

An Assessment of Nurses' Knowledge Attitude and Practice (KAP) of Pharmacovigilance at a University Hospital

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Abstract

Objective: To assess nurses' knowledge, attitude, and practice (KAP) of pharmacovigilance.

Design and Methods: A cross-sectional study that utilized questionnaires to evaluate nurses' KAP of pharmacovigilance. A sample size of 234 nurses was selected using a 95% confidence level with the raosoft online sample size calculator. Stratified random sampling method was used to select nurses from different departments. Data were analysed with the SPSS 20 using descriptive and inferential measures. The chi-square test was used to test the association between two attributes at a $P < 0.05$ significance level.

Results: 209 responses were received from 260 distributed questionnaires, giving an 80% response rate. Results for knowledge showed that 13.5% of the nurses had heard of the term pharmacovigilance prior to the study, while 58.4% correctly stated the functions of pharmacovigilance. Attitude towards pharmacovigilance revealed that 93.7% of the nurses felt it was a professional obligation to report adverse drug reactions (ADR). 98.1% of nurses felt that ADR reporting was necessary. Pharmacovigilance practice revealed that 68.8% of nurses indicated that they had noted an ADR while in practice, while 55.3% had reported an ADR. There was a significant association between nurses who noted ADRs in clinical practice and nurses who reported ADRs, $\chi^2 (1) = 86.642, p < 0.05$.

Conclusion: Registered nurses at UHWI showed a good attitude towards pharmacovigilance, although their knowledge and practice was limited.

Keywords: Knowledge, attitude, practice, Registered Nurse, adverse drug reaction, pharmacovigilance.

Introduction

Pharmacovigilance is an essential tool for effective clinical practice, and plays a vital role in ensuring the overall health and safety of the public. While it is true that advancements in technology have brought improvement in the process of drug development, with increase in the number of manufactured drugs providing therapeutic benefits to numerous patient illnesses, there have also been reported evidences of adverse drug reactions (ADRs) that has resulted in more sicknesses, increased hospital stay, cost of treatment, patient disability, and even death [1].

Definitions – Pharmacovigilance, adverse drug reactions

Pharmacovigilance is defined by the World Health Organization (WHO) as “a multidisciplinary field which studies the science and activities relating to the detection, assessment, understanding, and prevention of adverse reactions of drugs” [2]. The World Health Organization also defines an adverse drug reaction (ADR) as a noxious and unintended response to a drug which occurs at doses normally used for the prophylaxis, diagnosis or therapy of a disease

or for the modification of physiological functions [2]. A more recent definition of adverse drug reactions by outline an ADR as an appreciably harmful or unpleasant reaction, resulting from an intervention related to the use of a medicinal product, which predicts hazard from future administration and warrants prevention or specific treatment, or alteration of the dosage regimen or withdrawal of the product [3].

Concept of pharmacovigilance in Jamaica

As a measure to improve the overall health safety of the public, pharmacovigilance centres are coordinated by the WHO within member countries in collaboration with the central Uppsala Monitoring Centre (UMC), in Sweden, to collect and analyse case reports of ADRs, make regulatory decisions, and to alert prescribers, manufacturers, and the public to new risks of adverse drug reactions [4]. These national centres, which in many cases are in collaboration with major hospitals, utilize the effort of multidisciplinary health personnel by integrating pharmacovigilance into clinical practice to improve the practice of drug safety and increase public awareness of ADRs [5].

Role of health care workers in pharmacovigilance

The importance of evaluating the Knowledge, Attitude and Practice (KAP) of Pharmacovigilance among health care professionals cannot be overemphasized, as good pharmacovigilance programs do not only help to identify risks and potential risks of drug interactions, but also increase reporting rates of ADRs, thereby reducing the negative consequences of pharmacotherapy.

Evaluation of pharmacovigilance KAP of nurses in Jamaica

Although there have been studies that assessed the KAP of pharmacovigilance for health professionals in Jamaica, these studies were focused on doctors, dentists and pharmacists, leaving out an assessment of nurses. However, studies have shown that nurses also play an important role in ADR reporting due to their close contact with patient care, and their unique position that makes them well-placed to monitor and report patients' response to drugs [6].

This present study aims to assess nurses' knowledge, attitude, and practices (KAP) of pharmacovigilance at the University Hospital of the West Indies (UHWI). It is hoped that the results of this study will add to the body of existing knowledge in the field, while also provide pertinent data that will aid in improving the practice of ADR monitoring and reporting within the hospitals in Jamaica.

Methods

Study Design

This is a cross-sectional, observational study that utilized a questionnaire to evaluate registered nurses (RNs) on knowledge, attitude, and practice of pharmacovigilance.

Setting

This study was conducted at the University Hospital of the West Indies (UHWI), a tertiary care hospital in Mona, Kingston, Jamaica. At the time of the study, there were a total of 757 RNs employed at the University Hospital of the West Indies, of which 595 worked within the clinical capacity. A break down for number of Registered nurses for each department is listed (1) below: Child Health: 62; Mental Health: 30; Surgery I: 92; Surgery II: 82; Surgery III: 141; Medicine: 110; Obstetrics & Gynaecology: 78

Sampling

Target Population: Registered Nurses at the University Hospital of the West Indies. A sample size of 234 nurses was selected using a 95% confidence level using the raosoft online sample size calculator. Stratified random sampling method was used to ensure homogeneity in selecting nurses from different departments. Proportionate stratified sampling technique (2) was used to ensure that the number of elements from each stratum maintained the same sampling fraction as can be seen from the table below.

Inclusion Criteria

All registered nurses employed at the UHWI who work in the clinical setting were included in the study.

Exclusion Criteria

Nurses working within the capacity of administration or education who over the period of the study were not practicing within the clinical setting.

Instrument

Knowledge, Attitude, Practice (KAP) questionnaire was designed

(see Appendix A), adapted from previous studies in Jamaica and India [7, 8]. The final questionnaire for the present study was uniquely structured into four sections to suit the purpose of assessing nurses' KAP.

Validity/Reliability

Prior to distribution, the questionnaire was reviewed by research guide who evaluated the clarity and conciseness of the items to ensure its content validity. In addition, the survey form was pilot tested among a sample of 15 registered nurses from various wards within the hospital, who were not a part of the study, to test its face validity. Upon satisfactory feedback, the questionnaire was distributed with only minor changes.

Data collection

At the beginning of the 8 or 12 hour shifts (3), the nurses were handed the questionnaires, which were collected at the end of the shift, allowing sufficient time and convenience to complete survey. Data collection began on the 29th of March and ended on the 30th of May.

Statistical Analysis

Data collected were analysed using the software -Statistical Package for Social Sciences (SPSS) version 21.0. Results of the study is presented with descriptive measures such as mean \pm standard deviation (for quantitative variables), and numbers with percentages. Graphical presentations were used for categorical variables. Chi-square test was used to find the association between two attributes at $P < 0.05$ significant level.

Ethical Approval

The approval for conducting this study was gained from the University Hospital of the West Indies/ University of the West Indies/ Faculty of Medical Sciences (UHWI/UWI/FMS) Ethics Committee prior to the commencement of the study.

Results

Demographic Data

Table 4.1 Demographics

Gender of respondents	Frequency (%)
male	16 (7.7%)
female	193 (92.3%)
Total	209 (100%)
Age group of respondents	Frequency (%)
21-30	113 (54.1%)
31-40	80 (38.3%)
41-50	11 (5.3%)
50 and above	5 (2.4%)
Total	209 (100%)
Clinical department of practice	Frequency (%)
Medicine	44 (21.1%)
Surgery 1	42 (20.1%)
Surgery 3	41 (19.6%)
Obs & Gyne	26 (12.4%)
Surgery 2	24 (11.5%)

Child health	19 (9.1%)
Mental health	13 (6.2%)
Total	209 (100%)
Number of years in practice	Frequency (%)
<1year	22 (10.6%)
1-5years	109 (52.4%)
5-10years	52 (25%)
>10years	25 (12%)
Total	208 (100%)

Assessment of nurses' knowledge of Pharmacovigilance

Assessment of knowledge of pharmacovigilance showed that of the 209 nurses assessed, only 13.5% (n=28) had heard of the term pharmacovigilance prior to the study. Results for definition of pharmacovigilance showed that only 16.8% (n= 18) of nurses could correctly define the term pharmacovigilance, though a higher proportion 58.4% (n=122) of respondents correctly stated the functions of pharmacovigilance. Assessment of awareness of a national pharmacovigilance centre in Jamaica revealed that only 1.9% (n=4) of nurses were aware of the existence of a national pharmacovigilance centre in Jamaica. Also, a minimal number of respondents (2.9%, n=6) were aware of a Pharm Watch monitoring form. 72 % (n=150) specified they did not know which form was the authorized for reporting ADRs. 38.9% (n=81) of respondents correctly identified the Ministry of Health as the regulatory body responsible for ADR monitoring in Jamaica. Majority of the nurses 63.1% (n=130), however, were able to correctly match frequently used drugs in the hospital with their commonly associated ADRs.

Assessment of nurses' attitude towards pharmacovigilance

Results for attitude towards pharmacovigilance showed that majority of the nurses 98.1 % (n=204) felt that ADR reporting was necessary. 65.7% (n= 136) were able to correctly identify all the health professionals (Doctors, pharmacists, dentists, and nurses) including patients as persons responsible for reporting ADRs. Also, 93.7% of the nurses felt it was a professional obligation for nurses to report ADRs. Assessment of the nurses' opinion on establishing a national pharmacovigilance centre in Jamaica revealed that 82.6% (n=171) of respondents indicated that pharmacovigilance centres should be established in every hospital in Jamaica. Assessment of pharmacovigilance training for nurses revealed that 93.3% (n=194) of nurses believed that nurses should receive training in pharmacovigilance. Only a very minimal number of respondents (1.9%, n=4) felt that ADR training for nurses was unnecessary.

Assessment of nurses' practice of pharmacovigilance

On assessing practice, results showed that of the 209 nurses assessed, 68.8 % (n=143) indicated that they had noted an ADR while in practice. Majority of nurses 51% (n=106) had observed between 1-5 adverse drug reactions. 55.3% (n=115) of nurses indicated they had reported an ADR. However, a small percentage (13.5%, n=28) of the nurses indicated that they had completed forms to report an ADR. The question on the type of form completed returned only 44

responses with majority of the nurses who responded n=40 (90.9%) indicating the incident report form as the form used to report ADRs. 50% (n=52) of respondents indicated they had given the report of the ADR to the doctor, and 39.4% (n=41) had indicated the report was sent to the nursing office. The frequency was similar (1.9%, n=2) for nurses who indicated they had sent ADR reports to the public health nurse and pharmaceutical company respectively. 6.7% (n=7) of the nurses indicated they did not know whom an ADR should be reported to.

Assessing training of pharmacovigilance results revealed that 83.2% (n=173) of the nurses indicated they had never received any training in pharmacovigilance, and only 8.3% (n=17) indicated they had done some reading on pharmacovigilance prior to this study.

Factors affecting Reporting of ADRs

A χ^2 test of independence was performed to examine the association between clinical department of practice and nurses who noted ADRs. There was no significant difference between these variables. $X^2 (6) = 11.413, p (.076) > 0.05$.

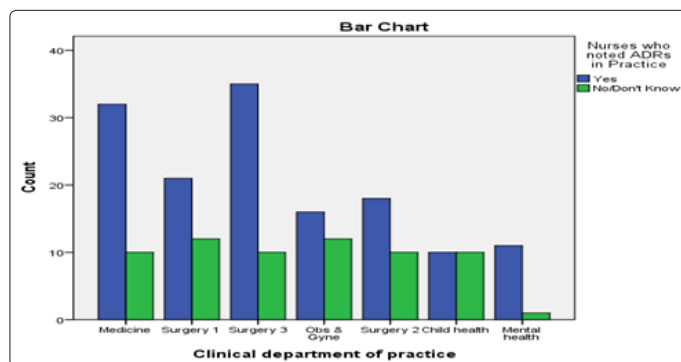


Figure 4.1: Graph of clinical department of practice*nurses who noted ADR

A χ^2 test of independence was performed to examine the association between number of years in practice and nurses who noted ADRs. The association between these variables was significant, $X^2 (3) = 18.608, p < 0.05$.

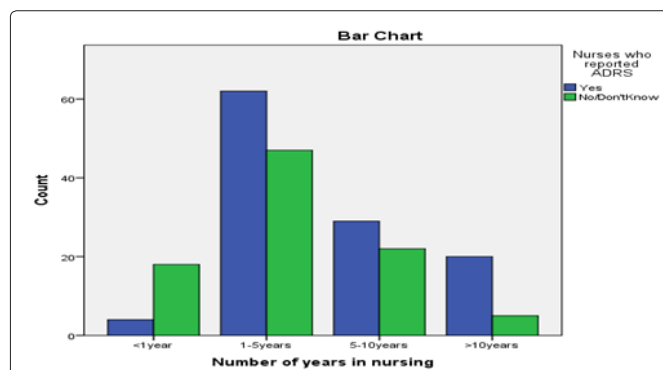


Figure 4.2: Graph of crosstabulation of number of years in nursing * Reporting of ADR

Table 4.1 Clinical department of practice * Nurses who reported ADRS Crosstabulation count

		Nurses who reported ADRS		Total
		Yes	No/Don't Know	
Clinical department of practice	Medicine	25	17	42
	Surgery 1	17	16	33
	Surgery 3	29	16	45
	Obs & Gyne	15	13	28
	Surgery 2	15	13	28
	Child health	4	16	20
	Mental health	10	2	12
Total		115	93	208

A χ^2 test of independence was performed to examine the association between clinical department of practice and nurses who reported ADRs. The association between these variables was significant, $\chi^2(6) = 15.981$, $p(0.014) < 0.05$.

Discussion

Knowledge of pharmacovigilance among nurses in this study was found to be insufficient; this is in keeping with previous studies in Turkey and Iran [9, 10]. This knowledge deficit was reflective as only 13.5% of nurses had heard of the term pharmacovigilance prior to this study, and 16.8% had indicated the correct definition of pharmacovigilance. The result in Turkey noted that only 23.3% of the nurses were able to correctly define the term pharmacovigilance and 32.1% for nurses in Iran [10]. Awareness of the Pharm Watch monitoring form was represented by only 2.9% of nurses. In comparison to other health professionals in Jamaica, awareness of the Pharm watch form was notably higher for pharmacists (50%) and physicians (35.8%), but similarly low for dentists (5.9%). Majority of the nurses 63.1% correctly matched frequently used drugs in the hospital with their commonly associated ADRs. This knowledge of the adverse profile of a drug becomes necessary when trying to identify causal relationships of suspected ADRs.

Attitude towards pharmacovigilance show that 93.7% of nurses felt it was a professional obligation to report ADRs. This finding was congruent when compared to a studied that assessed other health professionals in Jamaica where 90.3% of doctors, pharmacists and dentist shared the same opinion [7]. The result was, however, in contrast with a study in India where 82% of the nurses believed that ADR reporting is not a professional responsibility [10]. Of the 209 nurses assessed, 68.8% of nurses indicated that they had noted an ADR while in practice, while 55.3% indicated they had reported an ADR. However, a small percentage (13.5%) of the nurses indicated that they had completed forms to report an ADR. When the nurses were assessed on the type of form completed to report ADRs, the return response was noted to be only 44 of the 209. Majority of the nurses who responded to this question (63.6%) indicated that the incident report form as the form completed to report ADRs. Presently, the UHWI utilizes the incident report form as a means of communicating cases of unusual or significant occurrences and emergencies within the hospital that may involve staff or patient. These forms, after completion, are sent to the nursing administration office for quality assurance purposes.

Although the recorded number of ADRs reported was low, findings from this study showed there was a significant difference in the reporting of ADRs among nurses from the different departments. Distribution of nurses in different departments revealed that a relatively higher proportion of ADRs were observed in Surgery III and Medicine departments. Incidentally, these two departments also recorded a relatively higher level of reporting ADR. However, the department of mental health recorded the highest response of nurses who noted ADRs (91.7%), and the highest response of nurses who reported ADRs (83.3%), compared to the other departments. This finding coincides with a study on adverse drug reactions among hospitalized psychiatric patients in India which reported a high prevalence of ADRs among this group of patients [11].

Conclusion

Findings from the study suggest that the registered nurses at the UHWI displayed a high level of attitude towards pharmacovigilance, however their knowledge and practice was limited. Suggestion from the study include instituting pharmacovigilance training programs that will improve nurses' knowledge and hopefully impact their practice; sensitizing the hospital administration on the purpose and benefits of the PharmWatch program; periodic organizing of pharmacovigilance workshops within the hospital to help educate staff and promote the use of the PharmWatch form [12-33].

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