Research Article
Sciences of Pharmacy

Assessment of Patient Safety Culture Amongst Pharmacy Staff of Selected Healthcare Facilities in Delta North, Nigeria

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Abstract: The strategy for improving patient safety in hospitals heavily relies on safety culture. The study aimed to evaluate patient safety cultures amongst pharmacy staffs of selected health facilities in Delta North, Delya State, Nigeria. Data on patient safety amongst 70 pharmacy personnel in two major secondary and 5 general health facilities across Delta North senatorial district, Delta State, were collected using the Hospital Survey on Patient Safety Culture (HSOPSC) tool. Information on communication openness, the frequency of documenting different types of mistakes, as well as the overall patient safety culture rating, was collected. Composite scores were analyzed using SPSS version 22. Measurement data were presented as mean ± standard deviation (SD) and compared using a student t-test. The results were considered significant at $p<0.05$. The mean scores of all the various composite item responses were calculated and grouped into positive and negative responses with a mean score of ≥4 and <4, respectively. The safety cultures of physical space and environment, staff training and skills, and communication openness had a good composite score of 4.0 – 4.1. The safety culture of procedures for communicating prescriptions across shifts was poorly rated, with composite scores of 3.8. The safety culture of patient counselling had the highest composite score of 4.3. The safety composites for documenting various shades of mistakes had a mean score of 3.5. Overall, 68.1% of the healthcare facilities were rated excellent, although there were some loopholes (documenting mistakes and poor communication across shifts) in the safety composite scores requiring areas for improvement.

Introduction

Patient safety culture is one of the essential components of providing quality healthcare services. A number of studies have demonstrated the importance of patient safety culture in various health care facilities, including hospitals (1). Patient safety culture is a subset of organizational culture and is defined as a set of values, attitudes, perceptions, beliefs, and behaviors that support the safe conduct of individuals' activities in health organizations (2, 3). The critical components of the patient safety culture include a common belief that the risk of responsibility for health care is high, organizational commitment to detect and analyze errors and injuries to the patient, and ultimately creating an environment that balances the need for error reporting with the need for disciplinary action (2-4). Medical errors are one of the five most common causes of death worldwide (5). The World Health Organization (WHO) has estimated that globally, tens of millions of patients are the victims of injuries and deaths from unprotected medical care and activities (1). In the United States, medical errors result in 44,000 to 98,000 deaths annually. Based on the available evidence, it is estimated that in developed countries, 1 out of 10 patients will be injured in the course of seeking healthcare (5). The risk of injury is believed to be higher in private health care facilities since government regulations are more rigorously enforced in the public sector and training facilities are more often available to help public sector practitioners develop a more robust patient safety culture (6, 7).

Despite all of the efforts made by healthcare organizations, the prevalence of medical errors is still high (5). This high rate can be due to cultural factors and lack safety culture in healthcare workers (2). The most crucial obstacle to improving patient care safety is the safety culture of health care organizations (4). A rectifier safety culture is vital for improving patient safety (1). A positive safety culture directs healthcare providers' behaviors so that patient safety becomes one of their highest priorities. This includes elements such as organizational learning, teamwork, open communications, feedback and non-punitive responses to errors, and shared cultural perceptions based on the importance of safety (1). A positive safety culture can encourage health providers to report and analyze their errors. Since the first step toward creating a positive safety culture is to assess the current safety culture (8), hospitals should evaluate the existing patient safety culture among their employees before implementing any quality improvement initiatives. An assessment of the organization's safety culture makes it possible to obtain a clear overview of the patient safety aspects that require more attention. It also allows hospitals to identify the strengths and weaknesses of their safety culture and other patient safety issues, allowing for benchmarking safety culture practices based on the performance of industry leaders (1, 8).

As a result of a number of reasons pertaining to patients or healthcare workers, inadequate patient safety practices in Nigerian public healthcare institutions are a serious public health concern. Problems with surgery, drugs, diagnosis, transfusions, infections related to healthcare, personnel competence, managing emergencies, healthcare supplies, interpersonal interaction, easy access, reduced error reporting, and management procedures are the main factors affecting patient safety in Nigeria (9). Currently, healthcare departments have started to raise the awareness of staff regarding the principles of patient safety; nevertheless, this phenomenon is not reported as extensively in pharmacies (10). This explains why medication errors are the most common risk factors for patient safety. One of a pharmacist's primary responsibilities is to ensure that patients receive their medication prescriptions and refills safely and effectively (11). But, as medical professionals with a specialty in drugs, pharmacists have a chance to take on a more leadership role in patient safety by collaborating with patients and other healthcare professionals to enhance patient outcomes and reduce medication errors. They were once considered as individuals working "behind the counter" dispensing medications, but are today acknowledged as crucial members of the healthcare team that manage complex patient demands in the rapidly changing healthcare environment. Most of the few studies that accessed patients' safety culture in Nigeria focused on the tertiary health facilities in the urban areas; only few compared two or more healthcare facilities (12, 13), with none focusing in rural health facilities. The aim of this study was to evaluate the patient safety cultures in selected health facilities in Delta North, Delta State, Nigeria.

Methodology

Study Design

This was a cross-sectional, non-interventional study evaluating patient safety culture among pharmacy staff in selected healthcare facilities in Delta State.

Setting and Sample Population

The study was conducted among pharmacy staffs in Delta North from May to July 2022. Delta North Senatorial District in Delta State, Nigeria, covers 9 local government areas (LGAs): Aniocha North, Aniocha South, Ika North East, Ika South, Nndokwa East, Nndokwa West, Oshimili South, Oshimili North and Ukwuani. The major group is Anioma with estimated population of 1.8 million residing basically in the urban area Delta State Capital Territory, Asaba, with Okpanam, Igbuzor and surrounding communities. There are two major secondary healthcare facilities at Ika South (Central Hospital Agbor) and Ndokwa West (Central Hospital Kwale), but several general hospitals across the district. The secondary healthcare facilities are located in urban areas in the state, with bed space capacity of over 200 each. The healthcare facilities have specialized knowledge and full technological capability, and they manage patients referred from various primary levels within the district. The primary healthcare facilities are scattered within the LGAs of the district, which are under-equipped, have few staffs, and offer less specialized healthcare services. The two major secondary health facilities, and 5 randomly selected general healthcare facilities (Orerokpe, Okwe, Abavo, Onicha-Uku, and Isheagu) located across the 9 LGAs in Delta North were used as study centers. The study population comprised all pharmacy staffs in the selected health facilities who has direct contacts with patients. A purposeful sampling technique was utilized for the study. All pharmacists, pharmacy interns, and pharmacy technicians with not less than 6 months of working experience and direct professional interactions with patients were recruited for the study; all those who were not available during the period of the study were excluded. A total of 94 pharmacy staff members were enrolled for the study.

Data Collection

Data was collected using Hospital Survey on Patient Safety Culture (HSOPSC) tool, which is a standard instrument, developed by the Agency for Health Research and Quality (AHRQ) (14). It is a 36-item instrument, comprises various patient's safety

sections, which include unit/work areas, supervisors/managers or clinical leaders, communication, reporting patient safety, patient safety ratings, and measuring 11 composites. The survey used both five-point Likert scales (strongly agree to strongly disagree) and frequency scales (never to always) to assess patient safety perceptions. The survey instrument included items about the respondent's demographic characteristics, frequency of documenting different types of mistakes, and overall patient safety culture rating. The instruments were independently administered to 94 pharmacy personnel (pharmacists, intern pharmacists, and pharmacy technicians) in their respective units. A pilot study was conducted among 20 pharmacy staff members in another hospital from different senatorial district for validity and reliability, with a Cronbach's alpha = 0.73, indicating acceptable internal consistency.

Data Analysis

All sorted questionnaires were coded, entered into Microsoft Excel window 10, double-checked, and thereafter exported to Statistical Package for Social Sciences (SPSS) version 22 for analysis. Analyses were mainly descriptive, negatively worded items were recoded to maintain consistency. Measurement data were presented as mean ± standard deviation (SD) and compared using a student t-test. The results were considered significant at $p<0.05$. The mean scores of all the various composite item responses were calculated and grouped into positive and negative responses with a mean score of ≥4 and <4, respectively.

Ethical Approval

Ethical approval was obtained from the Research and Ethics Committee, Delta State Ministry of Health, with Reference number, AZ553/184. All participants were adequately informed of the study, participation was voluntary; Written and oral informed consents were obtained from the studied participants; confidentiality of information was guaranteed by eliminating their names and units from the questionnaire.

Results

Socio-Demographic of Respondents

Out of the 94 questionnaires administered to the pharmacy personnel, only 70 were filled out and returned, making a response rate of 89%. More than half (65.5%) of the respondents were pharmacy technicians, while almost one-quarter (22.9%) were registered pharmacists. The modal length of working experience was 3-6 years (28.6%). Nearly half (45.7%) reported working 1–16 hours in a week. All respondents had worked long enough in the facilities to comment objectively and accurately on the safety culture of their health facilities (Table 1). Respondents displayed excellent attitudes toward all subsets of patient safety correlates, with attitudes towards documenting mistakes having the highest score. The pharmacy rating on patient safety was excellent (Table 2).

Table 1. Demographic characteristics of respondents.

Demographic	Frequency	Percentage
Age (years)		
20-40	25	35.7
31-50	20	28.6
41-50	15	21.4
>50	10	14.3
Sex		
Male	45	64.3
Female	25	35.7
Marital Status		
Single	20	28.6
Married	45	64.3
Divorced	5	7.1
Working experience (years)		
<1	15	21.4
1-3	17	24.3
3-6	20	28.6
6-12	10	14.3
>12	8	11.4
Working hours per week		
1-16 h	32	45.7
17-31 h	17	10
32-40 h	15	21.4
>41 h	6	8.6
Position		
Pharmacist	16	22.9
Pharmacy tech	39	65.5
Intern Pharm.	15	21.4

Table 2. Assessment of attitudes of pharmacy personnel to patient safety composites.

Attitudes	Total Score (%)
Think about hospital work area/unit	2101 (75.1)
Communication within Work place	2093 (74.8)
Patient Safety and Response to Mistakes	1544 (81.8)
Documenting and reporting events	1544 (84.9)
Patient safety rating in pharmacy	420 (89.4)

The organization of the pharmacy in the health facilities was rated positive at an average score of 4.0 on a scale of 1–5. In answering questions relating to physical space and environment, the pharmacy, which has a defined organizational hierarchy had the highest

composite score (4.1). (Table 3) Composite scores for staff skills and training (having an adequate break during the shift, having enough staff to handle the workload, and not being interrupted during work), teamwork, and open communication were 4.1, 4.0, and 4.1, respectively. Staff in the pharmacies had the skills they needed to do their jobs well; with a composite score of 4.0, 'staff treat each other with respect' had a positive score of 4.1. Details of scores obtained for the various domains are presented in Table 4.

Table 3. Structural and human resource capacity of health facility.

Items	Mean (SD)
Physical Space and Environment	
There is a defined hierarchy within the organization	4.1 (0.48)
Pharmacy creates a climate that promotes patient safety	4.0 (0.59)
Staff Skills and Training	
Staff have the skills they need to do their job well	4.0 (0.72)
Staff who are new receive adequate orientation	4.2 (0.87)
Staff get enough training from the pharmacy	4.1 (0.44)
Teamwork	
Staff treat each other with respect	4.1 (0.44)
Staff work together as an effective team	4.1 (0.35)
Staff clearly understand their roles and responsibilities	3.8 (0.72)
Staff attend safety course to improve patient safety	3.9 (0.72)
Grand Mean	**3.0 (0.18)**

Table 4. Procedure and pharmacy work processes.

Item	Mean (S D)
Communication Openness	
Staff feel comfortable asking questions when they are unsure	4.1 (0.68)
Patient Counselling	
We encourage patients to talk to pharmacists about their medications	4.3 (0.69)
Our pharmacists tell patients important information about their new prescriptions	3.9 (0.58)
Patient safety is achieved when the right patient is given the right regimen	4.1 (0.28)
Staffing, Work Pressure, and Pace	
Staff take adequate breaks during their shifts	4.0 (0.49)
We have enough staff to handle the workload	4.0 (0.62)
Interruptions make it difficult for staff to work accurately	4.0 (0.32)
Grand Mean	**4.1 (0.13)**

Table 5. Pharmacy staff communication procedures and practices.

Item	Mean (SD)
Communication about mistakes	
Pharmacy staff discuss patient safety issues when they occur	3.9 (0.80)
We discuss ways of preventing mistakes from happening again	4.1 (0.91)
Staff in the pharmacy discuss mistakes	4.0 (0.46)
Communication across shifts	
We have clear expectations about exchanging important prescription information across shifts	3.9 (0.63)
We have a standard procedure for communicating prescription information across shifts	3.8 (0.57)
Grand Mean	**3.9 (0.10)**

Table 6. Responses to mistakes, learning from mistakes, patient safety perception.

Item	Mean (SD)
Responses to Mistakes	
When mistakes happen, we try to figure out what led to it	4.0 (0.41)
When the same mistakes happen, we change the way we do things	4.2 (0.82)
We return wrong prescriptions to the physician for correction	4.0 (0.72)
Learning from Mistakes	
When the same mistake keeps happening, we change the way we do things	4.2 (0.65)
Mistakes have led to positive changes in this pharmacy	4.3 (0.48)
Patient Safety Perception	
This pharmacy placed more emphasis on sales rather than on patient safety	4.1 (0.44) *
The way we do things in this pharmacy reflects a strong focus on patient safety	4.1 (0.43)
Grand Mean	**4.1 (0.10)**
Documenting Mistakes	
When a mistake reaches the patients and could cause harm but does not, how often is it documented	3.5 (0.95)
When a mistake reaches the patients but has no potential harm to the patient, how often is it documented?	3.5 (0.94)
When a mistake that could have harmed the patient is corrected before the medication leaves the pharmacy, how often is it documented?	3.6 (0.93)
Grand Mean	**3.5 (0.05)**
Overall Rating	**4.5 (0.86) ****

Note: (*) = Reverse coded and (**) = $p<0.05$.

Table 7. Overall rating of safety culture attitude.

Overall Rating	Poor	Good	Very Good	Excellent	Mean ± SD
Percentage score	1(1.1)	17(18.1)	12(12.8)	64(68.1)	4.46 ± 0.86

All the safety composites under the two safety cultures, which pertain to communication across shifts and discussions about mistakes, received scores ranging from 3.8 to 4.1. Among these, the procedure for communicating prescriptions across shifts had the lowest composite score of 3.8. Overall, the performance composite score across all safety composites was below average, with a score of 3.9 (Table 5). This indicates that there are significant areas for improvement in communication practices related to shift changes and the handling of mistakes, which are critical for maintaining safety standards.

Response to mistakes in pharmacy and organizational learning received an excellent positive score in the majority of the domains (response to errors, learning from mistakes, and patient safety perception) with a grand mean composite score of 4.1, except in the area of documentation (3.5) Regarding the overall perception of patient safety in the facility, the majority (83%) of respondents disagreed with the statement that the facilities placed greater emphasis on sales than patient safety.

On the overall rating of Patient Safety, the secondary facilities were rated Good (17 (18.1%), Very Good (12.8%), Excellent (68.1%), and only 1 (1.1%) was rated poor (Table 6 and 7)

Discussion

The response rate in this study was 89%, a finding which is much higher than the previous study in South-South, Nigeria, which reported a response rate of 53% (15). The pharmacy organizations at the secondary healthcare facilities were rated positively at an average score of ≥4 on a scale of 1-5. The rationale for a well-laid-out pharmacy is the removal of clutters, supporting good workflow, and enhancing patient safety (16). Factors such as lighting, temperature, humidity, and surface types are critical to improving patient safety in the pharmacy (17).

The culture composite of staff understanding their roles had the lowest composite score generally. The importance of staff understanding their roles was emphasized by previous researchers (17), who stated that without education, or with inadequate education and training, practitioners may not have all of the information needed when confronted with a new situation or problem. Owonaro et al.,(2015) further posited that training imparts knowledge and skills; and

in a dynamic field like Pharmacy, this is paramount to professional practice excellence (16). The Expert Group on Safe Medication Practices (2006) concluded that continuous education should be advocated to produce positive changes in attitude toward patient safety culture (18).

All the safety composites received positive scores (≥4.0). This is opposed to the findings of a related study in Bayelsa State, which assessed the level of teamwork at all levels of health care (13). Teamwork is "the interaction or relationship of two or more health professionals who work interdependently to provides care for patients" (16). Research has shown that effective teamwork and communication can reduce negative patient incidents (19, 20).

In this study, communication openness such as staff speaking up without fear of anything that could negatively affect patient care, and freely asking questions when things are not done rightly, was positively rated, a finding which is in agreement with previous studies carried out in Ghana (21), but much lower than findings from Kaduna (Nigeria), Ethiopia and Middle East which reported a low positive score of 48% and 46.6% respectively (22-24). This could be attributed to the more stable healthcare system, experienced lately in the country. The safety culture of communication openness enhances teamwork, removes barriers to error reporting, and promotes patient safety. In an open environment, people can explore their ideas, the group's perceptions of their ideas, and the ideas of others in the group. It has been found that managers' communication openness, was positively and significantly related to subordinates' motivation (25).

Patient counseling safety culture received the highest positive scores (4.3). Patient Counseling is an important obligation for pharmacists. This high score is in tandem with previous findings (13). Pharmacists have a responsibility to consistently educate patients about their medications as part of their professional care. Patient counseling is considered a valuable tool for intercepting medication errors (26). It is the right of the patients to be given sufficient information to enable them to make informed decisions about their medicines; the pharmacist has a legal and professional obligation to ensure consumers are given their rights (27).

Components in staffing, work pressure, and pace had the same composite scores (4.0). Work overload subject staff to intense pressure and stress, which promotes error-making. Understaffing is said to impact patient safety through a structure-process-outcomes framework. Adequate staffing is necessary for patient safety. An adequate break time is important to invigorate staff both physically and mentally, and this should enhance performance (28). Humans have a limited attention span, can only attend carefully to a few things immediately, and are subject to distractions and interruptions (16).

Communication about prescriptions across shifts and mistakes received scores of (3.8-4.1). Staff had clear expectations about exchanging important prescription information and there were standard procedures for communicating prescription information. The composite score for 'standard protocol for communicating prescription information across shifts' had the lowest communication score, this finding is in contrast with the previous study in Bayelsa (13). Effective communication is essential while delivering medications to reduce drug-related issues. In addition to understanding their responsibilities, pharmacy staff members should share mistakes and offer criticism to each other, to learn from one another. Poor information transfer and faulty communication have been found to compromise patient safety (29). Staff needs to discuss and learn from safety incidents. To enhance the relevance of teamwork, staff must engaged to discuss mistakes and patient safety issues as they occur, to have a high-level understanding of probable and possible sources of errors and ways of detecting and avoiding them, which will promote patient safety.

The two safety cultures of Response to Mistakes in Pharmacy and Organizational Learning received positive scores for all culture composites (≥4.0). The culture composite of when mistakes happen, and changing the approach to things has the highest composite score. Regarding the overall perception of patient safety in the facility, the majority of respondents disagreed that the facilities laid greater emphasis on sales than patient safety. This is in contrast with the findings of the study in Bayelsa state, which described the situation as unacceptable and unpleasant with more respondents describing their facilities as placing more emphasis on sales than on patient safety (16). In the advent of unstable financial resources, pharmacy managers are forced to ensure prudent financial management, cost recovery plus marginal mark-ups to cater for leakages and to ensure sustainability of drug supplies (30).

The safety composites documenting various shades of mistakes had a borderline score (3.5). The implication of this is that errors were either sometimes or rarely documented in the secondary healthcare facilities. A previous study suggested that the difference in staff structure is responsible for this dichotomy (16). Expert Group on Safe Medication Practices, (2006) cautioned that the primary purpose of documentation should be to x-ray the entire system to identify the systemic components that have failed to prevent future recurrences and not to apportion blame

(18).

On the overall patient safety rating, the majority (68.1%) of the facilities were rated excellent, this is much lower than previous findings from studies conducted in two hospitals in Scotland that reported 74.5 % and 83.5% respectively (31).

The study is however not without limitations, the survey's cross-sectional methodology used in this study, prevents it from identifying real mediation and causal relationships between the participant's variables and patient safety culture. To determine the connections between these factors and patient safety culture practice, more research is therefore needed to take this restriction into account. Given that only research participants' responses were generated, the responses may be overrated, and might not be free from recalled bias, and results cannot be generalized.

Conclusion

Although, the overall rating of patient safety was generally good and commendable, much work needs to be done in areas of communicating prescription across shifts and documenting various mistakes encountered to ensure adequate patient safety culture in the healthcare facilities. Pharmacy managers, in particular, are therefore enjoined to re-evaluate the safety cultures in their domain to identify areas of systemic failure. A health care institution's mission and top priority should be providing high-quality care, with patient safety serving as the foundation for this belief. Thus, it is the institution's duty to make every effort to provide a secure atmosphere for patients. To guarantee the best practices for patient safety, it is advised that surveys and studies be carried out more frequently in the healthcare facilities, this will help to improve the quality of healthcare services rendered by the healthcare facilities in these areas.

Declarations

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Conflict of Interest

The authors declare no conflicting interest.

Data Availability

The unpublished data is available upon request to the corresponding author.

Ethics Statement

Ethical approval was obtained from the Research and Ethics Committee, Delta State Ministry of Health, with reference number AZ553/184.

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