Enhancing the Occurrence Variance Reporting System Implementation at one of the Hospitals of the Egyptian Universal Health Insurance

Rasha Ibrahim El-Sayed Aly[1] [ID],
Gehan Ahmed Mohamed ELBahlawan[2], Maha Ramadan Aly[2]
and Boshra Karem Mohamed Elsayed[3]

Abstract

Background: Identifying, reporting, measuring, and tracking events provide an opportunity to study system issues, motivate learning, measure the frequency and severity of events, and manage high-risk ones which refer to a safety culture that is focused on valuing the input of working staff and improving the quality of care.

Aim: Enhance the implementation of the occurrence variance reporting (OVR) system at the Obstetrics and Gynecological Hospital in Port Said Governorate, Egypt.

Design: A quasi-experimental research design for one group (pre–posttest) and a mixed-methods approach was conducted in this study.

Method: This study was carried out at an Obstetrics and Gynecological Hospital in Port Said Governorate, Egypt. Study subjects included a convenient sample of 100 doctors and nurses. The study used three tools: OVR Knowledge, Attitude, and Practice (KAP) questionnaire, the OVR trend analysis clinical audit checklist, and barriers that hinder staff to report patient safety events through two open-ended questions.

Results: Significant improvements were detected in the OVR system post-program implementation than pre-program implementation phase. A statistically significant increase in nurses' and doctors' total knowledge score from 0.74 to 3.39 and a statistically significant decrease in nurses' and doctors' total negative attitude score from 3.87 to 3.27. Also, a statistically significant increase in total practice score from 2.35 to 2.45.

Conclusion: There were significant improvements in the hospital OVR system postprogram implementation than preprogram implementation.

Relevance to clinical practice: To maintain performance and make sure that the original result is not lost, the health care facilities should emphasize the ongoing monthly and quarterly monitoring and analysis of data. Meetings, lectures, and training sessions are used for ongoing education.

Introduction

Health care is a complicated industry with numerous risky procedures that demand a lot of work from professionals. The main goal of patient safety is to avoid and reduce the likelihood of danger, mistakes, and injury while receiving medical care. Patient safety is enhanced by strong leadership, commitment, documentation, and a system for staff to report any mistakes (Albarrak et al., 2020). Major reports and studies from

[1]Nursing Administration Department, Faculty of Nursing, Port Said University, Port Said, Egypt
[2]Maternity and Gynecological Nursing Department, Faculty of Nursing, Port Said University, Port Said, Egypt
[3]Nursing Administration Department, Faculty of Nursing, Alexandria University, Alexandria, Egypt

Corresponding Author:
Rasha Ibrahim El-Sayed Aly, Nursing Administration Department, Faculty of Nursing, Port Said University, Port-Said, Port-Fouad, El-Oubor. H21, Egypt.
Email: rashamoheb@gmail.com

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In Egypt, new universal health insurance (UHI) system was applied to cover all Egyptians by 2032 in line with the UHI law (Ahram Online, 2019). The implementation of the first phase started in Port Said in 2019 with gradual geographic expansion to follow. The Egyptian UHI system emphasizes quality health services and patient safety as a major concern for all modern health care organizations, enhancing the culture of patient safety in all medical facilities, and constructing a system for reporting incidents to be made more adaptable. Additionally, hospitals work to support the creation of quality improvement strategies as necessary taking into account the key concerns influencing the occurrence variance reporting (OVR) system to minimize medical errors and their negative effects on patients, employees, and hospital reputation through continuous monitoring and data collection for analysis (Mathauer et al., 2019).

An occurrence was defined as an unforeseen event that causes or could potentially cause harm to a patient, visitor, and/or employee, including but not limited to: patient or visitor fall or injury, medication occurrences/ medication near misses, adverse drug events, blood and body fluid exposure, mishandling of narcotics, needlestick, and sharp injury, specimen related issues, surgery/invasive procedure-related issues, pressure ulcers or other skin integrity issues, system issues that affect the efficient/ safe delivery of care, equipment malfunction resulting in injury or having the potential to injure, employee work-related injuries and illnesses, unexpected complications or death (Tatum & Kumar, 2021; Tariq et al., 2022).

Significance of the Study

Health care is a dangerous industry because it brings together sick and vulnerable patients with medical services and often complex technology, and necessitates the proper coordination of many workers (Rosen et al., 2018). Human mistake is a risk in any industry with complex processes. One of the most critical difficulties facing health care today is ensuring the safety of everyone who interacts with health services. Patient safety incidents have emotional, psychological, social, and economic effects on families and health care workers; therefore, reducing their frequency and severity is critical (Shaikh, 2018).

Al-Reshidi (2014) advocated for ongoing monthly and quarterly data collection and monitoring to maintain performance and make sure that the original result is not lost due to complacency or failure to adhere to modifications that have been made. Continuing education can be achieved in this way, he continued, through meetings, lectures, patient safety walkarounds, rewards, and commendations given to the highest reporting department, creation of an ideal process flowchart, and distribution of the ideal process

flowchart following team member approval. As a result, reporting on occurrence variances is a crucial part of health care management. Underreporting can be caused by several things, such as a blaming culture and unclear information about what and where to report. So, working on strategies to improve occurrence variance report implementation is an important goal for health care organizations that consider quality abases their health care services.

Aim of the Study

This study aimed to enhance the implementation of the OVR system at the Obstetrics and Gynecological Hospital in Port Said Governorate, Egypt through,

1. Assess nurses' and doctors' Knowledge, Attitude, and Practice (KAP) regarding OVRs.
2. Assess barriers that hinder nurses' and doctors' willingness to report patient safety events.
3. Analyze hospital OVR data through a retrospective clinical audit.
4. Develop and implement an educational training program on the OVR system based on the preassessment.
5. Investigate the effect of the educational training program on nurses' and physicians' KAP regarding OVRs.
6. Evaluate the improvement of the hospital OVR system after program implementation through a prospective clinical audit.

Research Hypotheses

The hypotheses of the study were postulated as follows:

Hypothesis 1: Doctors' and nurses' KAP regarding OVRs will be significantly improved by their participation in the educational training program.

Hypothesis 2: There is a significant improvement in the hospital OVR system after program implementation.

Methodology

Research Design

This study used a quasi-experimental research design for one group (pre–posttest). A mixed-methods strategy was employed, in which the researchers combined the collection and analysis of both quantitative and qualitative data. To gain a thorough knowledge of the research problem and the obstacles that prevent nurses and doctors from reporting patient safety events, both quantitative and qualitative data were gathered (Creswell & Plano Clark, 2011).

Doctors and nurses completed self-administered questionnaires about their KAP regarding OVRs, and retrospective and prospective clinical audits used an auditing sheet to

review data from OVR forms a year before and after the study to collect quantitative data. Two open-ended questions were used to collect qualitative data about the obstacles that staff members face when reporting patient safety events. The conclusions from the qualitative descriptive portion may be especially pertinent to practitioners and leaders as they create strategies to solve interpersonal and workplace problems that improve the OVR system's implementation.

Setting

This study was conducted at the Obstetrics and Gynecological hospital in Port Said Governorate, Egypt. The hospital follows the Egyptian new UHI system and is one of the main hospitals in the Port Said Governorate which provide specific health services for women and children; the hospital's bed capacity of 79 beds; includes different departments such as operating theaters, neonatal departments, intensive care units, and intermediate care units, in addition to two departments for natural delivery and sonar and X-ray departments.

Study Participants

For the investigation, a convenient sample was used. The number of nurses and doctors employed by the aforementioned hospital is 95 nurses and 20 doctors in total. Eighty nurses and 20 doctors with at least 6 months of experience and who were willing to engage in the study were eligible and invited to participate. The Raosoft sample size calculator was used to calculate the sample size using the following criteria: There are 20 doctors and 95 nurses in the population, with a margin of error of 5 and a 95% confidence interval, respectively. Therefore, 76 nurses and 19 doctors were the minimum recommended sample size. All 95 questionnaires for nurses and 20 for doctors were given to study participants to guarantee that we got the recommended sample size and to prevent missing data.

Study Instruments

Three tools were used in the following current study:
Tool 1: OVR KAP questionnaire.

To achieve the aim of this study, a structured questionnaire was adapted from Alboliteeh and Almughim, 2017. The questionnaire was developed based on the policies, procedures, and manuals of the National Guard Health Affairs NGHA, 2010. It is a self-administered structured and anonymous questionnaire comprising two parts:

Part 1: Participants' demographic and work-related characteristics: Covers eight items such as covering age, gender, employment status, amount of education, present position, working department, years of hospital, and department experience. Responses are displayed as percentages and frequencies.

Part 2: OVR KAP of physicians and nurses' questionnaire: The 14 items in this section are divided into three areas to gauge participant responses: KAP.

A—Knowledge domain includes four questions. The following inquiries were posed to the participants: How many copies of the OVR form are there? Does the form include the date, time, and place? Should the OVR be completed even if patient care equipment fails? What is the goal of the OVR? Please elaborate. Except for the final question, responses for this domain were formatted as Yes (1) and No (0). The overall score could be between 0 and 4. For the knowledge test, 4 was the highest possible score. Two categories—inadequate knowledge (score of 3) and sufficient knowledge (score of 3)—were created from the knowledge score. For inadequate and sufficient knowledge, scores below and equal to the mean score were given.

B—Attitude domain consists of five questions that is designed to gauge how doctors and nurses feel about utilizing the OVR system to report or have reported. Participants were prompted to indicate whether they agreed, disagreed, or were unsure: I don't have enough time to write an OVR, my co-workers will hate me if I do, writing an OVR against me will hurt my reputation with my co-workers, writing an OVR against me will hurt my annual review, and people that utilize OVR are troublemakers, to name a few. A 3-point Likert scale with the options "Disagree (1), Uncertainty (2), and Agree (3)" was used to frame responses. The overall score was between 1 and 15. Unfavorable attitude (score of 8) and favorable attitude (score of 8) were used to categorize the Attitude score (8−15). Unfavorable attitudes received scores below the mean, whereas positive attitudes received ratings above or equal to the mean.

C—Practice domain consists of five questions. Practice items are primarily used to assess a doctor's and nurse's proficiency with the OVR system. The participants' level of agreement, disagreement, or uncertainty was requested. The items in this section include (a) I would be better able to use the OVR form if it were written in Arabic; (b) I had an occurrence, variance, or accident happen during my shift, but I did not report it through OVR; (c) I am unsure of how to fill in the form; it's a confusing form; (d) I follow the process after filling out an OVR form, starting with my supervisor; and (e) I can fill out the OVR There were a total of 1 through 15 points. The practice scores were divided into two categories: poor practice (8) and good practice (8−15). For insufficient and sufficient practice, scores below the mean and above or equal to the mean score were given.

Tool (2): OVR trend and analysis clinical audit checklist.

Trend analysis is the continuous evaluation of data to find trends that are important for law or medicine (Richard, 1995). Because any occurrence occurs in any hospital department through inspection and analysis of OVR forms using a checklist, the quality department is doing a retrospective and

prospective clinical audit analysis of all OVRs submitted. The analysis, is made up of incidents relating to 10 different areas of health care (clinical practice/procedure, medication/ wrong, family/visitor/watcher, staff/employee, equipment/ supplies, safety, fire/security, behavioral, patient care, and occupational), include the number of reported OVRs, the type of incident, and the reporting department.

Tool (3): Barriers that hinder nurses' and physicians' reporting patient safety events.

Qualitative data were collected through a structured interview using two open-ended questions asking about the barriers that hinder staff to report patient safety events from their perspectives.

1. From your point of view, what works- or organization-related hurdles prevent you from reporting patient safety events?
2. From your perspective, what other impediments or challenges prevent the reporting of patient safety events?

The hurdles were displayed in frequency and percentages based on the replies' content analysis.

Fieldwork

This study took 29 months from the beginning of November 2019 to the end of March 2022. The study was implemented in four phases:

Phase I (Assessment): Before the implementation of the educational program, a retrospective clinical audit for OVR data was conducted using a monthly trending form of all OVRs submitted to the quality management department for the previous 12 months. This included assessing the KAP of doctors and nurses regarding OVRs using tool 1, identifying barriers that prevent staff from reporting patient safety events using tool 3, and retrospective clinical auditing for OVR data before the program implementation was completed. This phase started at the beginning of November 2019 and lasted through December 2020.

Based on the analysis of the results of the assessment phase, **Phase II (Planning)** was started by creating an OVR system training program for hospital nurses and doctors. The training program's content was created using the relevant literature reviews (Bin, 2019; Carlesi et al., 2017; Commission, Joint, International Accreditation, and Sentinel Event Policy, 2014; Tatum & Kumar, 2021) based on the outcomes of the pretest, and the requirements of nurses and doctors. The final content was translated into the Arabic language to meet some participants' comprehension levels. Five subject-matter experts edited the program's content. As a result, a few adjustments were done. To avoid interfering with their shift schedules and patient care, medical and nursing managers, nurses, and doctors agreed on the time and location of the training sessions. This phase took 1 month from the end of December 2020 to the end of January 2021.

Phase III (Implementation): From the end of January 2021 to the end of March 2021, this phase lasted 2 months. Pretest knowledge was conducted during this phase (a multiple-choice knowledge exam was given to the nurses and doctors before the programs started to gather information regarding their level of knowledge; the test was finished in 30 min, and training sessions were introduced). The training classes were implemented for nurses and doctors at the studied hospital.

The participants were split up into five groups, each with 20 people. Each group received the intervention throughout four sessions, which included two theoretical lectures and two practical sessions. Each session lasted around 2 h. To accommodate all participant groups, a total of 20 sessions for nurses and doctors were held, with each session lasting about 40 h (a total of 20 h of theoretical lectures and 20 h of practice). The following teaching techniques were used: debate, brainstorming, and interactive lectures. Flip charts, PowerPoint slides, and handouts were used as instructional tools. Lastly, posttest knowledge was completed right away (a multiple-choice knowledge test that was used at the beginning of the program was given again to nurses and physicians at the end of the program; to evaluate the gained knowledge in comparison with the pretest)

Phase IV (Evaluation of improvement of OVRs): The evaluation of the advancement of doctors' and nurses' KAP regarding OVRs is a part of this phase, which began in early April 2021 and runs until the end of March 2022. The hospital OVRs were then observed through a prospective clinical audit for OVR data and a monthly trending form of all OVRs provided to the quality management department for a year following the program's implementation.

Validity and Reliability

Five subject-matter experts evaluated the study materials for translation, face validity, and applicability to the Egyptian culture after they were created in English, translated into Arabic, and reviewed for relevance to the Egyptian culture. Thus, the tools underwent minimal rewording. To assess the tools' clarity and applicability, as well as to identify potential roadblocks and issues that might arise during data collection without causing a change, pilot research was conducted on 5% of participants and also with hospital employees from various units. With a Cronbach's coefficient alpha of 0.902 for the KAP of doctors and nurses about the OVRs questionnaire and 0.887 for the OVR trend and analysis clinical audit checklist, the tools' internal reliability was also evaluated, and the results showed that the tool was reliable.

Statistical Analysis and Data Interpretation

Using 2013 released IBM SPSS Corp. (Version 22.0; IBM SPSS Statistics for Windows; IBM Corp., Armonk,

New York) software, data were entered into the computer and examined. After ensuring normality with the Kolmogorov–Smirnov test, parametric data were described using the mean and *SD*. The (0.05) level was used to determine the significance of the data obtained. The authors used content analysis to examine participant replies to the open-ended questions to gather qualitative data. The categories of the responses were then ordered based on the frequency and percentage of each. Fischer's exact test, Monte Carlo, and chi-square were used for comparing two or more groups of qualitative variables. Wilcoxon signed-rank test was used to compare pre- and postmedian scores and the McNemar's test was used to compare pre and postchange in qualitative variables

Results

The present study is carried out on 100 health care workers (doctors and nurses) to study the effect of the OVR training program in enhancing their application of the OVR system. Eighty nurses and 20 doctors responded

Table 1. Participants' Demographic and Work-Related Data of the Studied Sample.

	Total number = 100	
Age/years		
Mean ± *SD*	35.98 ± 8.59	
(Min-max)	(21–57)	
<40	68	68.0
≥40	32	32.0
Sex		
Female	84	84.0
Male	16	16.0
Working department		
Normal delivery department	10	10.0
Inpatient departments	53	53.0
Intensive care units	11	11.0
Operating rooms	14	14.0
Outpatient clinics	12	12.0
Job		
Nurse	80	80.0
Physician	20	20.0
Qualification		
Bachelor's degree	26	26.0
Diploma degree	74	74.0
Experience in hospital/years		
Mean ± *SD*	5.32 ± 1.26	
Median (range)	5 (2–8)	
<5	26	26.0
≥5	74	74.0
Experience in department/years		
Mean ± *SD*	4.73 ± 1.25	
Median (range)	5 (1–7)	
<5	39	39.0
≥5	61	61.0

to the study questionnaire, with a response rate of 84.2% for nurses and 100% for doctors. The mean age of participants is 35.98 years ranging from 21 to 57 years. Eighty-four percent are females, 53% are working in inpatient departments, and 74% have a diploma degree with a mean experience duration in a hospital is 5.32 years ranging from 2 to 8 years. The mean experience duration in the department is 4.73 years ranging from 1 to 7 years, as shown in Table 1.

Following the training programme, there was a statistically significant rise in overall knowledge scores from 0.74 to 3.39, a statistically significant fall in overall unfavourable attitude scores from 3.87 to 3.27, and a statistically significant rise in overall practise scores from 2.35 to 2.45, as shown in Table 2.

Table 3 illustrates that the total multiple-choice knowledge test score shows a statistically significant increase after the implementation of the training program from 4.73 preintervention to 7.56 postintervention ($p < .001*$).

Figure 1 shows the frequency of OVR data in the pre- and postprogram implementation phases. According to the figure, the highest number of incidents had been reported related to most OVR dimensions (equipment/ supplies, safety, fire/ security, clinical practice/ procedures, behavioral, patient care, occupational, and infection control issues) while a low reporting of incidents related to OVR dimensions (medication/wrong, family/visitor/ watcher, and staff/ employee) were significant improvements in the OVR system postintervention.

Table 2. Total Knowledge, Attitude, and Practice (KAP) of Physicians and Nurses Regarding Occurrence Variance Reporting (OVR) System's pre- and Postintervention.

	Preintervention n = 100(%)	Postintervention n = 100(%)	Test of significance (Wilcoxon signed-rank test)
Knowledge	0.74 ± 0.71	3.39 ± 0.68	z = 8.81
	1.0 (0–2)	3.09 (1.0–4.0)	p < .001*
Inadequate knowledge	84	1	
Adequate knowledge	16	99	
Attitude	3.87 ± 0.59	3.27 ± 0.72	z = 7.75
	4 (2–5)	3 (1–5)	p < .001*
Unfavorable attitude	99	91	
Favorable attitude	1	9	
Practice	2.35 ± 0.54	2.45 ± 0.56	z = 3.16
	2 (2–4)	2 (2–4)	p = .002*
Poor	68	58.0	
Good	32	42.0	

Barriers That Hinder Staff Reporting Patient Safety Events From Their Perspectives

The number of participants who answered the open-ended questions about barriers that hinder staff reporting patient safety events was 85 (85%) out of the quantitative sample (N = 100). Two major categories were derived from qualitative content analysis. Participants reported that barriers related to organization/work and barriers related to an individual could hinder reporting patient safety events. Barriers were derived through the content analysis and classified into these two categories. The majority of respondents (n = 78, 91;76.0%) reported barriers related to organization/work including the culture of shame and blame, lack of corrective actions and feedback, high workload, lack of education and training, and lack of management support. In addition, 73 of the respondents (85.88%) identified barriers related to an individual such as worry and fear of blame, stress, insufficient knowledge, skills, and experiences related to OVRs, time consumption, and reports consider as an indicator of incompetence from their perspective (Figure 2).

Discussion

The present study aimed to enhance the OVR system implementation at obstetrics and gynecological hospital in Port Said Governorate, Egypt. Assessing nurses' and doctors' knowledge, attitudes, practices, and barriers in relation to OVR through the analysis of OVR data, based on the pre-assessment, creating and conducting a training program for hospital staff on the OVR system, and assessing the training program's impact.

The findings of the current study indicated that the OVR system postintervention exhibited considerable improvements in terms of OVR data and analysis. Most incidents had been reported about the majority of OVR dimensions (equipment/supplies, safety, fire/security, clinical practice/procedures, behavioral, patient care, occupational, and infection control issues), according to the frequency of OVR reporting data in the postprogram implementation phase. While there has been a decline in the reporting of incidents involving (6) compared to preintervention, these improvements may be attributable to the training program's impact

on raising hospital staff awareness of the OVR system and its significance for patient, staff, and hospital safety. These findings are consistent with those of Qassim and Al-Reshidi, 2014, who noted a considerable improvement in the OVR system following the implementation of the instructional program. Eldeeb (2010) said that compared to before the educational program was implemented, improvements had taken place. In their study on improving job performance in hospitals, Salem et al. (2022) found that the prevalence variance reporting machine significantly improved after an academic OVR software was implemented in the bodies of staff members and directors. They emphasized that continuous OVR is highly recommended for ongoing monthly and quarterly information gathering and tracking to maintain performance.

About, nurses' and doctors' KAP regarding OVR, the findings of the study revealed a statistically significant increase in total knowledge score postapplication of the training program, a statistically significant decrease in total negative attitude score, and a statistically significant increase in total practice score. Also, findings illustrated that the total multiple-choice knowledge test score shows a statistically significant increase after the implementation of the training program from 4.73 preintervention to 7.56 postintervention ($p < .001*$). This can be understood as the hospital staff being encouraged to report incidents throughout the program because they are not penalized for reporting others, realizing that having an OVR against them won't harm their reputation with coworkers or their annual evaluation and that people who use OVR are not troublemakers. Moreover, they learn to follow the process after filling out an OVR form, starting with their supervisor. According to Althobaiti et al., 2022 study, OVR is important for attaining patient and staff safety, enhancing care quality, and lowering medical mistakes or accidents suggested that medical workers, especially nurses, need to be more aware of the significance of reporting all incidences. Findings from a study by Albarrak et al. (2020) showed that although participants thought reporting took a lot of time, most felt that training-related OVR knowledge and skills were sufficient. Comparatively speaking to nurses, doctors acknowledged having less information about how to access and use OVR. Less than 25% of the staff members didn't get timely feedback after reporting. Only a quarter of doctors and nearly half of the nurses reported being generally happy with their OVR. This finding is consistent with research by Engeda (2016), who discovered a substantial relationship between training and nurses' incident-reporting behavior. This result is consistent with Nakamura et al., 2014 study, which showed that after a 6-month educational intervention, the rate of reporting unfavorable incidents increased and that nurses who got the intervention gained greater knowledge and optimism about incident reporting. Robertson and Long (2018) found that failing to disclose increases the risk of serious patient damage. There are strict regulations in

Table 3. Total Knowledge Scores of pre-and Posttest of Educational Training Program Regarding Occurrence Variance Reporting (OVR) system Among the Studied Sample.

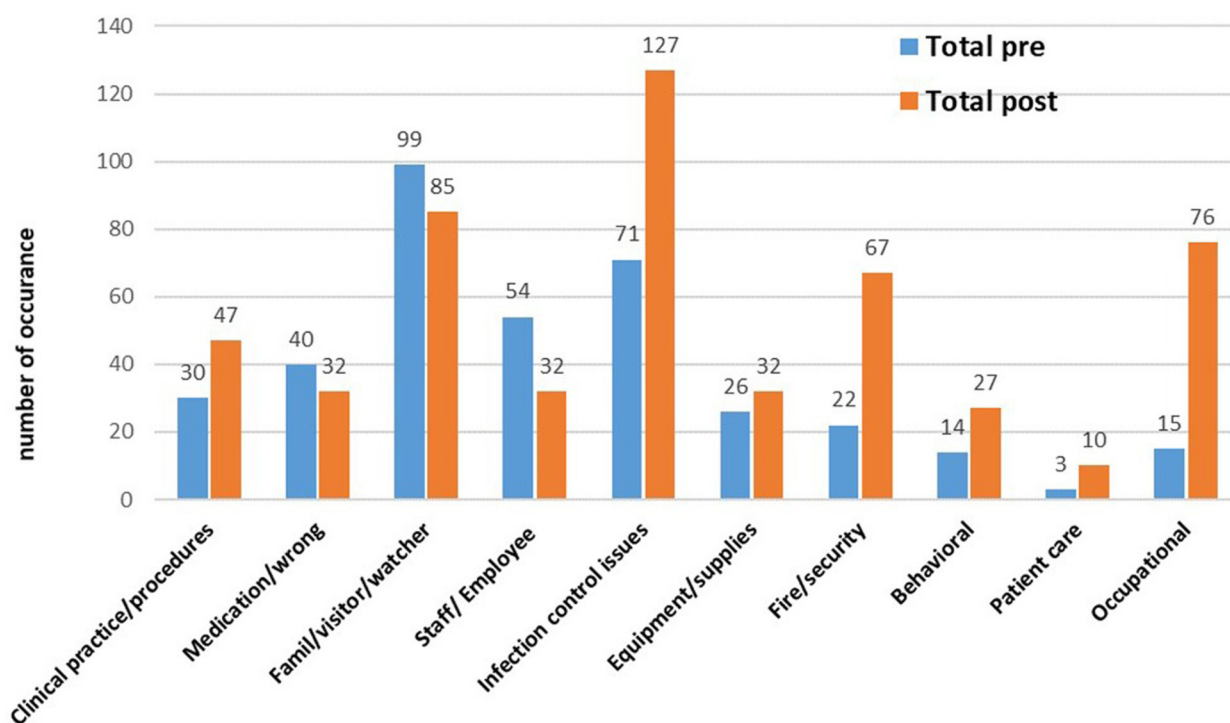|	Correct answer n(%)		Wilcoxon signed-rank test, p-value
	Pretest	Posttest	
Total pre- and postknowledge test score	4.73 ± 3.39 4 (0–15)	7.56 ± 3.85 6.5 (2–17)	z = 6.17 p < .001*

Figure 1. Occurrence variance reporting (OVR) system reported by hospital departments throughout program phases.

place at many health care organizations, which also fosters conflict. Staff may become reluctant to report errors, downplay issues, or even neglect to record them altogether as a result. A cycle of medical errors might develop as a result of these actions or inactions. The reputation of the health care facility and the staff may be damaged if these mistakes are discovered.

A statistically significant relation was detected between poor knowledge score preintervention and lower experience duration in the hospital and lower experience duration in the department; participants with less experience have poor knowledge. The poor practice was statistically significantly higher among the following; males, doctors, and participants with a bachelor's degree. According to the results of Alboliteeh and Almughim, 2017, the knowledge levels of nurses were found to be greater than those of physicians; 57% of both professions acquired their information via the orientation program. More than half of nurses expressed good sentiments about the OVR system compared to virtually all physicians who had negative attitudes. The study of Al Ma'Mari et al., 2022 emphasizes the importance of feedback and communication regarding errors, communication openness, and staff accomplishments since these factors directly affected how frequently events were reported. It emphasizes how urgent it is to discover ways to get rid of the blame culture that develops when mistakes are reported. The study's findings suggest

that efforts should be made to improve patient safety and identify additional variables that could have an impact on the frequency of incident reporting. In the same line, Wang et al., 2018 reported that nurses who have more experience perceive higher levels of knowledge related to the importance of OVR.

Concerning barriers that prevent workers from reporting patient safety incidents. The findings of the present study showed two major categories were derived from qualitative content analysis. Participants reported barriers related to organization/work and barriers related to an individual could hinder reporting patient safety events. Where the majority of respondents reported that barriers related to organization/work include the culture of shame and blame, lack of corrective actions and feedback, high workload, lack of education and training, and lack of management support. In addition, 85.88%of the respondents identified barriers related to an individual such as worry and fear of blame, stress, insufficient knowledge, skills, and experiences related to OVRs, time consumption, and reports consider as an indicator of incompetence from their perspective. Kingston et al., 2004 found that lack of time among employees was one of the major problems. Additionally, Banakhar et al., 2017 indicated that barriers included fear of punishment and losing one's job were noted in Saudi Arabia, while fear of penalty was a barrier to reporting in Jordan. Evans et al., 2006 noted several major obstacles that prohibited employees
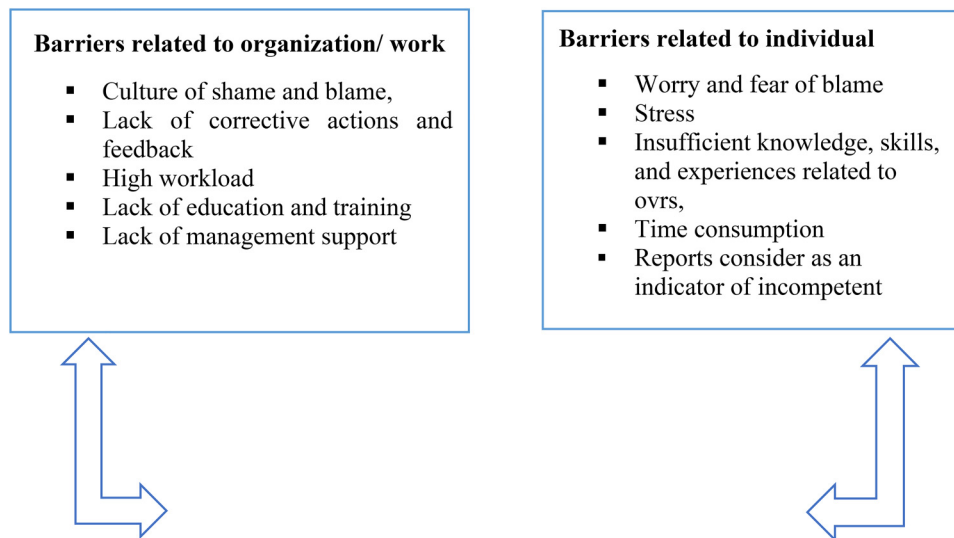
Barriers related to organization/ work	Barriers related to individual
▪ Culture of shame and blame, ▪ Lack of corrective actions and feedback ▪ High workload ▪ Lack of education and training ▪ Lack of management support	▪ Worry and fear of blame ▪ Stress ▪ Insufficient knowledge, skills, and experiences related to ovrs, ▪ Time consumption ▪ Reports consider as an indicator of incompetent

Figure 2. Barriers that hinder staff reporting patient safety events from their perspectives.

from adopting OVR, such as lack of or delayed feedback and the necessary forms being complicated and requiring mental effort. Alzahrani et al., 2019 claim that several variables, such as resource constraints, teamwork, communication, and incident reporting, hamper the reporting system. Their findings imply that it would be advantageous to put this knowledge to use given the significance of safety atmosphere attitudes for improving favorable patient outcomes. Findings from Ali (2018) suggested that several factors, the most frequent of which is a lack of clarity regarding what to report, how to report it, and where to report it, as well as the presence of a blame culture, may contribute to the underreporting of incidents. It was suggested that working on strategies to improve reporting on patient safety-related incidents is the ultimate goal for health care institutions that considered quality to be the core of their services.

Conclusion

Results showed that the OVR system had significantly improved following the intervention. According to data from OVR reporting that was collected frequently during the pre-and postprogram implementation phases, a significant number of incidents involving (equipment/supplies, safety, fire/ security, clinical practice/ procedures, behavioral, patient care, occupational, and infection control issues) had been reported after the intervention. In contrast to pre-intervention, there has been a low reporting of occurrences involving (medication/wrong, family/ visitor/ watcher, and staff/ employee). Additionally, a statistically significant improvement in overall knowledge score, a statistically significant drop in total negative attitude score, and a total practice score following the execution of the training program.

Relevance to Clinical Practice

Because of the main study findings, the health care facility should provide:

■ Continues monitoring and gathering of data to maintain the performance and ensure that the initial result is not lost through complacency and failure to comply with the implemented changes monthly and quarterly.
■ Continuous education regarding OVR KPA through meetings, lectures, and training programs.
■ Emphasis on the persistency of the integration of OVR into the daily clinical plan of care, and covering the gap between scientific research and plan of care.
■ Empowerment of the culture of reporting, no blame, and the availability of resources for continuity of implementation.
■ Development of OVR practice champions and mentors through rewards and commendations given to the highest reporting department.

Declaration of Conflicting Interests

Ethical Approval

The Research Ethics Committee at the Faculty of Nursing, Port Said University approved the research with the ethical code (18) (October 2, 2022). Written consent was secured from the director of the Port Said Universal Health Insurance organization with which the hospital is affiliated. And then from the hospital's medical and nursing directors. Written informed consent was obtained from each participant. All of them had the right to refuse to participate or withdraw from the study at any time with no consequences. Additionally, they were informed about their anonymity and the collected

information's confidentiality, and it would be used to fulfill the aim of this scientific study.

ORCID iD

Rasha Ibrahim El-Sayed Aly [ID] https://orcid.org/0000-0002-9562-2018

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