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What influences nursing safety event reporting among nursing interns?: Focus group study

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ABSTRACT

Background: Nursing safety events involving undergraduate nursing interns often occur but are under-reported. Only a few nursing schools have instituted formal reporting systems. The factors that affect reporting by undergraduate nursing interns are largely unknown.
Objective: The study aimed to explore the barriers and incentives to nursing safety event reporting by nursing interns.
Design: Focus groups were adopted to generate data for qualitative, thematic analyses.
Settings: Focus groups were held in intern dormitories during evenings or weekends.
Participants: Purposive sampling strategies were employed. The participants were undergraduate nursing interns from one medical university in Fuzhou, China.
Methods: A total of six focus groups were conducted. Semi-structured questions guided the groups.
Results: Thirty-eight undergraduate nursing interns attended the groups. Barriers to nursing safety event reporting had five major themes: "Lack of knowledge," "Inconvenience of the reporting system," "Feeling of uncertainty and dishonor," "No benefit from reporting," and "Social influence." Incentives had three major themes: "Nursing safety event education," "Optimization of the reporting system," and "Anonymous reporting." Specific and targeted suggestions were considered, such as education by QQ or WeChat and the use of mobile devices.
Conclusions: Nursing schools need to establish nursing safety event reporting systems for interns, and this needs to be accomplished in cooperation with teaching hospitals to clarify duties and management responsibilities. Practical and targeted management strategies need to be developed to foster reporting, improve nursing safety culture, and promote hospital quality.

1. Introduction

Nursing safety is a global public health issue that involves hospital management. In China, nursing safety is defined as the avoidance of damage, dysfunction, or defects affecting the structure, or function of the mind or body, including those leading to death, by transgressing laws and statutory regulations while providing nursing services; it includes both nurse safety and patient safety (Li et al., 2017). According to the World Health Organization (WHO), there is a 1 in 300 chance for a patient to be harmed during health care, which is much higher than the 1 in 1,000,000 chance for a traveler to be harmed in an aircraft. Tong et al. (2016) surveyed four third-level hospitals in Shanghai, China, and found that 388 nursing staff were responsible for 257 nursing safety events in 1 year. In addition to human suffering, unsafe health care exacts a heavy economic toll. It is estimated that 20%–40% of all health costs are due to poor-quality care, including additional hospitalizations, medical expenses, litigation costs, infections acquired in hospital, disability, and lost productivity. In some countries, the cost associated with unsafe practice has been estimated at $19 billion annually (World Health Organization, 2017).

Most unsafe practice is due to system failures, rather than individual actions. Nursing safety event reporting and learning systems are the major management strategies for prevention of such events; they were originally developed to collect nursing safety event data to avoid similar types of events in the future. Although many hospitals in most countries and regions have established nursing-security incident-reporting systems, their effectiveness is often sub-optimal due to serious under-reporting (Martin et al., 2018; Lawati et al., 2018; Archer et al.,

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2017). Studies have identified barriers to appropriate reporting, including: fear of disciplinary action or condemnation, lack of knowledge, focusing on the individual, fear of involving colleagues or departments, lack of time, complex reporting procedures, and lack of feedback or systematic improvement (Lawati et al., 2018; Vrbnjak et al., 2016; Engeda, 2016; Bahadori et al., 2013). The situation is similar in mainland China, where non-anonymous reporting is another major barrier (Shi et al., 2015; Zhou, 2014; Jia and Tang, 2014). It is important to note that most studies have focused on nurses, with only limited attention paid to nursing interns.

Clinical practice is an essential part of nursing education. During their initial clinical contact with patients, interns are unfamiliar with the hospital environment and have not developed communication skills; both limitations may pose safety hazards (Stevanin et al., 2015; Charkhat et al., 2016). Studies have reported that 17% to 53.2% of nursing interns experienced one or more adverse events (Sun et al., 2012; Stevanin et al., 2018); however, most are not reported (Song et al., 2015; Stevanin et al., 2018). It is suggested that adverse events, near-misses, and documented errors involving students need to be recorded, aggregated, and acted upon by educators, in partnership with clinical units (Cooper, 2013).

In mainland China, hospitals rather than nursing schools oversee interns' nursing safety problems. Recent cross-sectional studies have identified which factors contribute to the under-reporting of nursing safety events for nursing interns, yielding similar results to the studies of nurses (Lu and Jiang, 2015; Zhang et al., 2016). However, cross-sectional studies do not provide deep insight into the reasons for underreporting. Likewise, few studies have suggested strategies that would promote reporting. A thorough understanding of the barriers to nursing safety event reporting would be an important first step in developing strategies to produce effective interventions that increase reporting, reduce nursing safety events, and improve nurse and patient safety (Mirbaha et al., 2015).

The purpose of this study is to explore, using focus groups, the barriers to and incentives for reporting nursing safety events for nursing interns, in order to provide evidence for improving nursing safety management among interns.

2. Materials and methods

2.1. Study design

Focus groups were utilized in the study to generate data for qualitative, thematic analyses. The key reasons were as follows. Focus groups allow researchers and readers to identify and clarify their opinions, which explains their wide adoption in health research (Kingry et al., 1990; Kitzinger, 1995). Compared with individual interviews, focus groups may provide deeper insight into barriers and generate more ideas for incentives, which may then improve nursing safety event reporting (Coenen et al., 2012; Tausch and Menold, 2016).

2.2. Participants and setting

Purposive sampling strategies were employed in this study. Full-time undergraduate nursing interns were enrolled from one medical university in Fuzhou, a southeastern Chinese city. This university had an established nursing safety event reporting platform. The participants were in their final year of internship and had completed six months of practice in one of three Fuzhou Tertiary Hospitals.

Focus groups were held in intern dormitories during evenings or weekends from December 2017 to January 2018. In this manner, disruption was minimized and the interviews were conducted as part of daily life.

Table 1
Statistical characteristics of the focus groups.

	FG1	FG2	FG3	FG4	FG5	FG6
Number of interns	4	7	4	8	9	6
Gender	F	F	F	M	F	F
Duration of interview (minutes)	67	53	40	62	58	42
Practice hospital						
A	3	5	2	3	0	0
B	1	2	0	2	6	1
C	0	0	2	3	3	5

2.3. Ethical considerations

Participation by nursing interns was entirely voluntary with anonymous reporting. The participants were informed that the groups would be recorded, data collected would not be disclosed to any third party, and the interview would have no impact on the evaluation of internship performance. All participants provided written informed consent and signed a confidentiality agreement. The study was approved by the Fujian Medical University Ethics Committee.

2.4. Procedure

Six focus groups were conducted. Each group consisted of four to nine interns and each interview was 40 to 67 min in duration. Statistical characteristics of the focus groups are presented in Table 1. Sample size was determined by data saturation, a point at which no new data emerged from new interviews. Non-verbal communication and notes for each group were recorded by one to two assistants. The interviews were audio recorded and transcribed verbatim.

The researcher explained the purpose of the study to participants in order to target the discussion. A semi-structured interview guide was used to ensure similar key topic discussion by each group. Questions included: (1) Do you have an opinion about nursing safety events?; (2) Have you reported all events to the nursing school reporting system? What kind of nursing safety events need to be reported?; (3) Do you know how to report nursing safety events, and do you have an opinion about the reporting system of the school?; (4) What are the barriers to the nursing school reporting system?; (5) Are there any incentives to report nursing safety events? If so, what are they?

The study team consisted of two researchers (both female) and three assistants (2 females, 1 male). The researcher who led the focus groups was a university teacher who participated in the teaching of the students' 3rd academic year. The three assistants were first- and second-year students, recruited to observe and record meeting notes during each focus group interview. Before the focus groups, the assistants were trained in observation and record keeping by one of the researchers. Transcription of audio-recordings was completed by two members of the study team. The names of interns and practice hospitals were replaced by number codes to ensure anonymity. To monitor data quality and completeness, the researcher who read the transcripts and field notes did not attend the focus groups. All transcripts were returned to participants for comment.

2.5. Data analysis

Inductive and deductive content analysis were adopted for data analysis. Main themes were extracted separately by two researchers of the study team. Results were discussed and agreed upon during a meeting of the two researchers.

3. Results

Thirty-eight interns (8 men and 30 women; mean age 21.32 ± 0.87 years) attended the interviews, as shown in Table 1.

From the findings, five major themes were identified in the "barriers to reporting nursing safety events" domain, and three major themes in the "incentives to report nursing safety events" domain.

3.1. Barriers to reporting nursing safety events

3.1.1. Lack of knowledge

Four knowledge modules required clarification for the interns: "What are nursing safety events?"; "What should be reported?"; "Why report nursing safety events?"; and "How should events be reported?" The mastery of one knowledge module affected mastery of the others.

It was first necessary for interns to understand the meaning of the phrase "nursing safety events." Each of the focus groups were able to state the categories of nursing safety events, but were confused about its definition. This was particularly true for events that had no consequences, creating ambiguity over what should be reported.

When suturing in the operating room, I often feel the hook, but have no noticeable skin damage. Was it a needlestick injury?

(FG3)

When dispensing medicine, the medicine may splash onto my hand … I was unsure whether it had any effect on my skin…. Further, such a situation could also lead to an inaccurate dose, but I am unsure whether this is a nursing safety event.

(FG1)

All of the focus groups indicated a lack of criteria for identifying events that need to be reported. The severity of the consequence caused by the event was considered an important measure of "what should be reported." Serious nursing safety events that may hurt patients or interns were mostly reported, since the effect of these events needed to be tracked. However, minor events were often ignored because reporting those was considered meaningless, as nothing would be changed, thus unnecessarily increasing the workload. It is clear that "why report" was an important factor that determined "what should be reported."

No one informed me of the criteria (for what should be reported). … The error tends to be reported if the medicine entered the patient's body since the patient must then be observed closely.

(FG6)

I do not know the reason for such reporting. … A great deal of information is reported but whether anyone reads or evaluates this information is unknown and nothing changes.

(FG2, FG3)

The interns who had used the reporting system thought it easy to operate. However, most of the participants had not used it, and several focus groups expressed resistance to any new operating system, no matter how simple it may be.

No one wants to use a new system.

(FG4)

3.1.2. Inconvenience of the reporting system

The school's departmental reporting system and that of the hospital were separate, which annoyed interns, because reporting in both systems doubled the workload.

We have to report it (the event) twice, which makes me fidgety.

(FG6)

Several focus groups mentioned that only computer terminals could be used for reporting which affected reporting rate.

The clinical workload was so heavy that I felt too tired to open the computer when I returned to my dormitory.

(FG5)

3.1.3. Feeling of uncertainty and dishonor

Interns expressed their concerns regarding the consequence of reporting, including the impact on their employment, their supervisors, or their practice department.

There is no indication of what happens after reporting. I worry that reporting will be recorded in my individual file or at least in the system, which will be permanent. (FG1).
If I reported all nursing safety events, hospital recruiters will refuse to hire me. (FG4).
Reporting may affect my teacher. I have heard that some teachers and supervisors were punished for a student's mistake.

(FG6)

Neither condemnation nor criticism were mentioned in these focus groups. The teachers and supervisors focused on helping interns, instead of condemning them. Several participants stated that punishment was reasonable and acceptable when the event was serious.

Most of the teachers were nice. They provided comfort that reduced nervousness, and provided guidance to deal with the issue. (FG5).
I think it reasonable to be punished if a serious error was committed. After all, I was wrong, and I should be responsible for the consequence.

(FG4)

Shame was another barrier to nursing safety event reporting. Several participants stated that events were due to their own failure to follow standard procedures, which was dishonorable. These interns prefer others not to know about their errors.

It was humiliating. I still feel embarrassed when I remember the mistake.

(FG1)

After all, it was not an honorable thing, and the less publicity, the better.

(FG4)

3.1.4. No benefit from reporting

Within several focus groups, the participants stated that there was no benefit to reporting. The benefits desired by the interns were instructional suggestions for problem solving and subsequent treatment of any possible injury; they did not want to be rewarded, believing this could induce inauthentic reporting.

Subsequent solutions are my concern. The reporting system should be associated with patient information e.g., HIV or TP, which would allow me to determine what to do next.

(FG3)

It is not necessary to reward such behavior (reporting), since some people would make a false report for the reward.

(FG6)

3.1.5. Social influence

The attitude of interns was determined by supervisors and the error management atmosphere of the practice hospital. In teaching hospitals, the clinical nursing teachers and supervisors often had an indifferent attitude towards minor nursing safety events, which were regarded as personal management vulnerabilities, and were often concealed and under-reported.

At first, we did not know how to deal with these problems; we often followed the teacher's guidance.

(FG4)

I felt that the supervisor considered nursing safety events as a personal management problem, which were side-stepped unless the problem could not be concealed.

(FG2)

3.2. Incentives to report nursing safety events

Since there are only a few colleges and universities with established nursing safety event reporting systems, methods to enhance the management of such events require further consideration. The interns made the following improvement suggestions.

3.2.1. Nursing safety event education

All of the participants indicated the need for a nursing safety course to provide nursing safety event knowledge, including classifications, precautions, the purpose of reporting, the means by which to report, and what should be reported.

It would be best to have such a course in school. This would reduce nervousness, especially during the first event.

(FG3)

I believe it important to offer the course during school, which would popularize the importance of nursing safety event reporting, and would unify standards for these events.

(FG4)

The participants unanimously suggested the creation of online chat rooms such as QQ or WeChat, which would provide a virtual space for sharing. First, messaging through this platform would accelerate the transmission of knowledge about nursing safety management. Second, the frequency of reported nursing safety events should be announced to improve reporting transparency. Furthermore, virtual platforms should be a place to discuss solutions and to share experiences, which would create an atmosphere of learning, thus enhancing critical thinking and innovation.

The frequency of reported nursing safety events could be announced within the platform with de-identification. This will raise awareness and be helpful to practice.

(FG4)

QQ group is a platform that we watch. Experience with similar issues could be shared, which would promote learning. Discussion sections could be directed to ensure consideration of interesting ideas.

(FG2)

3.2.2. Optimization of the reporting system

To simplify the reporting procedure and avoid repetition, the interns hoped the hospital would obtain reporting data from the school's system, while maintaining the premise of anonymous reporting.

Several participants suggested the development of mobile reporting platforms. Mobile devices have replaced computers and are important components of an intern's life, study, entertainment, and communication.

If I can report incidents from my mobile phone, I can save considerable time.

(FG4)

There are too many apps on my mobile phone. … WeChat is fine.

(FG3)

Several participants indicated that the function of nursing safety reporting should be expanded beyond data collection to include indicating how to deal with events (as considered in Section 3.1.4).

3.2.3. Anonymous reporting

Anonymous reporting would reduce anxiety and promote trust in a non-punitive reporting system. However, a few participants suggested that anonymous reporting would affect the subsequent tracking of events, especially for serious incidents.

Anonymous reporting is the best since the psychological burden would be reduced.

(FG1)

The severity of events must be considered. For some serious incidents, the results of adverse drug reactions or subsequent treatment should be followed up, which requires the use of actual names.

(FG4)

4. Discussion

The purpose of this study was to develop effective strategies to increase reporting and improve hospital safety by exploring undergraduate nursing interns' perspective on the barriers to and incentives for reporting nursing safety events. In this study, five main themes in the domain “Barriers to reporting nursing safety events” and three main themes in the domain “Incentives to report nursing safety events” were identified.

This study showed that undergraduate interns lacked knowledge of nursing safety event reporting, consistent with prior findings for nurses (Mirbaha et al., 2015; Vaismoradi et al., 2014; Hashemi et al., 2012). Through its Multi-professional Patient Safety Curriculum Guide, the World Health Organization (2011) is currently leading a global drive to improve patient safety education, which has been proved to significantly improve knowledge, skills, analysis, problem solving, and motivation for reporting (Mansour2015; Nakamura et al., 2014). However, nursing educators have given little attention to nursing safety (Leotsakos et al., 2014). At present there are few nursing schools in mainland China that include a nursing safety curriculum in their teaching program. Undergraduate interns receive the most knowledge of nursing safety from pre-practice education at teaching hospitals. Due to differences in error management and teaching levels, the effectiveness of teaching was variable. Therefore, it is imperative to offer nursing safety education before the internship.

Detailed, operative, and coherent reporting guidelines are necessary to ensure accurate and consistent data collection, which will increase reporting rates (Vrbnjak et al., 2016). However, there are no universal standards for what constitute nursing safety events and what should be reported. Various academic groups and organizations have their own definitions and interpretations of these issues, even within a single institution (Long et al., 2011). Developing a nursing safety reporting consensus is important and will incentivize reporting.

In addition, all focus groups agreed that minor nursing safety events and near misses were under-reported, despite their high incidence. Reporting these events was thought to be meaningless and an added burden with no effective solution, as reported previously (Xie et al., 2015; Hashemi et al., 2012; Mansour et al., 2015). This result implies that interns lacked confidence in the system. Interns suggested organizing regular root-cause analysis discussions, which would improve system understanding and promote a learning culture (Sun et al., 2011). Since teaching hospitals are located throughout the city, the creation of QQ or WeChat groups is considered an appropriate means.

Networks and electronic information have made data collection and analysis convenient. However, interns who participated in this study were unwilling to use new formats, which has rarely been reported. Our recommendation is to provide early guidance for the use of such formats and to provide a concise operations manual.

Inconvenient reporting systems and procedures are common complaints by nurses (Mirbaha et al., 2015; Topaz et al., 2016). In contrast, this study's participants emphasized repeated reporting, which would increase their workload and likely reduce reporting (Xie et al., 2015). Therefore, it is necessary for nursing schools and teaching hospitals to clarify respective mandates for appropriate management of nursing safety events. Furthermore, with the popularization of mobile phones, nursing safety reporting may be best accomplished by harnessing mobile technology, for example, through the WeChat public platform.

Feelings of uncertainty and dishonor were a major barrier to nursing safety reporting in this study. Interns were concerned about the effect of

reporting on themselves, supervisors, departments, and their relationship with teachers and other interns (Lukewich et al., 2015; Mansour et al., 2015). Anonymous reporting systems may be a good means by which to eliminate such concerns, as previously reported (Hashemi et al., 2012; Mansouri et al., 2014). However, anonymous reporting may not be suitable for those events that the parties involved in could be hurt. Notably, several participants believed that punishment was reasonable for the above events, which differs from prior findings (Zhang et al., 2016; Mirbaha et al., 2015). Criticism and punishment did not concern participating interns, which suggests that nursing safety culture in teaching hospitals is improving. Therefore, real-name reporting may be appropriate for the events that the parties involved in need extra observation and disposal, whereas anonymous reporting may be appropriate for minor events.

The value of event reporting to promote policy reformation was not apparent to the interns (World Health Organization, 2015), for whom policy reformation is remote and does not appear to have an immediate impact. “No benefit” was stated to be a reason for under-reporting (Peyrovi et al., 2016; Zhang et al., 2016). Few studies have evaluated how to make reporting beneficial. In this study, all focus groups opposed reward incentives, conflicting with prior findings (Pedrós et al., 2009). The participants wanted solutions to problems, more detailed information regarding patients, *e.g.*, human immunodeficiency virus (HIV), syphilis, or hepatitis B (HB) status, and free access to laboratory testing of potential infections, which would make reporting a benefit rather than a burden.

Nursing safety event reporting by interns was affected by the attitude of teachers and supervisors, which was determined by the nursing safety culture of the teaching hospitals. Hence, the creation of appropriate reporting systems in nursing schools should cultivate best practice and improve hospital nursing safety (Disch and Barnsteiner, 2014).

The study has limitations. First, the participants were all recruited from one university in Fujian Province, China, and their opinions may not be broadly applicable or comprehensive. Second, some interns were silent during the focus groups although they were encouraged to participate. Third, the difference between nursing safety events and nursing adverse events is ambiguous. The term “nursing safety events” was chosen to reduce the pressure perceived by interns in reflecting on mistakes.

5. Conclusion

Unsafe clinical practice by undergraduate nursing interns should not be ignored. Reporting intern nursing safety events promotes nursing quality. Educators need to participate in the collection and analysis of nursing safety events in collaboration with teaching hospitals. This study aimed to identify challenges to nursing safety event reporting from the perspective of the intern. Five major themes in the barriers domain and three major themes in the incentives domain were extracted. Some of these barriers and incentives have been identified by other studies, but some unique suggestions were made. It is suggested that nursing schools should establish systems for reporting intern nursing safety events in cooperation with teaching hospitals, in addition to clarifying respective management duties and officially informing interns of policies. By taking advantage of modern information technology and mobile devices, and expanding the function of the reporting system, continuing education will be strengthened and internships enriched. This should be an effective strategy to foster reporting.

Declaration of interest

None.

Authors' contributions

JHS was responsible for the concept, design, interviews, transcription, data analysis, and manuscript preparation. YNG contributed to the design of the study, transcription, and data analysis.

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References

Archer, S., Hull, L., Soukup, T., Mayer, E., Athanasiou, Th., Sevdalis, N., Darzi1, A., 2017. Development of a theoretical framework of factors affecting patient safety incident reporting: a theoretical review of the literature. BMJ Open 7, e017155. https://doi.org/10.1136/bmjopen-2017-017155.

Bahadori, M., Ravangard, R., Aghili, A., Sadeghifar, J., Manshadi, M.G., Smacilnejad, J., 2013. The factors affecting the refusal of reporting on medication errors from the nurses' viewpoints: a case study in a hospital in Iran. JSRN Nursing 2013, 1–5. https://doi.org/10.1155/2013/876563.

Charkhat, G.E.A., Sanam, B., Gholamreza, G., Maryam, Y., 2016. Investigating the causes of medication errors and strategies to prevention of them from nurses and nursing student viewpoint. Global J. Health Sci. 8 (8), 220–227. https://doi.org/10.5539/gjhs.v8n8p220.

Coenen, M., Stammm, T., Stucki, G., Cieza, A., 2012. Individual interviews and focus groups in patients with rheumatoid arthritis: a comparison of two qualitative methods. Qual. Life Res. 21, 359–370.

Cooper, E., 2013. From the school of nursing quality and safety officer: nursing students' use of safety reporting tools and their perception of safety issues in clinical settings. J. Prof. Nurs. 29, 109–116. https://doi.org/10.1016/j.profnurs.2012.12.005.

Disch, J., Barnsteiner, J., 2014. Developing a reporting and tracking tool for nursing student errors and near misses. J Nurs. Regul. 5, 4–10.

Engeda, E.H., 2016. Incident reporting behaviours and associated factors among nurses working in Gondar University comprehensive specialized hospital, Northwest Ethiopia. Scientifica. 2016, 1–7.

Hashemi, F., Nasrabadi, A.N., Asghari, F., 2012. Factors associated with reporting nursing errors in Iran: a qualitative study. BMC Nurs. 11, 20–27. http://www.biomedcentral.com/1472-6955/11/20 (accessed 8 May, 2018).

Jia, P., Tang, J.H., 2014. Reason analysis of nurse intention of adverse events report under no punishment policy. Nurs. J. Chin. PLA 31 (20), 5–8.

Kingry, M.J., Tiedje, L.B., Friedman, L.L., 1990. Focus groups: a research technique for nursing. Nurs. Res. 39, 124–125.

Kitzinger, J., 1995. Qualitative research: introducing focus groups. Br. Med. J. 311, 299–302.

Lawati, M.H.A.L., Dennis, S., Short, S.D., Abdulhadi, N.N., 2018. Patient safety and safety culture in primary health care: a systematic review. BMC Fam. Pract. 19 (1), 1–12. https://doi.org/10.1186/s12875-018-0793-7.

Leotsakos, A., Ardolino, A., Cheung, R., Zheng, H., Barraclough, B., Walton, M., 2014. Educating future leaders in patient safety. J. Multidiscip. Healthc. 7 (2014), 381–388. https://doi.org/10.2147/JMDH.S53792.

Li, J.P., Wu, X.J., Wang, Y.M., 2017. Nursing Management, 4th ed. People's Health Press, Beijing.

Long, Y.F., Li, Y.L., Guo, Y.H., 2011. The status quo investigation and analysis of adverse nursing events reporting in China. Chinese Nursing Management 11 (5), 16–20.

Lu, S., Jiang, H., 2015. Investigation on the intention and influencing factors of reporting adverse events in clinical nursing students. Chinese Nursing Management 15 (10), 1250–1253.

Lukewich, J., Edge, D.S., Tranmer, J., Raymond, J., Miron, J., Ginsburg, L., VanDenKerkhof, E., 2015. Undergraduate baccalaureate nursing students' self-reported confidence in learning about patient safety in the classroom and clinical settings: an annual cross-sectional study (2010 − 2013). Int. J. Nurs. Stud. 52 (2015), 930–938. https://doi.org/10.1016/j.ijnurstu.2015.01.010.

Mansour, M., Skull, A., Parker, M., 2015. Evaluation of World Health Organization multiprofessional patient safety curriculum topics in nursing education: pre-test, post-test, none-experimental study. J. Prof. Nurs. 31 (5), 432–439. https://doi.org/10.1016/j.profnurs.2015.03.002.

Mansouri, A., Ahmadvand, A., Hadjibabaie, M., Javadi, M., Khoee, S.H., Dastan, F., Gholami, K., 2014. A review of medication errors in Iran: sources, underreporting reasons and preventive measures. Iran J. Pharm. Res. 13 (1), 3–17. http://www.ijpr.

ir (accessed 14 Jan, 2018).
Martin, B., Reneau, K., Jarosz, L., 2018. Patient safety culture and barriers to adverse event reporting: a National Survey of nurse executives. Journal of Nursing Regulation 9 (2), 9–17.
Mirbaha, F., Shalviri, G., Yazdizadeh, B., Gholami, K., Majdzadeh, R., 2015. Perceived barriers to reporting adverse drug events in hospital–a qualitative study using theoretical domains framework approach. Implement. Sci. 10 (110). https://doi.org/10.1186/s13012-015-0302-5.
Nakamura, N., Yamashita, Y., Tanihara, S., Maeda, C., 2014. Effectiveness and sustainability of education about incident reporting at a university hospital in Japan. Healthc. Inform. Res. 20 (3), 209–215.
Pedrós, C., Vallano, A., Cereza, G., Mendoza-Aran, G., Agusti, A., Aguilera, C., Danés, I., Vidal, X., Arnau, J.M., 2009. An intervention to improve spontaneous adverse drug reaction reporting by hospital physicians: a time series analysis in Spain. Drug Saf. 32 (1), 77–83. https://doi.org/10.2165/00002018-200932010-00007.
Peyrovi, H., Nasrabadi, A.N., Valiee, S., 2016. Exploration of the barriers of reporting nursing errors in intensive care units: a qualitative study. J. Intensive Care Soc. 17 (3), 215–221. https://doi.org/10.1177/1751143716638370.
Shi, R.F., Liu, Y.Y., Zhang, Z.L., 2015. The investigation of nursing adverse event monitoring and reporting in 110 tertiary hospitals of Guangdong province. Chinese Nursing Management 15 (9), 1098–1101.
Song, J.H., Dai, W.L., Wang, S., Ling, X.F., Yan, J., Huang, X.R., 2015. Analysis of adverse nursing events reported occurred in undergraduate nursing internships. Chinese Journal of Nursing Education 12 (2), 120–122.
Stevanin, S., Bressan, V., Bulfone, G., Zanini, A., Dante, A., Palese, A., 2015. Knowledge and competence with patient safety as perceived by nursing students: the findings of a cross-sectional study. Nurse Educ. Today 35 (2015), 926–934. https://doi.org/10.1016/j.nedt.2015.04.002.
Stevanin, S., Causero, G., Zanini, A., Bulfone, G., Bressan, V., Palese, A., 2018. Adverse events witnessed by nursing students during clinical learning experiences: findings from a longitudinal study. Nurs. Health Sci. 20 (4), 438–444. https://doi.org/10.1111/nhs.12430.
Sun, A.L., Peng, S.H., Zhang, H.P., Zhang, X.L., Fu, X.L., Xu, X.L., 2011. Method and effects of nurses participating in discussions of adverse events in nursing safety management. J. Nurs. Adm. 3 (11), 221–222.
Sun, J., Jia, Z.L., Wang, L.J., 2012. Analysis of the situation and related factors analysis on general nursing errors of undergraduate nursing students in graduation practice. J. Nurs. Adm. 12 (1), 32–34.
Tausch, A.P., Menold, N., 2016. Methodological aspects of focus groups in health research: results of qualitative interviews with focus group moderators. Glob. Qual. Nurs Res. 3, 1–12.
Tong, X.F., Zhou, X., Zong, Y.Q., Fu, X.X., Li, J., 2016. Investigation of nursing adverse events in class III grade I hospitals in Shanghai. Nurs. J. Chin. PLA 33 (18), 22–25.
Topaz, M., Ronquillo, C., Peltonen, L.M., Pruinelli, L., Sarmiento, R.F., Badger, M.K., Ali, S., Lewis, A., Georgsson, M., Jeon, E., Tayaben, J.L., Kuo, C.H., Islam, T., Sommer, J., Jung, H., Eler, G.J., Alhuwail, D., Lee, Y.L., 2016. Nurse informaticians report low satisfaction and multi-level concerns with electronic health records: results from an international survey. AMIA Annu. Symp. Proc. 2016–2025. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5333337/# (accessed 2 February 2018).
Vaismoradi, M., Bondas, T., Jasper, M., Turunen, H., 2014. Nursing students' perspectives and suggestions on patient safety—implications for developing the nursing education curriculum in Iran. Nurse Educ. Today 34 (2014), 265–270. https://doi.org/10.1016/j.nedt.2012.10.002.
Vrbnjak, D., Denieffe, S., O'Gorman, C., Pajnkihar, M., 2016. Barriers to reporting medication errors and near misses among nurses: a systematic review. Int. J. Nurs. Stud. 63 (2016), 162–178. https://doi.org/10.1016/j.ijnurstu.2016.08.019.
World Health Organization, 2011. Patient Safety Curriculum Guide: Multiprofessional edition. http://apps.who.int/iris/bitstream/handle/10665/44641/9789241501958_eng.pdf?sequence=1 (accessed 4 December 2018).
World Health Organization, 2015. Minimal information model for patient safety incident reporting and learning systems: user guide. http://www.who.int/patientsafety/topics/reporting-learning/mim/user-guide/en/ (accessed 20 February 2018).
World Health Organization, 2017. 10 facts on patient safety. http://www.who.int/features/factfiles/patient_safety/en/ (accessed 27 February 2018).
Xie, H.Q., Wang, Y.Q., Wang, Y., 2015. Current status of management and existing problem analysis in nursing adverse events. Nurs. J. Chin. PLA 32 (5), 61–63.
Zhang, X.L., Liu, H.P., Xu, J., Wang, N.N., 2016. Investigation of the intention to actively report adverse events among nursing interns. Health Vocational Education 34 (23), 134–136.
Zhou, H.Z., 2014. Study on Nurses' report intention of adverse nursing events and its influencing factors. Hospital Management Forum 31 (10), 14–18.