>

In interpreting the scores, the direction and strength of perception were determined by the mean (M) with its standard deviation (SD), and rated using the following mean ranges: 4.0 – 5.0 = Very positive perception, 3.0 – 3.9 = Positive perception, 2.0 – 2.9 = Fairly positive perception, 1.0 – 1.9 = Negative perception, 0 – 0.9 = Very negative perception (Table 4)..

Table 4 shows that all the eight statements assessing the pharmacists' perception of the medication history taking process received positive rating. Seven statements recorded high means ranging from 3.75 (SD = 0.99) to 4.91 (SD = 0.29). Only one statement – "*since physicians take a patient's medical history, taking the drug history should also be their duty and not the duty of pharmacists*" – recorded a low mean of 2.64 (SD = 0.99). The grand mean of 3.90 (SD = 0.89) implies that the pharmacists had a positive perception of the medication history taking process and their role in it.

## DISCUSSION

### Pharmacists' knowledge of the medication history taking process

Recording a good medication history involves knowing the sources of information available for recording a medication history and identifying which source(s) to use for a particular patient, the components of a good medication history and the right steps to follow during the medication history interview. Ellington and co-authors (2002) and FitzGerald (2009) indicated that, the sources of information to be used in taking medication histories include: patient or caregiver, medication containers, patients' community pharmacy and current medication list as well as other health care professionals involved with patient's care. They further mentioned that, in order to obtain the Best Possible Medication History (BPMH), two or more of these sources of information should be used. In this study, majority of the pharmacists had knowledge of most of the sources of information for taking a good medication history. Eighty percent (80%) indicated that they would use more than two of the sources provided, if those sources were available, in order to ensure that information obtained was correct and comprehensive. This proved that the pharmacists were well informed of the sources of information needed to obtain a good medication history and knew how to maximize these sources in order to obtain the required information.

A study by Yusuff and colleagues (2010) showed that a good medication history must encompass details of a patients' prescribed and non-prescribed medications, allergic tendencies, previous adverse drug reactions, adherence to previous pharmacological therapy, social drug use and probable self-medication with complementary and alternate medicines. Covington (1972), FitzGerald (2009) and Tietze (2011) also mentioned that, a good medication history also assesses the medication taking behaviour including self-management and adherence to therapy of a patient. In our study, more than 90% of the pharmacists had a good knowledge of the

components of a good medication history. Hence they are very likely to ask most of the relevant questions that will lead to the acquisition of an accurate and comprehensive medication history during a medication history interview.

The components that were not listed by most of the pharmacists (more than 85%) were: mode of acquisition and prescriber's of medications, social/ recreational drug use and level of compliance to medications. It is rather surprising that these components were not listed. Knowledge of the prescribers of a patient's previous medications helps the healthcare team to know who to contact when there are any issues with the patient's medications. Similarly, knowledge of the causes of a patient's non-compliance with previous medication regimens prior to initiating new therapy guides the healthcare team when deciding on medications, drug forms and dosages to be prescribed for a patient. The "social/recreational drug use" is usually captured by physicians when recording a patient's social history. Consequently, the pharmacists might have considered this component of little relevance in recording a patient's medication history.

The steps to be followed by an interviewer in recording a good medication history include: obtaining as much background information as possible about the patient prior to the medication history interview; identifying possible sources of information available for conducting the history; introducing yourself to the patient and/or care giver and informing them about the purpose of the interview; enquiring about the patient's medications, allergies, adverse drug reactions; and closing the interview with the patient by assessing the patient's understanding, providing the opportunity for the patient to ask questions and discussing follow-up plans with him/her (Ellington *et al.*, 2002; FitzGerald, 2009). These steps were very well known by the pharmacists.

Summing up, it can be said that the pharmacists are very knowledgeable in the medication history taking process. With such background, they are very likely to conduct good medication history interviews.

#### **Pharmacists' perception of the medication history taking process**

Several studies including that of Nester and Hale (2002), Cornish and colleagues (2005) and Carter and co-authors (2006), have suggested that pharmacists be involved in the medication history taking process. They are known to be more familiar with drug names, characteristics, effects, dosage forms, and drug administration compared to other health care personnel. Also, pharmacists readily identify inconsistencies and mistakes in patients' self-reported medication histories. It is, however, important that the perception of pharmacists on the medication history taking process and the suggestion that they should be involved in the process be assessed. This study showed that, generally, pharmacists had a positive perception of the medication history taking process. The pharmacists were also aware of their role in the medication history taking process and were willing to be involved in it. They were strongly aware of the importance of accurate medication histories in the care and assessment of patients. Despite their knowledge and expertise in medication history taking, they agreed to the suggestion that a formalised process be used when taking a medication history, even if the history is being taken by a pharmacist. They also indicated that they could allocate more time to this service as compared to physicians.

With the pharmacists' positive perception of the medication history taking process and their role in it, one would expect that they would be dedicated to this service should it be added to their routine work at the hospital. However, policy makers are cautioned not to hurriedly pursue any such decision without thinking about its financial implications. Some of the pharmacists suggested that this service would bring an added burden on them and hence the need for it to attract extra allowance.

#### **CONCLUSION AND RECOMMENDATION**

The study found that pharmacists are knowledgeable in the medication history taking process. They also have a positive perception of this process and are willing to be involved in it. These findings suggest that a policy to involve pharmacists in medication history taking at the Komfo Anokye Teaching Hospital and similar health facilities in Ghana would be welcome by pharmacists. It is, therefore, recommended that the Ghana Health Service should give such policy a thought.

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