

Are We Upholding Communication Standards in Nursing Education in Central Canada: Facilitating and Assessing Nursing Students' Handover Skills in the Clinical Setting?



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Abstract

Background: Even though handover reporting skills are essential to providing safe competent care, at times they may be neglected in nursing education.

Purpose: This study aimed to explore how nurse educators are facilitating the learning of a standardized handover reporting framework in clinical at a nursing program in central Canada.

Method: The qualitative study used a descriptive design with semi structured interviews. The sample consisted of nine participants.

Results: Results indicated that a standardized handover reporting framework is not being consistently implemented in clinical settings and handover reporting skills are being taught and evaluated inconsistently in clinical settings. Three essential overall themes emerged from the analysis of the data, which were:

- a) Opportunity to develop knowledge acquisition of handover reporting skills in nursing education.
- b) Multisystem matter is causing limitations to using and evaluating a standardized handover report in clinical settings, and
- c) Importance of experiential learning opportunities to implement and receive feedback on their handover reports in clinical settings.

Conclusion: The results help to shed light on some of the issues that may exist for nurse educators teaching and evaluating the nursing students to give handover reports in clinical settings, and provides approaches to address these issues.

Introduction

Communication plays a vital role in every aspect of a nurses' job [1,2]. A component of a nurse's job that relies heavily on communication is handover reports. Handover reports can be defined as the communication that occurs between two professionals [3]. It occurs when one professional communicates information about a patient's care to another professional so that they can take over the care of the patient [3,4]. There was evidence that suggested nurses are not being effectively taught how to give proper handovers in their training [4,5]. Handover reports are often undervalued, but yet handover reports have a significant role in patient care because they facilitate the continuity of patient care [3,4]. Poor handover reports have been known to lead to mistakes that have harmed patients [5,6].

Teaching handover reporting skills has been deemed an essential component of undergraduate nursing education [7,8]. Handover reports must convey information about a patient, the care provider, the plan of care, treatments, conditions, and changes [9,10]. Furthermore, handover reports must allow time for clarification of the information shared [11]. A large amount of literature suggested that implementing standardized handover frameworks for handover reports could help to address issues seen with nurses delivering inadequate handover reports [7,12,13]. Teaching a standardized framework once is likely not enough to help the students deliver effective handover reports in practice. Educators may need to foster the use of the standardized handover reporting framework consistently in clinical, and provide the students with regular feedback.

Problem

There was a lack of evidence based research around how nursing educators are implementing and evaluating handover reports in clinical settings [7,14]. One study found that beginner nurses' handover reporting skills were inadequate, and inadvertently identified that the preceptors were not even listening to the students' handover reports [14]. If nursing students are not assessed or evaluated on their handover reporting skills in clinical, then they are unable to receive the proper feedback to grow in their handover reporting skills. There was a need to explore how nurse educators were promoting and evaluating nursing students' handover reporting skills in clinical settings.

Research Questions

How are nurse educators facilitating the learning of standardized frameworks for handover reports in clinical settings?

- a) How are educators assessing nursing students to see if they are using a standardized handover reporting framework for handover reports in clinical settings?
- b) How are the nursing educators encouraging the use of a standardized handover reporting framework in clinical settings?
- c) How are nursing educators evaluating students' handover reports in clinical settings?

Significance

Exploring the above research questions could benefit nursing education and the nursing profession. Nursing education could benefit from identifying ways to improve how nurse educators promote and assess the nursing students' handover reporting skills in the clinical settings. The reason being is that it can lead to improvements in how educators promote and assess the students' use of the standardized handover reporting framework for handover reports. Improving how nurse educators are teaching and evaluating the nursing students' handover reporting can enhance the students' learning of the skill. In turn, improving nursing students' handover reporting skills can improve patient care and employer satisfaction.

Ethical approval

Ethical approval was obtained by the University of Regina Research Ethics Board and the Saskatchewan Polytechnic Research Ethics Board.

Benefit of standardized handover reporting framework

The literature suggested that implementing standardized handover reporting framework for handover reports can help address issues seen with students delivering handover reports in practice settings [13,15]. Without structured handover reporting training, nursing students are passive participants during handover reports, and they do not engage in safe

communication practices [7]. It is necessary to provide nursing students with opportunities to learn and demonstrate handover reports in a specific and structured way [12]. When students use the same standardized handover reporting framework for delivering handover reports as they move through the programs' curriculum, the depth and specificity of the student's handover report increases as they move through the program [15]. Therefore, students' handover reporting skills likely can improve if they have a consistent standardized handover reporting framework to reference.

Methodology/ Procedures

This qualitative study used a descriptive design and used semi structured interviews to collect data. Several attempts were made to recruit participants via an electronic poster, paper posters, and word of mouth. There were 9 participants who volunteered for this study. The participants were nurse educators who were teaching in a degree nursing program in central Canada. Participants in this study all taught in several different years of the four year nursing program. The participants could have had anywhere from under 12 months of teaching experience, to over 10 years of teaching experience. A research assistant obtained signed consent and conducted the semi-structured interviews, which were audio-recorded. The interviews consisted of questions relating to the participants' experience and their perceptions of how handover reporting is accomplished by students, and how their skills are evaluated by nurse educators in the clinical setting. Each interview was between 20-90 minutes. A professional transcriber was hired to transcribe the audio interview data. The primary researchers analyzed only the de-identified transcribed interview data. Codes were used to protect the participants' identity. Participants were awarded a 20 dollar honorarium for their participation in the study.

Data Analysis

Data was analyzed using a process similar to Kleiman's [16] method for analyzing interview data. Each interview was read twice from start to finish to obtain an overall impression. The interview transcripts were then divided into meaningful sections/units. Then the sections/units that were identified as having a similar focus were integrated to preliminary themes to make sense of them. Next the preliminary themes were elaborated for essential meanings/themes. Then the raw data descriptions were again revisited to confirm interpretations. A critical reflection of the final themes was done by the team. Consensus of findings among the research team was established.

Trustworthiness

Several steps were taken to help uphold the trustworthiness of the data and the results of this study. For instance, an audit trail was maintained for this study. Having an audit trail to illustrate logical data collection and analysis increases the

trustworthiness of the results [17]. Member checking was performed. Participants checked their interview transcripts for accuracy. Member checking can help to increase the trustworthiness of the findings [18]. The study required that all members of the research team reach a consensus about the study's findings. Obtaining consensus among the research team is commonly done to help increase the trustworthiness of the findings [18]. Trustworthiness was also enhanced by following Kleiman's steps for analyzing the data.

Results

Question 1: How are educators assessing nursing students to see if they are using a standardized handover reporting framework for handover reports in clinical settings? The results showed the nurse educators are inconsistently implementing and evaluating if students use the standardized handover reporting framework. Some participants stated they informally ask students if they are using the framework. A few participants admitted that they do not assess if the students' use the standardized handover reporting framework in clinical because they do not have time. A couple participants said they do not assess if the students use the handover reporting framework in clinical because the students do not give handover reports.

Question 2: How are the nursing educators encouraging the use of the standardized handover reporting framework in clinical settings? The results showed the nurse educators are inconsistently encouraging the use of the standardized handover reporting framework. A few participants stated they make the students use the standardized handover reporting framework for handover reports. One participant said they are using some post conferences to discuss and practice standardized handover reporting frameworks. While several participants admitted that they do not promote the use of the standardized handover reporting framework at all in clinical. One participant said the students do not give handover reports in their clinical setting.

Question 3: How are nursing educators evaluating students' handover reports in clinical settings? The results showed nurse educators are inconsistently evaluating the use of any standardized handover reporting framework in clinical. One participant stated they informally assess the students' use of a handover reporting framework in a post conference at the start of the term. While several participants admitted that they do not evaluate the students' handover reporting skills in clinical. Several participants said they do not have time to assess the students' handover reports. One participant said the students do not give handover reports in their clinical setting.

Three essential overall themes emerged from the analysis of the data.

- a) Opportunity to develop knowledge acquisition of handover reporting skills in nursing education,
- b) Multisystem matter is causing limitations to using and

evaluating a standardized handover reporting in clinical settings, and

- c) Importance of experiential learning opportunities to implement and receive feedback on their handover reports in clinical settings.

Opportunities for Develop Knowledge Acquisition

Based on the results, the program's current approach for teaching nursing students the necessary handover reporting skills could be improved. Results indicated that there is an opportunity to further develop students', nurse educators, and staffs' knowledge, use, and evaluation of standardized handover reporting frameworks in clinical settings. All of the participants provided varying answers on what should be included in a student's handover report. One participant felt handover reports should state "their flow of treatment", another participant thought handover reports should state "med tolerance, and complaints", while another participant believed handover reports should state the "patient perspective and discharge planning". There appears to be room to help nurse educators gain knowledge of what is required in students' handover reports so that they can consistently reinforce the requirements to students and staff in clinical.

All of the participants agreed that the nursing students' use of handover reports could be improved. Several of the participants interviewed expressed that they do not use a standardized handover reporting framework for handover reports. A participant declared "we don't use a standardized form for handovers". Another participant revealed "students say we're taught that but we don't really use it". A different participant revealed "this theory they have learned" in class "isn't being pulled through to clinica". It seems there could be some improvements made to reinforce the students' use of handover reports in clinical settings.

There is also an opportunity to improve the consistency of how nurse educators evaluate the students' use of a standardized handover reporting framework in clinical, across the program's curriculum. When discussing how nurse educators evaluate the students' use of the standardized framework for handover reporting, most of the participants said they do not evaluate the students' use of a standardized handover framework in clinical, or evaluate the students' delivery of handover reports in clinical. For example, one participant expressed "they're not giving a report of the whole day ever...unless we do it in post conference". The results showed that there is room to improve in how students' handover skills are evaluated in the practice setting.

Multisystem Matter

An analysis of the data showed that the concerns around the nursing students' implementing a standardized handover report framework for delivering handover reports in clinical

was a multisystem matter involving nurse educators, staff on the units, and students. There was more to the issue than simply nurse educators needing to improve how they taught students the handover reporting skills. The issue involved the nurse educators' staff's and students' attitude towards using the standardized handover framework. There was mention that staff, students, and nurse educators did not follow a format, or order for handover reporting. One participant confessed handover reports are "not always a priority in clinical skills". Another participant expressed "It's a format to start but forever, I think it dumbs down the profession". A participant shared "staffs do not use any kind of standardized format". Another participant suspected that since the nurses on that unit are not using the format for handover reports "students do not use the standardized framework for handover reports in clinical either". Most of the participants said that nurse educators and staff are not encouraging students to use a standardized framework for handover reports in clinical.

Furthermore, adding to the matter was the placement and structure of the students' clinical. The hours that students were in clinical may not always promote the best practice of handover reporting. Some participants said they are not giving handover reports in clinical because they are not on the unit during the end of shift report. The clinical placement may play a role in promoting the use of a standardized handover report. One participant claimed "I don't know that they're always used in community or mental health" clinical. A separate participant disclosed they do not use a standardized handover framework because of the quick pace of the unit, and they went on to say that "within my department in emerge we do give each other reports but they're horrendous".

Importance of Experiential Learning Opportunities

The study's findings also implied that in order to cultivate the students' competence with handover reporting in clinical, students must be able to consistently perform handover skills in clinical, and across the program's curriculum. Participants expressed that simply learning the theory of how to deliver a handover report in class, or practicing how to deliver a handover report once, is not enough to foster competence in handover reporting. Findings showed participants believe students would benefit from the program using the same standardized handover reporting framework for delivering handover reports in every clinical area, throughout the program. One participant asserted that the framework should be "standardized all throughout the program...otherwise people might not do it". As one participant reflected, they said they now see "how important that would be to have the opportunity to practice giving and receiving reports" in different clinical settings.

Recommendations

a) Provide the nurse educators with sessions or handouts to increase their knowledge of how, and why the

handover reporting theory is integrated into the program's curriculum, to increase buy-in about the importance of using a standardized handover framework. As providing the nurse educators with this knowledge can assist them to inform the nurses on the units and it can help to address the inconsistencies seen with implementing and evaluating the nursing students' handover skills in clinical settings.

b) Ensure students are given time to practice handover reporting skills before entering clinical settings. Implement different teaching techniques so that students can practice handover skills on more than one occasion.

c) Ensure students are being given ample opportunities to practice their application of the standardized handover frameworks in various clinical settings. Educators may need more training on how to create opportunities for the students to practice their handover skills at some clinical sites.

Discussion

Nurse educators have the duty of teaching nursing students the necessary communication skills for practice. Handover reporting skills have been regarded as an essential nursing skill that should be taught in undergraduate nursing education [7,8]. It is recommended that effective communication skills need to be taught to students before they enter the clinical setting [19], such as handover reporting. Similar to Horwitz et al. [14] study, the results of this study revealed that participants recognized that handover reporting skills are in dispensable to nursing; however, handover reporting skills are being overlooked. Nursing programs should ensure they promote the importance of effectively teaching and evaluating the nursing students' handover reports in the clinical settings among the nurse educators. If nurse educators do not buy-in into the importance of standardized handover reporting skills, students likely will not either.

One of the reasons that handover skills are overlooked in nursing education appears to be that nurse educators may not be familiar with how the theory is integrated in the program's curriculum. The results of this study showed that there was a lack of clarity on when, and how, the nursing students were taught the handover reporting skills in the nursing program's curriculum. Similar, Yu & Kang [12] also found in their study that there was uncertainty about the utilization of standardized handover reporting frameworks within the nursing program. Nursing programs may want to improve the nurse educators' knowledge of their programs' nursing curriculum. Nurse educator's competencies require that they have knowledge of their nursing program's curriculum, and that they are able to articulate the nursing program's curriculum [20]. Providing nurse educators with the knowledge of when, and how, handover reports are taught in the program may help to improve the reinforcement of the skills in the different clinical settings

throughout the program.

Providing nurse educators with this knowledge may also help to address inconsistencies with implementing and evaluating the nursing students' handover skills in clinical settings. This study revealed that nurse educators and students are not consistently implementing and evaluating handover reporting skills in clinical. Creating consistency in how the handover skills are implemented and evaluated is imperative, because it can help to enhance the nursing students' handover skills in practice [15]. Having consistency in how skills are taught across the program's curriculum can have a positive impact on the students' learning outcomes [21]. No matter what standardized handover reporting framework is chosen to be taught to the students for handover reports, it is the consistent use of the standardized handover reporting framework that is central to successfully building the skills [15].

In order for students to consistently implement a handover reporting framework in various clinical settings, it appears there might be a need for nurse educators to provide students with more guidance in tailoring the standardized handover reporting framework to the clinical area's needs. Students need to gain competence with the application of communication in different areas of nursing [22], such as handover reporting skills. Yu & Kang [12] also suggested that the handover format needs to be tailored specifically for each specific nursing group. A unit's preferences for handover reports can be adapted within a standardized handover reporting frameworks [15]. It looks as if nurse educators may need some training on how to help students to use a standardized handover reporting framework in various clinical settings. Findings in this study showed that nurse educators were unaware they can apply the standardized handover reporting framework to multiple clinical settings. Once the nurse educators are trained to help students apply the standardized handover reporting framework to their unit's needs, the nurse educators can assist the students to do the same. Helping students to use the standardized handover reporting framework to the units' needs can assist the students to build confidence and better prepare the students' for staff expectations [15].

More preparation could be done to facilitate students to learn how to give handover reports before they enter the clinical settings. This study revealed that despite learning the theory in class, some students are not prepared to give handover reports in clinical settings. Learning communication skills requires more than just learning theories in class [23]. In order to learn effective communication skills, nursing students must engage in the learning process, and be able to build the necessary communication skills during their clinical practicums [24]. Some nursing schools use simulation [25], and some use role play [23], to improve students' communication skills before facing the situations in the clinical settings. Quail et al. [25] found students reported significantly higher communication knowledge, skill,

and confidence after completing a conversational interaction with someone else, regardless of whether the conversation was with a standardised patient in simulation, or with a virtual patient. Dawood [26] found role play helped the nursing students to integrate the theory in practice, as well as helped them to feel less anxious about facing the situation in real life nursing care. Teaching students the theory of handover reports, and allowing them to role play giving handover reports before entering into the clinical setting, may help strengthen the students' application of the skills in the clinical settings.

On top of students being able to practice delivering handover reports before entering the clinical setting, it is vital that they are actually practicing their skills in the different clinical settings. Yu & Kang [12] found that it is imperative that nursing students receive education on handover reporting as a part of their practical training. Several of the participants in this study admitted that their students are not practicing handover skills in their clinical settings for various reasons. Some participants said their clinical areas don't give handover reports, and some said students are not on the floor when handover reports occur. As with any clinical nursing skill, it is important for nurse educators to seek out opportunities for the students to perform the skills in the clinical settings. At any clinical placement site, nursing students, and nurses should be giving some type of handover report on the unit/agency when they go for breaks, transfer a patient, and when they leave work for the day [27]. Providing nurse educators and nursing students with more training on when, and why, handover reports are used may assist to ensure the students practice their handover communication appropriately in the different clinical settings.

Future Research

Since this study only used a small sample and was conducted at only one institution, more research is needed before generalizing the findings to other nursing educational institutions. In order to address some of the findings in this study, the plan is to further explore if nursing staff on the units see the importance of using standardized handover reports in clinical settings. In addition, more research is needed to further explore if the nursing students see the importance of using standardized handover reports in clinical settings. It is important to explore these findings in an effort to uncover all the factors which may be affecting the nursing students' ability to give effective handover reports in the clinical settings so they can be properly addressed.

Limitations

There were some limitations to this study. One being that the study did not collect detailed demographic information. Researchers routinely collect demographic data to describe the sample of people, or organizations, in their studies to assess if it represents the population [28]. Collecting more details about the demographic information of our sample would have enhanced the analysis of the sample representing the population. Another

limitation to this study was the fact that the participants who volunteered for the study were all from the same campus sites location. In addition, the study had a small sample size. Having a small sample and having participants from only on location can affect the results' generalizability [29-33]. More research is needed before generalizing the results to all nursing nurse educators.

Conclusion

It is imperative that nursing students practice handover reporting skills in their undergraduate nursing programs in the clinical settings. This study explored how nurse educators from a nursing program in central Canada are facilitating the use of standardized handover reporting frameworks for handover reports in the clinical settings. It aimed to identify obstacles and helpful techniques for educating nursing students on handover reporting skills in clinical settings. Based on this study's results, improvements can be made to how nursing students are taught to give handover skills in the clinical settings. One being that there are opportunities to develop the nurse educators' students' and nursing staffs' knowledge and skills on handover reporting. To enhance nursing students' handover skills it is important to utilize an experiential learning approach so that students can put their skills to practice on a regular basis. Although more research is needed, the study's findings can help to shed light on, and offer techniques to address, some of the issues that can exist with regards to nurse educators teaching nursing students handover skills in the clinical settings. Improving the education of nursing student's handover reporting skills can in turn aid in increasing patient safety, patient satisfaction, and employer satisfaction.

References

1. Boykins AD (2014) Core Communication Competencies in Patient Centered Care. *ABNF J* 25(2): 40-45.
2. Warnock C (2014) Breaking bad news: issues relating to nursing practic. *Nurs Stand* 28(45): 51-58.
3. Brown J, Sims S (2014) Nursing clinical handover in neonatal care. *Contemp Nurse* 49(1): 50-59.
4. Scovell S (2010) Role of the nurse-to-nurse handover in patient care. *Nurs Stand* 24(20): 35-39.
5. Manias E, Geddes F, Watson B, Jones D, Della P (2016) Perspectives of clinical handover processes: a multi-site survey across different health professionals. *J Clin Nurs* 25(1-2): 80-91.
6. The Joint Commission (2011) Sentinel event data root causes by event type 2004-third quarter 2011.
7. Avallone MA, Weideman YL (2015) Evaluation of a nursing handoff educational bundle to improve nursing student handoff communications: A pilot study. *Journal of Nursing Education and Practice* 5(8): 65-75.
8. Barnsteiner J (2011) Teaching the Culture of Safety. *Online J Issues Nurs* 16(3): 5.
9. Lyerla F, Barry M (2014) Documenting and Reporting. In: Potter P, et al. (Eds.), *Canadian Fundamentals of Nursing*. (5th Edn), Elsevier, Mosby, Toronto, Canada, pp: 202-227.
10. World Health Organization (2011) Patient Safety Curriculum Guide: Multi-professional. WHO, Geneva, Switzerland.
11. National Clinical Guideline Committee (2014) Communication (Clinical Handover) in Maternity Services: National Clinical Guideline No.5. Department of Health, Hawkins House, Dublin, Ireland.
12. Yu M, Kang KJ (2015) SBAR Report Competency and Communication Clarity of Handover in Korean Nursing Students. *International Journal of Bio-Science and Bio-Technology* 7(6): 189-200.
13. Kostiuk S (2015) Can Learning the ISBARR Standardized framework help to address students' anxiety and confidence levels associated with handover reports. *J Nurs Educ* 54(10): 583-587.
14. Horwitz LI, Dombroski J, Murphy TE, Farnan JM, Johnson JK, et al. (2013) Validation of a handoff assessment standardized framework: the Handoff CEX. *J Clin Nurs* 22(9-10): 1477-1486.
15. Gore A, Leasure AR, Carithers C, Miller B (2015) Integrating hand-off communication into undergraduate nursing clinical courses. *Journal of Nursing Education and Practice* 5(4): 70-76.
16. Kleiman S (2004) Phenomenology: to wonder and search for meanings. *Nurse Res* 11(4): 7-19.
17. Zohrabi M (2013) Mixed Method Research: Instruments, Validity, Reliability and Reporting Findings. *Theory and Practice in Language Studies* 3(2): 254-262.
18. Koelsch LE (2013) Reconceptualizing the Member Check Interview. *International Journal of Qualitative Methods* 12(1): 168-179.
19. Jamshidi N, Molazem Z, Sharif F, Torabizadeh C, Kalyani MN (2016) The Challenges of Nursing Students in the Clinical Learning Environment: A Qualitative Study. *The Scientific World Journal* 2016: 7.
20. World Health Organization (2016) Nurse Educator Core Competencies. World Health Organization, Geneva, Switzerland.
21. Hunter Revell SM, McCurry MK (2013) Effective pedagogies for teaching math to nursing students: A literature review. *Nurse Educ Today* 33(11): 1352-1356.
22. Wikström BM, Svidén, G (2011) Exploring communication skills training in undergraduate nurse education by means of a curriculum. *Nursing Reports* 1(1): e7-e7.
23. Noohi E, Abaszadeh A, Maddah SS (2013) University engagement and collaborative learning in nursing students of Kerman University of Medical Sciences. *Iran J Nurs Midwifery Res* 18(6): 505-513.
24. Leonga CSU (2015) Active learning improves nursing student clinical performance in an academic institution in Macao. *Chinese Nursing Research* 2-3: 35-39.
25. Quail M, Brundage SB, Spitalnick J, Allen PJ, Beilby J (2016) Student self-reported communication skills, knowledge and confidence across standardised patient, virtual and traditional clinical learning environments. *BMC Med Educ* 16: 73.
26. Dawood E (2013) Nursing Students' Perspective about Role – Play as a Teaching Strategy in Psychiatric Nursing. *Journal of Education and Practice* 4(4).
27. Truman M (2015) Nursing clinical handover.
28. Connelly LM (2013) Demographic data in research studies. *Medsurg Nurs* 22(4): 269-270.
29. Compton J, Copeland K, Flanders S, Cassity C, Spetman M, et al. (2012) Implementing SBAR across a large multihospital health system. *The Joint Commission Journal on Quality and Patient Safety* 38(6): 261-268.
30. Edwards R, Holland J (2013) What is qualitative interviewing?: Bloomsbury Academic, New York, NY, USA.

31. Enlow M, Shanks L, Guhde J, Perkins M (2010) Incorporating interprofessional communication skills (ISBARR) into an undergraduate nursing curriculum. *Nurse Educ* 35(4): 176-180.
32. Finnigan MA, Marshall SD, Flanagan BT (2010) ISBAR for Clear Communication: One Hospital's Experience Spreading the Message. *Aust Health Rev* 34(4): 400-404.
33. Kesten KS (2011) Role-play using SBAR technique to improve observed communication skills in senior nursing students. *J Nurs Educ* 50(2): 79-87.



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