Senior nursing student's perceptions of an interprofessional simulation-based education (IPSE): A qualitative study

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A B S T R A C T

Purpose: The purpose of this study was to explore the perceptions and attitudes toward interprofessional simulation-based education among Lebanese senior nursing students.

Methods: The study used an exploratory descriptive qualitative approach and collected data through focus groups. All focus group discussions were audiotaped, transcribed verbatim, and narratives were compared with the recordings to establish accuracy, credibility and reliability of data. Qualitative narratives were translated to English and analyzed through an inductive thematic content analysis. This study was reported according to the Standards for Reporting Qualitative Research (SRQR).

Results: Four major themes were identified: understanding roles and responsibilities, enhancing collaboration, improve personal and interpersonal skills, and patient outcomes.

Conclusion: The senior nursing students showed a positive perception and attitude toward interprofessional simulation-based education. They found that interprofessional simulation-based education increased their knowledge and understanding of the importance of the roles of other professions, as well as their own role in providing patient care. Furthermore, they perceived that interprofessional simulation-based education improved their personal and interpersonal skills. These positive findings may contribute to their future success in an interprofessional team, which could lead to improved patient outcomes. Therefore, future research is needed to see how the reported benefits of interprofessional simulation-based education training are reflected in clinical practice and related to patient outcomes.

1. Introduction

Rapid changes in healthcare technology have already had a radical impact on health-care delivery and the education of nurses (Armstrong et al., 2012; Decker et al., 2015; Fawaz et al., 2018). As a result, nursing educators have reformed their curriculum to ensure that students gain the knowledge and skills that allow them to deal with these changes. Interprofessional simulation-based education is an example of a valuable educational strategy that has the potential to prepare students to deal with these changes.

Interprofessional Education (IPE) is defined as "when students or members of two or more professions learn with, from and about each other to improve collaboration and the quality of care" (WHO, 2010, p. 13). IPE aims to enhance attitudes, knowledge, and skills for collaborative practice, which in turn can improve clinical practice (Green and Johnson, 2015). IPE is recommended as a method that should play an integral part in the health-care undergraduate curriculum (WHO, 2010).

The integration of IPE and simulated learning has been identified as a key factor in transforming nursing education (Decker et al., 2015; Hood et al., 2014). Simulation-based education aims to create a guided experience to help in acquiring necessary skills and ensure patients' safety and well-being (Lateef, 2010). Interprofessional Simulation-based Education (IPSE) in undergraduate health education is believed to help students develop unbiased perceptions of each other's roles, thus leading to more collaborative practice in patient management (Bressler and Persico, 2016).

In Lebanon, various schools of nursing have implemented simulation into educational strategies and the majority of nursing faculties have started integrating IPE into clinical student education. Soubra and her colleagues (2018) found that IPE has a positive impact on raising awareness about the role of other professions and on improving patient-care planning, among Lebanese health professional students (Soubra

et al., 2018).

Currently there is growing interest in assessing different aspects of student perceptions and attitudes toward IPSE (Costello et al., 2017; Roberts and Goodhand, 2017; Wang and Petrini, 2017). The perceptions and attitudes are factors that contribute to the behavior of students; strong attitudes guide behavior, while weak attitudes follow behavior in accordance with self-perception principles (Holland et al., 2002). For example, when the students are expected to exhibit interprofessional collaboration in simulated health-care situations or real clinical practice, their attitudes should be strong enough to guide their behavior. Therefore, addressing students' perceptions and attitudes toward IPSE is important.

Many previous studies have reported that IPSE is well received among nursing students and results in positive outcomes in their knowledge and attitudes (Aase et al., 2014; Leonard et al., 2010; Wang and Petrini, 2017). However, there were differences in perceptions toward IPSE between different levels of the nursing students (i.e. first, second, third, or fourth year) (Gharaibeh et al., 2017; Leonard et al., 2010). This necessitated conducting further studies to explore attitudes and perceptions toward IPSE in different levels of nursing students.

Furthermore, many previous studies found that IPSE increased self-confidence, satisfaction and enhanced communication skills among undergraduate nursing students (Efstathiou and Walker, 2013; Furseth et al., 2016; Schlairet, 2011). One of these studies noted that senior- level students (graduating year) reported the lowest satisfaction and self-confidence scores (Schlairet, 2011). This also necessitated exploring and identifying nursing students' attitudes and perceptions toward IPSE, especially among senior-level students.

However, to our knowledge, no study has been conducted with a focus on nursing students' attitudes and perceptions toward IPSE, especially among senior-level students. Exploring students' perceptions and attitudes is important because this helps in preparing effective teaching plans for nursing students in clinical practice (Ogilvie et al., 2011). Therefore, the purpose of this study was to explore the perceptions and attitudes toward IPSE among Lebanese senior nursing students.

2. Methods

2.1. Design

An exploratory descriptive qualitative approach was used to gain an in-depth understanding of the perceptions and attitudes toward IPSE among nursing students in this study, since much is not known about the phenomenon, especially in Lebanon (Creswell et al., 2007; Bradshaw et al., 2017; Hays and Singh, 2012). This approach was appropriate because it allows the participants to fully describe and explore their perceptions, and permits the researcher to probe emerging themes (De Vos, Strydom, Fouché and Delport, 2011). This study was reported according to the Standards for Reporting Qualitative Research (SRQR) (O'Brien et al., 2014).

2.2. Setting and participants

A purposive sample of 20 senior undergraduate nursing students was recruited by the two authors from Beirut Arab University (BAU), one of the major universities in Lebanon. Nursing students who met the following inclusion criteria were included in this study: (1) Lebanese nationality; (2) aged 18 years and above; (3) able to read and write Arabic; (4) actively enrolled in the undergraduate nursing program; and (5) projected to graduate in the year that the study was conducted. Enrolled international nursing students were excluded from this study to prevent bias due to language differences.

2.3. Educational context

BAU was a pioneer in adopting interprofessional simulation learning into all medical faculties (medicine, health sciences, pharmacy and dentistry) as part of its core curriculums. Thus, the BAU medical faculties have implemented a course entitled Inter-Professional Education (IPE) for health-care providers. This course was developed by a committee, which was composed of the deans of the medicine, health sciences (nursing, nutrition, physical therapy, and medical laboratory), pharmacy, and dentistry faculties, four faculty members from each of these faculties, and the coordinator of the course.

During the IPE course sessions, students were grouped into interprofessional teams. Each of these had a student representative from each participating faculty, and a faculty member acting as a team facilitator. The IPE course was designed to provide students from different medical facilities with key concepts and skills essential for future collaborative practice, with emphasis on team interaction, role clarification, and communication skills that can improve patient safety and quality of care.

2.4. Data collection

Focus groups were arranged to gain an in-depth understanding of the perceptions and attitudes of the participants (Doody et al., 2013; Kinalski et al., 2017; Krueger and Casey, 2009). These focus groups were carried out approximately one to two weeks after the IPE course to give the participants time to reflect on the experience, and to ensure the experience was still fresh in their memory.

Four focus group were conducted, each with a maximum of eight participants, to ensure that all of those who took part had the opportunity to speak and express themselves freely during the session. All of the semi-structured focus group discussions, which ranged between 30 and 60 min, took place in private office rooms that provided privacy and decreased interruptions for participants. The time of the focus group was arranged according to the convenience of the participants. Each focus group was led by the two authors to make reliable observations and avoid "moderator dominance" (Krueger and Casey, 2009; Polit and Beck, 2008). The two authors were not involved in teaching the IPE course that the recruited students were enrolled in at the time of this study to minimize bias and coercion. Open-ended questions were used to generate responses, and these were probed until a full understanding was achieved. Participants in the four-focus group were asked the same questions. For example, participants were asked "please tell me what your experiences of the IPE course were?", "how have your views of other professions changed as a result of the IPE?", "what are the impacts of IPE on patient outcome?".

Moreover, some supplementary questions were used based on the participants' comments and opinions ("would you elaborate more on this?" or "what did you mean by saying . . .?") to research and clarify all information. There were no new findings after the twenty participants. All focus group discussions were audiotaped and transcribed verbatim, and narratives were compared with the recordings to establish the accuracy, credibility and reliability of data.

2.5. Data analysis

Qualitative narratives were translated to English and analyzed through an inductive thematic content analysis, which includes reading transcripts, open coding of the text, creating categories and abstracting final themes (Burnard et al., 2008; Elo and Kyngäs, 2008; Hays and Singh, 2012). The data analysis was conducted independently by the authors, and was then discussed and modified by the authors until a consensus was reached. The transcriptions were read by the authors several times in order for them to become familiar with the data and gain a full sense of the participants' world. The transcripts were coded by reading line by line and assigning a word or phrase that accurately captured the essence of the datum read. Through this process, some of the codes generated (such as getting to know, roles, responsibilities) were grouped under understanding roles and responsibilities. Similar codes were grouped, regrouped and refined to generate themes that were

meaningful units on perceptions and attitudes toward IPSE among senior nursing students. The authors discussed the themes to ensure that the data were faithfully represented.

2.6. Trustworthiness of the study

A number of processes were used to minimize bias and enhance the trustworthiness of this study. Concurrent analysis ensured that emerging themes were probed in sequential interviews to gain full understanding of themes. The same interview guide was used for all participants. The authors discussed the themes generated and ensured that no aspect of the data was omitted. Direct verbatim quotes were used to support the study findings, and this gave voice to the participants in this study.

Furthermore, control procedures were used by qualified personnel (peer checking) for validation of the data. The data analysis was implemented independently by two authors. The authors also met several times to discuss and compare findings, resulting in a consensus on the common themes (Speziale et al., 2011). Besides peer-checking, authors used the member-checking technique for establishing credibility and confirmability. After analyzing each interview, the themes and categories were given back to the participants to confirm the data interpretations. Additionally, the authors employed the external member-checking method for ensuring the transferability of the study findings. Therefore, the authors asked three outsiders who had similar experiences of the study subject to determine the congruence between the study findings and their own experiences.

In order to obtain generalizability across environments, the findings of the study were presented to a number of students who had not participated in the study and they were asked to judge the similarity between the findings of the study and their own experiences.

2.7. Ethical considerations

Ethical approval to conduct this study was obtained from Beirut Arab University's Institutional Review Board (IRB). Before conducting the study, all of the participants were informed that their participation was voluntary, and they had the right to withdraw from the study at any time without any repercussions. After explaining the research objectives and procedures, an informed consent form was completed and signed by each participant. Participants were assured that their anonymity would be preserved, and confidentiality of the research data would also be maintained.

3. Results

3.1. Characteristics of participants

The study sample consisted of 20 participants who met the inclusion criteria, of whom (N = 12, 60%) were female. The mean age of sample was 20.6 (SD = 2.9) with a range of 20–24 years. No-one refused to be interviewed.

3.2. Nursing students' attitudes and perceptions toward IPSE

The analysis identified four major themes that resonated across all four groups, which were labeled "Understanding roles and responsibilities", "Enhancing collaboration", "Improve personal and interpersonal skills", and "Patient outcomes". Table 1 indicates the codes that were integrated into the four major themes.

3.2.1. Understanding roles and responsibilities

The codes "realize", "getting to know", "roles", and "responsibilities" were merged to become the theme "understanding roles and responsibilities". Several students said that they had a lack of knowledge about other professional roles before IPSE. For instance, one student stated: *"It is rather embarrassing how little knowledge we have about the*

Table 1
Four major themes that emerged from codes.

Themes	Codes
Understanding roles and responsibilities	Realize
	Getting to know
	Roles
	Responsibilities
Enhancing collaboration	Enhance
	Collaboration
	Teamwork
Improve personal and interpersonal skills	Confidence in clinical communication skills
	Critical thinking and problem-solving skills
Patient outcomes	Patient priority
	Patient safety
	High quality of care

pharmacy profession". (Female student, focus group 3)

However, there were rich descriptions detailing how IPSE allowed the nursing students to gain a perspective about the other discipline's role that was necessary for coming to know each other as colleagues. One student stated: *"It is a very beneficial to have the chance to observe other health care professionals in the act of delivering their aspect of care to your patient".* (Female student, focus group 1)

Another student said: *"I felt that the pharmacy student did a really good assessment … she also thinks of the head to toe assessment which is very similar to what we think of in nursing … it's just different because they do it all at once in one meeting while we are doing ongoing assessments."* (Female student, focus group 2)

Another student said: *"Witnessing other healthcare professionals in action gives you a new vantage point to appreciate the work of other disciplines, and deeply understand the value of each other's efforts to make the patient improve".* (Female student, focus group 4)

Nursing students recognized the importance of opportunities to come together as a team. One student stated: *"When we were managing a patient's case together, I truly understood what other professionals do, now I know where I have to come into care delivery and where other professions contribute, and I can value all efforts put into my patient's care".* (Female student, focus group 4)

Moreover, the nursing students who participated in the IPSE experience reported not only clearly understanding other healthcare team members' roles, but also getting a deeper and more realistic understanding of their own contribution to the health care team as well. One nursing student stated: *"I did not truly understand the scope of my practice until I actually practiced with other health care providers on managing a case, then I honestly knew what I have to offer to the care of the patient. Now I know where my responsibilities overlap with those of the other team members".* (Male student, focus group 2)

One more student said: *"The IPE-Simulation experience proved to me the importance of my role in the health care team where I contributed actively to saving the patient's life. Now, I truly appreciate my duty within the health care team".* (Male student, focus group 3)

3.2.2. Enhancing collaboration

The initial codes enhance, collaboration, and teamwork were collapsed to become the theme of enhancing collaboration. Several students a reported developing respect for the team members after the exposure to IPSE experience, which made their performance in the team much more effective. For instance, one student stated: *"The sense of respect that was dominant within the team provided an atmosphere of positive collaboration…".* (Female student, focus group 1)

Another student said: *"we truly need each other to treat the patient …….. good teamwork spirit is required so that the team can function properly towards the desired goals".* (Female student, focus group 3)

Another student admitted and said: *"The proper collaboration among the team members helped us reach the proper treatment in a shorter time interval."* (Male student, focus group 4)

3.2.3. Improve personal and interpersonal skills

The codes contributing to this theme were confidence in clinical, communication skills, and critical thinking and problem-solving skills. Many students discussed how they felt more comfortable and confident as the result of having an opportunity to practice together as a team. One student stated: *"I feel more comfortable to practice within a team of health professionals after participating in interprofessional simulation activities".* (Female student, focus group 2)

Other students elaborated on how the IPES experience allowed them to enhance communication skills in practice. One student said: *"We have learned how to practically use SBAR effective communication and ever since I can easily express my perspective within a team".* (Female student, focus group 1)

Another student said: *"Interprofessional simulation activities helped me communicate in a professional manner, without making provoking the other members of the team. I feel that it is so important to communicate the right message at the right time and in the right way".* (Female student, focus group 3)

In addition, students perceived that the IPSE improved their critical thinking and problem-solving skills. one student said: *"The cases that were presented in the interprofessional simulation activities were challenging, they needed a lot of deep thinking so that we can manage the case properly".* (Male student, focus group 2)

Another student stated: *"I learned how to listen and analyze before I act. It is very important to listen and critically weigh your options before taking any decisions".* (Female student, focus group 4)

3.2.4. Patient outcomes

Patient safety, priority, and high quality of care were the codes that shaped the theme of patient outcomes. Students deemed that IPSE was able to facilitate health teams to improve patient outcomes, and deliver safe care of a high quality. One student said: *"We might be from different professions, but we speak the same language, that of patient safety. We are all focused on one goal only to make the patient better".* (Female student, focus group 1)

Another student stated: *"Learning how to manage a patient from a multidisciplinary perspective increased my information about the case itself. So, if I encounter a similar situation in the future, I will know what to do".* (Female student, focus group 3)

In addition, students found that the IPSE experience helped them to be more oriented towards evidence-based practice. One student said: *"There were certain clinical scenarios that we had to research before managing. This made us more oriented towards the best treatment for a certain patient according to the recommendations of clinical research".* (Male student, focus group 2)

Another student said: *"Considering the various points of view of multiple members in the team clarifies a lot about the case of the patient and helps us provide the patient with the best quality of safe and secure care".* (Male student, focus group 4)

4. Discussion

This study provided rich descriptions of senior nursing students' perceptions toward Interprofessional Simulation-based Education (IPSE). Because no prior research has explored the perceptions and attitudes toward IPSE among Lebanese senior nursing students, this study adds a unique perspective regarding this educational strategy.

One of the most important findings of this study was that the Lebanese senior nursing students emphasized the number of changes in their understanding of other professions' roles and responsibilities after IPSE. All nursing students expressed that IPSE increased their knowledge and understanding of the importance of the other profession's role as well as the importance of their own role in patient care. This is in line with many previous studies which revealed that after the IPSE experience, students had greater understanding of other professions' role in providing patient care (Aase et al., 2014; Costello et al., 2017; Oxelmark et al., 2017;

Roberts and Goodhand, 2017; Wang and Petrini, 2017).

Similarly, these findings are consistent with other previous studies that demonstrate that after IPSE, the clarity of a student's own professional role is enhanced (Oxelmark et al., 2017; Roberts and Goodhand, 2017; Wang and Petrini, 2017). Therefore, the findings of this study provide additional evidence that supports the implementation of IPSE into the undergraduate curriculum to transform students' understanding of the roles and responsibilities of other professions, which may contribute to an increased ability to work effectively together as a team (Barr et al., 2016; Shanahan and Lewis, 2015). These positive findings may contribute to their future success in an interprofessional team, which could lead to improved patient outcomes. Therefore, future research is needed to see how the reported benefits of IPSE training are reflected in clinical practice and related to patient outcomes.

Another important finding of this study was that students perceived that IPSE improved their personal and interpersonal skills, especially communication skills. These findings are consistent with previous studies that showed that IPES facilitated students to recognize the essential importance of effective communication (Keller et al., 2013; Wang and Petrini, 2017).

However, these findings are inconsistent with other previous studies that found no significant improvement in communicating with other professions (Bolesta and Chmil, 2014; Ohtake et al., 2013), and nursing student's hesitation to voice their concerns (Aase et al., 2016; Murray and Foster, 2000). Possibly, the consistency of this finding with some studies but inconsistency with others might be due to the fact that outcomes of IPSE are sensitive to how the learning environment is designed. IPSE requires balancing clinical professionalism (clinical exchange) and team performance (collaborative exchange) (Aase et al., 2016). For example, an emphasis on medical aspects (clinical exchange) in comparison with teamwork (collaborative exchange) might favor medical students. Therefore, educators need to design scenarios that would allow all professions to act on an equal level by balancing interprofessional collaboration and clinical exchange.

There are some limitations to this study. First, it tended to focus on the short-term (immediately post-IPSE) rather than explore the impact on clinical practice and patient outcomes. Future research is needed to see how the reported benefits of IPSE training are reflected in clinical practice and related to patient outcomes. Second, the data were collected from only one university, which limits the potential to generalize the findings. However, because the curriculum of most nursing schools in Lebanon is dominated by the same framework, the findings reflect similar issues existing in these schools. Finally, this study involved nursing students only, so we need to be cautious of generalizing the findings to other health professionals. However, the personal account of each participant provided a unique perspective regarding this educational strategy. This study was designed to describe particular individual experiences and compare them for commonalities. The results of this study are transferable, but not generalizable. A recommendation to future researchers is to involve students from other health professions. Involving more disciplines will enhance the IPE experience and ensure that the education mimics actual clinical conditions. Diversification to include all members of the healthcare team, including physicians, spiritual care members, rehabilitation specialists, and administrative staff, is important.

In terms of the implications of this study, the findings showed that the use of IPSE in undergraduate education has a benefit to the perceptions of the other professions' roles. At a time when access to clinical settings is limited and patient safety and improved patient outcomes continue to be priorities, nurses should look at utilizing IPS to facilitate teamwork and appreciation for other roles within the busy healthcare system. Nursing educators can use the information as a curriculum is built, and improve learning activities and experiences for their students. IPS offers both a foundation and experience for learning how to improve teamwork and communication. However, these positive outcomes of IPSE are sensitive to how the learning environment is designed. Therefore, educators need

to design scenarios that allow all professions to act at an equal level by balancing interprofessional collaboration and clinical exchange.

5. Conclusion

The senior nursing students showed positive perceptions and attitudes toward IPSE. They said that IPSE increased their knowledge and understanding of the importance of the other profession's role, as well as the importance of their own role in patient care. Furthermore, they perceived that IPSE improved their personal and interpersonal skills, which included confidence in clinical and communication skills, and critical thinking and problem-solving skills. These positive findings may contribute to their future success in an interprofessional team which could lead to improved patient outcomes and help to deliver safe, high quality care. Therefore, future research is needed to see how the reported benefits of IPSE training are reflected in clinical practice and related to patient outcomes.

Furthermore, participants felt that IPSE was able to facilitate clinical teamwork to improve patient outcomes. However, it involved nursing students only, so we need to be cautious of generalizing the findings to other health professionals. The personal account of each participant provided a unique perspective regarding this educational strategy. The results of this study are transferable, but not generalizable. Future research is needed to explore the perceptions and attitudes toward IPSE among other health professional students.

Declarations

Author contribution statement

Huda Anshasi, Mirna Fawaz: conceived and designed the experiments; performed the experiments; analyzed and interpreted the data; contributed reagents, materials, analysis tools or data; wrote the paper.

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The authors declare no conflict of interest.

Additional information

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References

Aase, I., Aase, K., Dieckmann, P., Arnfinn Bjørsho, C., Sætre Hansen, B., 2016. Interprofessional communication in a simulation-based team training session in healthcare: a student perspective. J. Nurs. Educ. Pract. 6 (7), 91–100.

Aase, I., Hansen, B., Aase, K., 2014. Norwegian nursing and medical students' perception of interprofessional teamwork: a qualitative study. BMC Med. Educ. 14 (170), 1–9.

Armstrong, G., Headrick, L., Madigosky, W., Ogrinc, G., 2012. Designing education to improve care. Jt. Comm. J. Qual. Patient Saf. 38 (1), 5–14.

Barr, H., Gray, R., Helme, M., Low, H., Scott, R., 2016. Interprofessional Education Guidelines. CAIPE, London,England.

Bolesta, S., Chmil, J., 2014. Interprofessional education among student health professionals using human patient simulation. Am. J. Pharmaceut. Educ. 74 (5), 1–9.

Bradshaw, C., Atkinson, S., Doody, O., 2017. Employing a qualitative description approach in health care research. Glob. Qual. Nurs. Res. 4, 1–8.

Bressler, T., Persico, L., 2016. Interprofessional education: partnerships in the educational proc. Nurse Educ. Pract. 16 (1), 144–147.

Burnard, P., Gill, P., Stewart, K., Treasure, E., Chadwick, B., 2008. Analysing and presenting qualitative data. Br. Dent. J. 204 (8), 429–432.

Costello, M., Prelack, K., Faller, J., Huddleston, J., Adly, S., Doolin, J., 2017. Student experiences of interprofessional simulation: findings from a qualitative study. J. Interprofessional Care 32 (1), 95–97.

Creswell, J., Hanson, W., Clark, V., Morales, A., 2007. Qualitative research designs: selection and implementation. Counsel. Psychol. 35 (2), 236–264.

De Vos, A., Strydom, H., Fouché, C., Delport, C., 2011. Research at Grass Roots: for the Social Sciences and Human Service Professions, fourth ed. Van Schaik Publishers, Pretoria.

Decker, S., Anderson, M., Epps, C., Motola, I., Perry, C., 2015. Standards of best practice: simulation standard VIII: simulation-enhanced interprofessional education (Sim-IPE)., 11 (6), 293=197.

Doody, O., Slevin, E., Taggart, L., 2013. Focus group interviews in nursing research: part analysis. Br. J. Nurs. 22, 266–269.

Efstathiou, N., Walker, W., 2013. Interprofessional, simulation based training in end of life care communication: a pilot study. J. Interprofessional Care 28 (1), 68–70.

Elo, S., Kyngäs, H., 2008. The qualitative content analysis process. J. Adv. Nurs. 62 (1), 107–115.

Fawaz, M., Hamdan-Mansour, A., Tassi, A., 2018. Challenges facing nursing education in the advanced healthcare environment. Int. J. Afr. Nurs. Sci. 9, 105–110.

Furseth, P., Taylor, B., Kim, S., 2016. Impact of interprofessional education among nursing and paramedic students. Nurse Educ. 41 (2), 75–79.

Gharaibeh, B., Hweidi, I., Al-Smadi, A., Montreuil, T., 2017. Attitudes and perception of baccalaureate nursing students toward educational simulation. Cogent Educ. 4 (1), 1–14.

Green, B., Johnson, C., 2015. Interprofessional collaboration in research, education, and clinical practice: working together for a better future. J. Chiropr. Educ. 29 (1), 1–10.

Hays, D., Singh, A., 2012. Qualitative Inquiry in Clinical and Educational Settings. Guilford Press, New York.

Holland, R., Verplanken, B., Van Knippenberg, A., 2002. On the nature of attitude-behavior relations: the strong guide, the weak follow. Eur. J. Soc. Psychol. 32 (6), 869–876.

Hood, K., Leech, M., Cant, R., Gilbee, A., Baulch, J., 2014. Transforming nursing education: development and evaluation of interprofessional clinical skills training for students on clinical placement. J. Nurs. Educ. Pract. 4 (8), 97–106.

Keller, K., Eggenberger, T., Belkowitz, J., Sarsekeyeva, M., Zito, A., 2013. Implementing successful interprofessional communication opportunities in health care education: a qualitative analysis. Int. J. Med. Educ. 4, 253–259.

Kinalski, D., Paula, C., Padoin, S., Neves, E., Kleinubing, R., Cortes, L., 2017. Focus group on qualitative research: experience report. Rev. Bras. Enferm. [Internet] 70 (2), 424–429.

Krueger, R., Casey, M., 2009. Focus Groups: A Practical Guide for Applied Research, sixth ed. Sage Publications, Thousand Oaks, California.

Lateef, F., 2010. Simulation-based learning: just like the real thing. J. Emergencies, Trauma, Shock 3 (4), 348–352.

Leonard, B., Shuhaibar, E., Chen, R., 2010. Nursing student perceptions of intraprofessional team education usinf high-fidlity simulation. J. Nurs. Educ. 49 (11), 628–631.

Murray, W., Foster, P., 2000. Crisis resource management among strangers: principles of organizing a multidisciplinary group for crisis resource management. J. Clin. Anesth. 12 (8), 633–638.

O'Brien, B., Harris, I., Beckman, T., Reed, D., Cook, D., 2014. Standards for reporting qualitative research: a synthesis of recommendations. Acad. Med. 89 (9), 1245–1251.

Ogilvie, S., Cragg, B., Foulds, B., 2011. Perceptions of nursing students on the process and outcomes of a simulation experience. Nurs. Educ. 36 (2), 56–58.

Ohtake, P., Lazarus, M., Schillo, R., Rosen, M., 2013. Simulation experience enhances physiotherapy student confidence in managing a patient in the critical care environment. Phys. Ther. 93, 216–228.

Oxelmark, L., Nordahl Amorøe, T., Carlzon, L., Rystedt, H., 2017. Students' understanding of teamwork and professional roles after interprofessional simulation-a qualitative analysis. Adv. Simul. 2 (8).

Polit, D., Beck, C., 2008. Nursing Research: Generating and Assessing Evidence for Nursing Practice. Lippincott Williams & Wilkins, Philadelphia.

Roberts, F., Goodhand, K., 2017. Scottish healthcare student's perceptions of an interprofessional ward simulation: an exploratory, descriptive study. Nurs. Health Sci. 20 (1), 107–115.

Schlairet, M., 2011. Simulation in an undergraduate nursing curriculum: implementation and inmpact evaulation. J. Nurs. Educ. 50 (10), 561–568.

Shanahan, C., Lewis, J., 2015. Perceptions of interprofessional clinical simulation among medical and nursing students: a pilot study. J. Interprofessional Care 29 (5), 504–506.

Soubra, L., Badr, S., Zahran, E., Aboul-Seoud, M., 2018. Effect of inter professional educationon role clarification and patient care planning by health professions students. Health Prof. Educ. 4, 317–328.

Speziale, H., Streubert, H., Carpenter, D., 2011. Qualitative Research in Nursing: Advancing the Humanistic Imperative, fifth ed. Lippincott Williams & Wilkins, Philadelphia.

Wang, J., Petrini, M., 2017. Chinese health students' perceptions of simulation-based interprofessional learning. Clin. Simul. Nurs. 13 (4), 168–175.

WHO, 2010. World Health Organization Department of Human Resources for Health . Framework for Action on Interprofessional Education and Collaborative Practice. WHO, Geneva.