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Pedagogical Insights into the Perceptions and Attitudes of Pharmacy Students Toward Patient Safety: A Cross-Sectional Study from Pakistan

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Abstract

The study evaluated pharmacy students' perceptions and attitudes toward patient safety at two universities in Islamabad, Pakistan. Final-year Pharm D students completed a 21-item self-administered questionnaire. Data were analyzed using SPSS (version 23.0). The survey had a 97% response rate (160/165 students). Most students (95.7%) believed pharmacists should contribute to patient care, and 69.4% agreed they should report medication errors. Additionally, 87.5% supported incorporating patient safety education in university curricula. However, 63% perceived that competent healthcare professionals don't make harmful errors, and 50% believed only medical practitioners can identify the cause of errors. Furthermore, 42.5% thought most errors occur due to factors beyond healthcare professionals' control. The findings indicate that while pharmacy students in Pakistan have positive attitudes toward patient safety, some misconceptions highlight a knowledge gap. Thus, integrating standardized patient safety courses into the pharmacy curriculum is recommended.

Keywords: Clinical Pharmacy Clerkship, Medication Errors, Pakistan, Patient Safety, Pharmacy Curriculum

INTRODUCTION

Medical advancement has improved healthcare services for patients over the past few years but has failed to reduce the incidence and severity of the medication errors that are still compromising patient health and well-being (Halbach & Sullivan, 2005). An alarmingly high rate of associated morbidity and mortality has prompted to establish trans-disciplinary evidence-based strategies to prevent medication errors and improve patient safety (Alanazi et al, 2016; Assiri et al., 2018).

The medical and allied health students join the frontline of care as soon as they step into a hospital for their clinical training, therefore, the attitude of the students is one of the crucial factors that help to promote

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patient safety. Similarly, before entering professional practice, healthcare students should have developed several patient safety skills including the ability to work in a team, the ability to acquire a system-based approach to providing healthcare, the ability to assess and manage treatment risks and patient vulnerability, and ability to communicate medication errors and their causative factors (Madigosky et al., 2006; Walpola et al., 2015). As education plays a major role in the development of the correct attitude, skills, and knowledge, introducing the principles and concepts of patient safety in the undergraduate curriculum of healthcare professions is indispensable (Flanagan et al., 2004; Fischer et al., 2006). Some of the previous studies have highlighted the significance of educational training programs in developing the students' attitude for enhancing the patient's safety (Abbas et al., 2011; Walpola et al., 2015). Studies have also shown that the medical students who have acquired patient safety skills through training prior to their clinical clerkship have the potential to prevent harm and save patients' lives (Henderson et al., 2010). WHO, a key stakeholder in patient safety, has also introduced the Patient Safety Curriculum Guide to support and implement patient safety education (World Health Organization, 2011).

Pharmacy education in Pakistan is provided as a 5-year Doctor of Pharmacy (Pharm D) degree program. The existing version of the Pharm D curriculum was designed in 2013 by the Pharmacy Council and the Higher Education Commission of Pakistan and has been adopted by all the universities and institutes offering the Pharm D program (Pharmacy Council of Pakistan, 2013). Clinical pharmacy is an important dimension of the Pharm D program offered in Pakistan which necessitates the introduction of emerging patient-safety topics in the curriculum. However, in the presence of an already full curriculum, introducing patient safety-related education is a challenging task. It is therefore necessary to identify important and urgent educational needs and prioritize areas of learning for the successful implementation of changes in the curriculum. This study was therefore conducted to assess the baseline culture of the pharmacy students and identify the areas requiring attention to tailor the required courses/training programs on patient safety to fulfill their educational needs to provide patient care as a member of a healthcare team in a hospital.

Applying a valid and reliable instrument is essential to derive meaningful inferences from a survey-based study. In the present study, we used a validated survey tool (Madigosky et al., 2006) originally designed and used to assess and compare the patient safety attitude of medical students. We have used this validated tool to evaluate patient safety attitudes of undergraduate pharmacy students in two universities of Pakistan.

METHOD

A cross-sectional survey of Pharm D final-year students was conducted between December 1 and December 29, 2019, to assess patient safety attitudes and perceptions of the undergraduate pharmacy students.

Sample

This survey included Pharm D final-year students enrolled in two private-sector universities of Islamabad, the capital city of Pakistan, having well-established pharmacy programs. We believe that final-year students are eligible for this study as these students are exposed to clinical pharmacy practices due to their hospital visits as a part of their clinical pharmacy attachment and have covered most of the courses related to pharmacy practice. There were no exclusion criteria applied among the final-year students.

The Survey Instrument

The survey instrument was adopted from the Patient Safety/Medical Fallibility Curriculum Survey developed by Madigosky et al (2006) and validated by Walpola et al (2015). The first portion of the questionnaire is designed to collect sociodemographic information of the participants, whereas, the second portion consists of 21 closed-ended questions, related to patient safety. Responses to each item were rated on a 5-point Likert scale (1= strongly agree, 2= agree, 3= neutral, 4= disagree, 5= strongly disagree). A higher score indicated a more affirmative or positive response to the item concerned. The interpretation of the frequencies of responses and the mean scores of the answers to each question are based on previous studies (Madigosky et al., 2006; Walpola et al., 2015).

Data Collection

Pharm D final-year students from two private-sector universities in Islamabad were invited to fill in the survey questionnaire. The students were approached near the end of a regular class to maximize the number of students present. Each participant was given 20 mins to complete the questionnaire anonymously.

Data Analysis

The data were analyzed using SPSS v23.0 (IBM Corporation, Armonk, NY, USA). Descriptive statistics (frequencies and percentages) were performed for the categorical variables, whereas the mean with standard deviation was computed for the continuous variables. Relationships between the overall patient safety attitude of pharmacists and their social and demographic characteristics were determined using Pearson's chi-square test. $P<0.05$ was considered significant.

Ethical Considerations

Approvals for the present study were obtained from the heads/deans of the pharmacy departments of the respective universities. The students' participation in the study was on a voluntary basis and written informed consent was obtained from the participants for their willingness to fill in the questionnaires. The participants were assured that the confidentiality and anonymity of data shall be maintained.

RESULTS AND DISCUSSION

Results

Of the 165 students who participated in this study, 160 students; 97 out of 100 students from university I and 63 out of 65 students from the university II, completed the questionnaires. The overall response rate was 97% and so was the response rate from each of the universities. All the students were in their final years of Pharm D study. Most of the students were females (56.9%). Most of the participants were 22 to 23 years old (66%). The mean age of the responders was 22.61± 1.176.

As all Pakistani universities and institutes offering Pharm D program have adopted the same curriculum, and as we did not see a significant difference between responses of the students of the two universities towards the research questions, the data of the two universities are pooled. Out of 160 respondents, 63.7% of the students agreed or strongly agreed that competent health care professionals do not make errors that lead to patient harm. The majority (95.7%) of the respondents believed that pharmacists should regularly devote a portion of their professional time to improve the care facilities for the patients. However, about half of the participants strongly agreed and agreed that only medical practitioners can find out the cause of medication error while 34.4% are against this statement and 15.6% remained neutral. 87.6% of the participants believed that Pharmacists should report errors to an affected patient and his family if harm to the patient has occurred, however, 69.4% also believe that if the patient is not harmed then it should also be discussed with the patient and their family. 42.5% of students agreed and strongly agreed that most errors are due to things that healthcare professionals cannot do anything about while 27.5% remain neutral on this statement. In addition, the majority (87.5%) of the students show a positive attitude that patient safety education requires university lecturers to teach patient safety concepts. 75.1% of the participants agreed and strongly agreed that the faculty of the university communicated to them that patient safety is a high priority. Statistically significant differences were found between responses of male and female students for 7 items: 3, 4, 7, 13, 16, 17, and 19, wherein the male students were more strongly agreed for the items 3, 4, 7 and 13 while females gave more affirmative responses for the items 16, 17 and 19. No statistically significant difference could be found between the responses of the students of different ages.

Discussion

The effective implementation of patient safety culture requires improving the perceptions, preferences and knowledge of health professionals by introducing patient safety concepts to traditional teaching (Leung et al., 2013). Understanding students' baseline attitudes and perceptions is critical for the design of effective training programs. The majority of the studies conducted around the globe to assess perceptions related to patient safety have evaluated the attitude of medical students but

as far as we know, this is a first-of-its-kind study which is done on the attitude of pharmacy students about patient safety in Pakistan. Although our study has shown an overall positive attitude of the pharmacy students toward patient safety, there exist some misconceptions among the students, requiring the introduction of patient safety-related courses to the Pharm D curriculum to fill the knowledge gap and improve their attitude.

Analysis of the results of this study shows that most of the participants (63.7%) agreed with the fact that competent healthcare professionals do not make medication errors that lead to patient harm. The finding is closely associated with the findings of Nabilou et al. (2015) and Aldossary (2019) but in contrast to a study conducted in Ethiopia (Tegegn et al., 2017). The basic misconception underlying the response of most of the students to this item is the result of ignoring the human component. Elements like miscommunication, multitasking, tiredness and fatigue during work, etc. can result in medication errors despite competence, this necessitates the development of a system to monitor medical care and avoid accidental errors.

Nearly all the participants (95.6%) accepted that Pharmacists should regularly spend part of their professional time working to enhance patient care. The findings are similar to a study conducted on medical students in Hong Kong (85%) and Pakistan (89.4%), where they believed that physicians should routinely spend part of their professional time working to enhance patient care (Leung et al., 2010; Shah et al., 2015).

To improve patient safety, it is necessary to find the cause of a medication error. A fundamental misconception present among half of the participants (50.1%) in this study was their belief that only medical practitioners can determine the cause. Although the value reported by our study is higher than the previous reports, several other studies conducted on medical and students have shown that a significant number of students believe that only physicians can determine the cause of a medication error (Nabilou et al., 2015; Tegegn et al., 2017; Leung & Patil, 2010). In contrast, the majority (59%) of the pharmacy students in a study conducted in KSA did not agree with this view. The response of the majority of the students in our study to the items on effective strategies and actions to address errors and their prevention also suggests a lack of understanding about the significance of system and process-related factors and their complexity as potential causes of errors (Bari et al., 2016). As medical services to the patients are provided through a trans-disciplinary system, the appropriate management of a medical incidence requires a system-based approach involving all healthcare professionals, hospital management, and the patient to analyze the root causes and implement systemic measures at all levels to address causative factors and prevent future recurrence of the incidence. This contrasts with previous approaches that focused on human and individual factors, therefore, the inclusion of the relevant topic in pharmacy education is needed (Leung et al., 2013).

About 42.5% of the students agreed that most of the errors are due to things that healthcare professionals cannot do anything about. The agreement is in line with the study conducted in Iran and New York (Halbach & Sullivan, 2005; Nabilou et al., 2015). These studies have

analyzed that most of the time medical professionals are unable to identify or recognize the problem of patients. Although medication errors are inevitable, a careful analysis of an incidence to find out the cause and seriousness of the event can help to reduce their frequency (Bari et al., 2016).

Reporting is a crucial step toward the appropriate management of a medical incidence (Syed et al., 2018). Analysis by previous studies has shown that disclosing medication errors to patients or their families is a challenging task (Bari et al., 2016). It was however very heartening to see that the vast majority of the students endorsed reporting of medication errors; 75.1% agreed with the fact that pharmacists should report errors to an affected patient and his/her family harmed by the incidence, whereas 56.3% agreed that the error should be reported regardless of the fact that harm to the patient has occurred or not. However, 43.8% of the students did not recognize the need to address a 'no-harm' error or were unsure about the need to disclose it. The results are like the studies conducted on medical students in Karachi and Saudi Arabia (Shah et al., 2015; Aldossary, 2019). However, the results of the study conducted in New York (Halbach & Sullivan, 2005) have shown that the majority of the students do not consider it necessary to report the errors to the medical authorities if they do not adversely affect the patient's condition. Most participants (87.6%) agreed that after an error occurs, an effective strategy is to work hard to be more careful. This was also the finding of the studies done in Hong Kong and Saudi Arabia (Aldossary, 2019; Leung & Patil, 2010). Evidence shows that assuming errors can be avoided by being careful enough, however, other potential reasons e.g. system errors and procedural complexity, as a significant cause of medication errors are also needed to be emphasized through the pharmacy curriculum (Leung et al., 2013).

Most of the participants (87.5%) believed that patient safety education requires university lecturers to teach patient safety concepts. This finding of the study endorses that the pharmacy students realize a need to introduce patient-safety related topics to the pharmacy curriculum. The finding is like study conducted in Scottish hospitals which reflects that efficient medical training makes the students realize the causes of medication errors (Madigosky et al., 2006), so, it is recommended to include patient safety courses in the curriculum of pharmacy. Up to 90% of the participants also agreed that peer-led education involving pharmacist colleagues or fellow students is an effective means to learn patient safety concepts. A previous interventional study conducted at the University of Sydney has proved that involving trained pharmacy student in teaching introductory patient safety topics including teamwork, communication skills, systems thinking and open disclosure is an effective method to improve junior pharmacy students' attitudes towards patient safety (Walpola et al., 2015).

Most of the students also had a positive perception towards the acceptability of questioning the actions of their seniors and the significance of the culture of the workplace in relation to patient safety. 81.9% and 90% of the students respectively endorsed that an internee pharmacist can question the action of a registered pharmacist and a registered pharmacist

can question the action of a prescriber. The majority (76.3%) of the students were agreed with the item that the culture of the pharmacy workplace makes it easy for pharmacy staff to deal constructively with errors. The positive attitude of the students towards this question reflects that they recognize the importance of workplace culture to provide the best care to the patient. This finding is consistent with previous reports from Saudi Arabia and Karachi but contrasts to a study from Hong Kong in which the majority of the students were uncertain about the significance of workplace culture in providing patient care (Aldossary, 2019; Leung & Patil, 2010; Shah et al., 2015).

In the current study, no difference could be seen in the attitude of the students from two different universities, which is likely due to the same curriculum followed by all universities of Pakistan.

The present study, revealing several important findings, may help to design the courses for the training of undergraduate pharmacy students in patient safety. The formal teaching of patient safety concepts to pharmacy students will help them appropriately handle and report medication errors, adopt safety practices, improve patient care, and recognize the importance of honesty and integrity. Studies comparing students before and after the introduction of formal patient safety information in curricula have demonstrated an improvement in knowledge, skills, and awareness, although not all changes were sustained (Leung & Patil, 2010). However, the limitation of this study is that the data is collected from only two universities in Islamabad, Pakistan. Despite the unified curriculum adopted by all the pharmacy institutes of Pakistan, the clinical training and working environment of the hospitals attended by the students may vary, therefore, the findings of this study cannot be generalized. Similar studies in other pharmacy institutes in Pakistan are required to ascertain the patient safety attitudes and perceptions of the students and determine their relevant training needs.

CONCLUSIONS AND SUGGESTIONS

The present study, identifying the educational needs of the students, represents an important step towards introducing patient safety education in the undergraduate pharmacy program in Pakistan. Overall pharmacy students showed a positive attitude towards the patient's safety. It was also acknowledged that a good pharmacy work environment is essential to decrease the medication errors done by pharmacy students. However, there was a lack of awareness about multi-factorial mechanisms underlying the occurrence of medication errors, and the importance of trans-disciplinary approaches for their effective management. In this regard, introducing effective training programs tailored to the perceptions and educational needs of pharmacy students is essential. It is also recommended to devise and implement better policies for patient safety. These steps will eventually reduce the incidence of all types of medication errors both in hospitals and clinical practice.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

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