Received: 16 December 2019 | Revised: 1 April 2020 | Accepted: 18 May 2020

DOI: 10.1002/nop2.537

RESEARCH ARTICLE

NursingOpen Open Access WILEY

Effects of a stepwise handovers ISBARQ programme among nursing college students

Yoon Goo Noh | Insook Lee

Department of Nursing, Changwon National University, Changwon, Korea

Correspondence
Insook Lee, Department of Nursing, Changwon National University, C.P.O. Box 51140, Changwon, Korea.
Emails: dobest75@changwon.ac.kr; dobest75@gmail.com

Abstract

Background: Due to a lack of standardized guidelines, it is necessary to verify the effectiveness of educational programmes for nursing students' systematic handover training.

Aims: This study aimed to develop a stepwise nursing handover programme and to examine its effects on awareness of handover Situation, Background, Assessment, Recommendation, communication self-efficacy and satisfaction with handover education.

Design: This was a single-group repeated measures ANOVA study.

Methods: This study was conducted in a nursing department, using a convenience sample of 25 senior nursing students from April 2 to June 22, 2018. The programme was divided into lectures, scenario role-playing and nursing case role-playing. The research questions were analysed using repeated measures ANOVA.

Results: Awareness of handover Situation, Background, Assessment, Recommendation, communication self-efficacy and satisfaction with handover education gradually increased after each step of the programme. The stepwise nursing handover programme, progressing from low to high levels of learning, can be used to improve the nursing handover system and handover communication ability.

KEYWORDS

assessment, communication, nurses, nursing handover, situation, stepwise, student

1 | INTRODUCTION

Nursing handover, a communicative activity through which shift nurses exchange information about patient care and nursing work (Sarvestani et al., 2017), has a decisive impact on nursing efficiency and patient safety (Weingart et al., 2013). Additionally, continuity of nursing care can be achieved through information exchange through effective nursing handover (Effkena et al., 2011).

Newly hired nurses receive non-standardized handover training and the resulting lack of handover experience causes nursing handover failures, which reduce work efficiency, increase working hours and increase fatigue (Weingart et al., 2013). Additionally, inappropriate nursing handover may compromise the efficiency of nursing care because of negligence, delay and duplication of work, thereby posing a serious risk to the nursing care recipients (Park & Lee, 2016). On the other hand, high-quality handover positively affects patient safety and nursing care quality (Anderson, Malone, Shanahan, & Manning, 2015) because it improves patients' pain management and provides remedies for clinical problems while saving time spent searching for omitted information (Lillibridge, Botti,

Wood, & Redley, 2017); it can help prevent nursing care mistakes, increase job satisfaction and reduce medication administration errors (Effkena et al., 2011). Having recognized handover's importance, the Joint Commission in the United States set effective handover communication as one of the National Patient Safety Goals in 2007 (Manser & Foster, 2011). Despite the significant impact of handover on nursing care, nurses have never received systematic training in it (Manser & Foster, 2011) and there have been no standardized guidelines or checklists for effective nursing handover in Korea (Kim et al., 2014). Therefore, there is a need for a standardized handover training to ensure continuity of nursing care and patients' safety.

During the last decade, the call for interventions to improve handover has increased to reduce the risk of miscommunication, misunderstandings and the omission of important information in nursing practice; however, insufficient evidence exists to support conclusions that nursing handover style assures continuity of nursing care information in hospitalized patients (Smeulers, Lucas, & Vermeulen, 2014). Therefore, handover training is required to ensure continuity of patient care and patient safety and the handover style requires further investigation (Smeulers et al., 2014).

Typically, nursing handover education has been provided by unofficial learning from senior nurses or observational learning from one's peer group and nurses have rarely received handover training through formal education or documented standards and guidelines (Kim et al., 2013; Lee, Mast, Humbert, Bagnardi, & Richards, 2016). A structured education programme on handover must be provided for nurses. The fact that nursing students experience higher confidence in handover when using a simulation and structured handover technique indicates the need to facilitate the students' handover competency (Malone, Anderson, & Manning, 2016). Therefore, it is necessary to incorporate structured handover education into the nursing curriculum.

For effective communication in nursing practice, a standardized Situation, Background, Assessment, Recommendation (SBAR) communication method was proposed by the nursing community (Marshall, Harrison, & Flanagan, 2009; Thomas, Bertram, & Johnson, 2009) and the Korea Institute for Healthcare Accreditation also requires regulations to be established to facilitate accurate communication between healthcare professionals for patient safety (Korea Institute for Health Accreditation, 2014), which aims to provide nursing students with standardized communication education (Noh & Lee, 2018).

Recently, shift handover has been rigorously studied for nurses, medical students and physicians (Thompson et al., 2011). To this end, postanaesthetic observations were performed on handover between anaesthetists and recovery room nurses during patient transfer to calculate the Patient Intensity for Nursing Index, which is sensitive to the quality of handover (Lillibridge et al., 2017) and nursing handover protocols were also developed (Cho et al., 2016). A paediatric nurses' handover programme was found to be time-saving and cost-effective, leading to higher nurse satisfaction (Sarvestani et al., 2017). The current terminology being used to teach the handoff process to pre-licensure nurses is used as Introductions, Situation, Background, Assessment, Recommendation and Questions (ISBARQ). The ISBARQ was created to address communication gaps during handover report, and the ISBARQ checklist was associated with improvement in content information of handover and increased the provider's satisfaction (Funk et al., 2016). In nursing education, despite some studies on the observational experience of nursing students with handover during clinical training (Giske, Melås, & Einarsen, 2018) and on handover education for nursing students (Lee et al., 2016), there is still insufficient research on handovers. So, we developed the handover programme using ISBARQ elements.

According to Bloom's Revised Taxonomy, low-level learning is simple understanding, while high-level learning improves one's skills in analysis, application and creativity. This study divided learning into three levels (low to high) and developed a three-step education programme for nursing handover communication of lecture, scenario-based role-playing and nursing case-based role-playing. The programme aimed to familiarize students with the handover ISBARQ system and the various handover cases through step-by-step training to transition from a low to a high level. Also, this study examined whether a handover programme using ISBARQ improves nursing students' communication self-efficacy. Communication self-efficacy refers to self-assurance regarding how successfully one can communicate with others (Ayres, 2005). As communication self-efficacy is important for promoting communication ability (Holahan & Holahan, 1987), increasing students' communication self-efficacy is critical.

1.1 | Research objectives

This study aimed to examine the effects of each step of a nursing handover programme using ISBARQ on awareness of handover SBAR, communication self-efficacy and satisfaction with stepwise handover education.

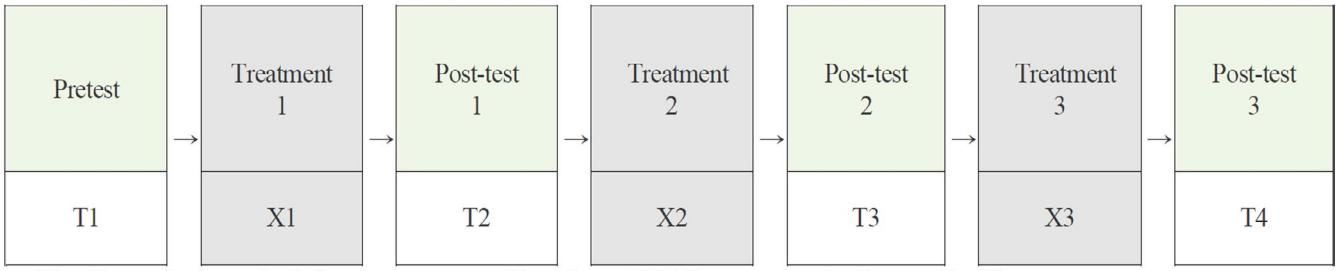
2 | METHODS

2.1 | Design

This study developed a stepwise nursing handover education programme for nursing students; the programme comprised lectures, scenario-based role-playing and nursing case-based role-playing, based on the theoretical framework of Bloom's revised taxonomy. The study used a single-group, quasi-experimental design with repeated measure ANOVA to test its effectiveness (Figure 1).

2.2 | Participants

Twenty-five senior nursing students from a college in C city, South Korea, participated. The criteria for participating were willingness to



T1: General characteristics, awareness of handover SBAR, communication self-efficacy
X1: Lecture education for handover ISBARQ
T2: Awareness of handover SBAR, communication self-efficacy, satisfaction with handover education
X2: ISBARQ Roleplay based on the scenario
T3: Awareness of handover SBAR, communication self-efficacy, satisfaction with handover education
X3: ISBARQ Roleplay based on the nursing case
T4: Awareness of handover SBAR, communication self-efficacy, satisfaction with handover education

ISBARQ: introduction, situation, background, assessment, and recommendation, questions

FIGURE 1 Research design

participate, understanding the research objective and process and providing informed consent for participation. To calculate the number of research participants, G*Power 3.1.9.2 program was used with a medium effect size (dz) of 0.25 in the F-distribution, power (1−β) of 0.80 in repeated measures ANOVA, a significance level (α) of 0.05 and a total of four within-subject factors. The resulting sample size was 24.

Repeated measures ANOVA employed in this study for impact evaluations is a powerful analytical tool for reducing error variance and increasing power, thereby supporting research results with a relatively small number of participants (Lee, Jung, Kim, Song, & Hwang, 2008); previous studies recruited roughly 15–30 participants (Noh & Lee, 2018). Since this study was conducted as part of curriculum, all senior nursing students, 25 in total, were sampled, without regard for participants' dropout rates.

2.3 | Measures

2.3.1 | Awareness of handover SBAR

SBAR knowledge and technique, proposed by Wang, Liang, Blazeck, and Greene (2015) and translated into Korean by Noh and Lee (2018), were partially modified for this study. In this study, "SBAR knowledge and technique" is referred to as "awareness of handover SBAR," and the sub-category items were also modified by adding "handover." This tool comprises four question items regarding handover SBAR competency and eight items regarding awareness of use of handover SBAR, each of which uses a 5-point Likert scale, where higher scores indicate higher levels of awareness of handover SBAR. In Noh and Lee's (2018) study, Cronbach's α ranged from 0.60–0.89, while Cronbach's α for awareness of handover SBAR in this study was 0.808 at the pre-test, 0.868 at post-test 1, 0.852 at post-test 2 and 0.888 at post-test 3.

2.3.2 | Communication self-efficacy

Communication self-efficacy, developed by Ayres (2005) and used by Noh and Lee (2018) for nursing students, was used in this study. This tool evaluates nursing students' confidence in their own ability to organize and execute behaviour necessary for intended communication. Ten total questions were scored on a 7-point scale; higher scores indicate higher levels of communication self-efficacy. Noh and Lee (2018) reported Cronbach's α for this tool ranging from 0.90–0.96. Cronbach's α in this study was 0.947 at the pre-test, 0.958 at post-test 1, 0.961 at post-test 2 and 0.966 at post-test 3.

2.3.3 | Satisfaction with handover education

In this study, the 10-point NRS (Numeric Rating Scale) with a single question was used to evaluate overall satisfaction with handover education. Higher scores indicate higher levels of satisfaction.

2.4 | Development of stepwise nursing handover education programme using ISBARQ

The nursing handover ISBARQ education programme was jointly developed by two nursing professors based on selected parts of handover protocols and elements of ISBARQ, previous studies of ISBARQ and clinical training nursing cases. The curriculum consisted of two-hour lectures on handovers, weekly 2-hour scenario role-plays in Weeks 2 and 3 and weekly two-hour nursing case-based role-plays in Weeks 5 and 6, for 10 hr altogether (Table 1). Based on Bloom's Revised Taxonomy (Krathwohl, 2002), a stepwise handover ISBARQ education programme was designed to include lectures as a learning stage of remembering and understanding, scenario role-play as a learning stage of applying

and analysing and nursing case role-play as a learning stage of evaluating and creating, which represents higher-order thinking. Students were grouped into training teams of two to three.

The professor assessed the learning outcomes of effective communication practice applying the ISBARQ in each step of the learning process. The students described the patient's situation according to the ISBARQ elements in the role-play using scenarios and the role-play using nursing case. Afterwards, the peers assessed whether they were well informed about the ISBARQ elements and would take handover and had a process of revising the results of the assessment while discussing them.

2.4.1 | Handover lectures

Lectures on handovers contained the handover communication protocols, handover necessity, the relationship between patient safety and communication, understanding of ISBARQ and the introduction of handover scenarios.

2.4.2 | Nursing handover scenario development

Nursing issues frequently addressed in clinical training and thus suitable for scenario development represented handover scenarios in this study. The scenarios included an episode of hypoglycaemia in the early morning during a postoperative period after total joint replacement surgery, an episode of respiratory distress in a chronic obstructive pulmonary disease inpatient, an episode of a patient on the second postoperative day after subtotal gastrectomy complaining of changes in discharge patterns and dizziness and an episode of a surgical patient with acute cholecystitis complaining of fever and pain. The scenarios were based on what students had already learned and were thus familiar enough to fully understand. The handover protocols for student role-plays were established based on the handover communication protocols (Jeoung & Bak, 2015) at the beginning and end of handover and students were instructed to follow the protocols. According to these protocols, students should use respectful language and behaviour, maintain a kind and friendly attitude, use honorific titles, exchange considerate, encouraging, warm-hearted greetings at the beginning of handover, check for any questions and provide answers during handover and thank each other at the end of handover.

Based on the ISBARQ elements, post-role-play debriefing questions included “What are the important symptoms in the patient situation?” (Situation), “What is the patient background in relation to diagnosis and treatment and medication prescribed?” (Background), “How do you assess the patient's key symptoms?” (Assessment) and “What do patients need?” (Request/Recommendation).

2.4.3 | Scenario role-playing

Week 2 and 3 sessions were held during simulation-based training, wherein nursing students role-played handover scenarios for two hours. A table containing information on the elements of ISBARQ and relevant descriptions was provided for the students' understanding. After analysing two scenarios, students filled in the blanks with information on the ISBARQ elements to complete the table. Next, a student

TABLE 1 Contents of stepwise handover ISBARQ education programme

Session	Bloom's Revised Taxonomy Stage	Contents	Education	
			Time (min)	Method
Lecture education				
1st week	Remembering Understanding	The importance of communication in nursing	30	Lecture
		The need for handover communication	30	
		Introduction to handover elements	30	
		Understand handover ISBARQ communication scenarios	30	
Role-play based on the scenario				
2nd 4th weeks	Applying Analysing	Understanding scenario	30	Discussion and presentation
		Applying four handover ISBARQ elements	30	
		ISBARQ role-playing based on the scenario	30	Role-playing
		Role-playing debriefing	30	Debriefing
Role-play based on the nursing case				
3rd 5th weeks	Evaluation Creating	Understanding nursing case	40	Discussion and presentation
		Applying four handover ISBARQ elements	20	
		ISBARQ role-play based on the nursing case	30	Role-playing
		Role-play debriefing	30	Debriefing

Abbreviation: ISBARQ: introduction, situation, background, assessment, and recommendation, questions.

handing over a patient's care and another student taking it over exchanged words of comfort and encouragement before starting a handover, according to handover protocols. Students role-played handovers based on the ISBARQ elements and then thanked each other, sharing encouraging words. When a patient is handed over, the handover student asked the takeover student if there were any questions. If not, the handover student started working on the next patient. The students ran a debriefing session after performing a role-play. In the post-role-play debriefing, students shared their experience and opinions on the situation, background, assessment and recommendations of the handovers. During the third week, students analysed another two scenarios and performed a scenario role-play, followed by a post-role-play debriefing.

2.4.4 | Nursing case role-playing

Week 4 and 5 education sessions were provided for two weeks during clinical training. Students made weekly presentations about nursing cases they encountered in clinical practicums and applied the ISBARQ elements to them. Like simulation-based role-play, a table of ISBARQ elements and its descriptions was provided for students' understanding. Grouped into teams, students prepared three nursing cases on handovers and completed relevant information pertaining to the ISBARQ elements. Handover and takeover students greeted each other warmly before handover, in accordance with the protocols and started handovers based on the situation, background, assessment and recommendation while answering any questions. At the end of handover, they shared words of encouragement and thanked each other to complete the process, which was followed by a debriefing session. In the fifth week, the students performed another round of role-plays with different cases.

2.5 | Research progress and data collection methods

2.5.1 | Ethical considerations

This study was conducted with C University Institutional Review Board (IRB) approval for exemption from review (IRB No. 1040271-201803-HR-007). For participants' ethical considerations, the researcher and research associate visited nursing students in their lecture room or conference room during break time, before data collection, to describe the research objectives and inform the students that any results would be used only for research purposes, non-participation would not lead to any disadvantage or discrimination, participants may refuse to participate in the research voluntarily at any time and participants' confidentiality would be guaranteed, all of which were provided in writing. Participants provided written informed consent before completing the study questionnaire.

2.5.2 | Instructor-led training

Education sessions were led by one instructor (a full-time nursing faculty member assigned to clinical practicum courses), including two weeks of simulation training and two weeks of clinical training. The instructor and researcher organized the scenario role-plays and the nursing case role-plays for handovers and discussed the six-session curriculum to ensure educational consistency.

2.5.3 | Data collection process

This study ran from 2 April–22 June 2018 and comprised one pre-test and three post-tests: the first post-test after lecture-based education; the second after scenario role-play; and the third after the case-based role-play. The detailed process was as follows:

1. Pre-test: performed before program implementation. A research assistant explained research objectives and methods to students, obtained informed consent for voluntary participation and surveyed the students by means of a structured questionnaire about awareness of handover SBAR, communication self-efficacy and student satisfaction with handover education.
2. Three post-tests: the post-tests were the same structured questionnaire to students regarding awareness of handover SBAR, communication self-efficacy and student satisfaction with handover education. They were administered as outlined above

2.6 | Data analysis

Primary data were analysed using SPSS/WIN 25.0:

1. Descriptive statistical analysis determined participants' general characteristics, their awareness of handover SBAR, communication self-efficacy and satisfaction with handover education.
2. For normality testing of the dependent variables, the Shapiro–Wilk test and skewness were used for pre-test scores. Shapiro-Wilk test results showed that normality was met for the pre-test scores ($p > .05$) and the resulting skewness, ranging from −2 to + 2, also satisfied normality. Hence, we performed a parametric statistical analysis. Furthermore, Mauchly's sphericity test examined homoscedasticity, which was met for all variables, except for communication self-efficacy ($p \geq .05$)
3. Repeated measures ANOVA verified the effects of the proposed education programme on the dependent variables at different points of time during the proposed programme and Bonferroni correction was used for pairwise comparisons between the time points.

3 | RESULTS

3.1 | General characteristics of participants

Study participants were mostly female students (92.0%), with a mean (*SD*) age of 21.56 (*SD* 0.92). The percentages of nursing

students satisfied with their major and with the clinical practicum were 72.0% and 60.0%, respectively. Altogether, 96.0% of participants responded positively to the need for handover education (Table 2).

3.2 | Effects of stepwise handover communication education

Descriptive statistics for awareness of handover SBAR, communication self-efficacy and satisfaction with education and the results of repeated measure ANOVA are shown in Table 3.

3.2.1 | Awareness of handover SBAR

There were significant differences in time-specific awareness of handover SBAR between different timepoints ($F = 39.25$, $p < .001$): compared with pre-test, scores were significantly higher after lectures; and after scenario-based and nursing case-based role-plays, scores were significantly higher than both pre-test and post-test 1. No significant difference was found between scenario-based and nursing case-based role-plays.

Handover SBAR competencies were significantly different between different timepoints ($F = 42.43$, $p < .001$): compared with pre-test, scores were significantly higher after lectures; after scenario and nursing case role-plays, scores were significantly higher than both pre-test and after lectures. No significant difference was observed between scenario and nursing case role-plays. Furthermore, there were significant differences in awareness of use of handover SBAR between different timepoints ($F = 15.80$, $p < .001$): compared with the pre-test, scores were significantly higher after lectures; after scenario and nursing case role-plays, scores were significantly higher than both pre-test and after lectures.

3.2.2 | Communication self-efficacy

Communication self-efficacy showed significant differences between different time points ($F = 8.053$, $p = .001$): scores were significantly higher after scenario and nursing case role-plays than at pre-test and after lectures.

3.2.3 | Satisfaction with education

Satisfaction with handover ISBARQ education showed significant differences between different time points ($F = 10.06$, $p < .001$): scores were significantly higher after scenario and nursing case role-plays than after lectures.

TABLE 2 General characteristics of subjects ($N = 25$)

Variables	Categories	*N* (%)	Mean ± *SD*
Gender	Male	2 (8.0)	
	Female	23 (92.0)	
Age (years)	≤21	14 (56.0)	21.56 ± 0.92
	≥22	11 (44.0)	
Personality	Introverted	14 (56.0)	
	Extroverted	11 (44.0)	
Satisfaction with nursing	Dissatisfaction	7 (28.0)	
	Satisfaction	18 (72.0)	
Satisfaction with practicum	Dissatisfaction	10 (40.0)	
	Satisfaction	15 (60.0)	
Necessity of handover communication education	Not necessary	1 (4.0)	
	Necessary	24 (96.0)	

4 | DISCUSSION

This study was conducted to determine the effects of stepwise handover ISBARQ education on awareness of handover SBAR, communication self-efficacy and satisfaction with handover education among nursing students and to serve as a basis for future nursing education where nurses can be empowered to effectively improve their handover competence.

Participants' awareness of handover SBAR increased after the informative lectures, compared with before the programme and increased further after scenario and nursing case role-plays. In other words, the stepwise handover education allowed students to improve their SBAR knowledge and techniques. It can also be concluded that the handover education based on scenario and nursing cases from clinical practicums raised awareness of handover SBAR more than lectures. Nursing students' SBAR knowledge and technique increased step-by-step during stepwise communication education (Noh & Lee, 2018; Wang et al., 2015), which seems to support the effects of the programme proposed in this study.

Nurses should identify changes in a patient's condition, based on logical reasoning and judgments, for accurate transfer of patient information to other nurses who take over the nursing care responsibility. In this regard, nursing students were invited to find key nursing issues for themselves from scenario and nursing case role-plays and to practice handovers with the next nurse on shift, because such a handover process often goes beyond a simple stage of remembering or understanding. And also, nursing students were taught about the process of identifying nursing issues via scenario analysis in relation to the patient situation, assessing any significant clues associated with nursing issues and recommending further arrangements. Moreover, students practiced handovers based on nursing cases they encountered during practicums. According to Bloom's Revised

TABLE 3 Change in awareness of handover SBAR, communication self-efficacy and satisfaction with handover education by time (N = 25)

Variables (Range)	Baseline[a] Mean ± *SD*	Post-test 1[b] Mean ± *SD*	Post-test 2[c] Mean ± *SD*	Post-test 3[d] Mean ± *SD*	F^1 (*p*)	Bonferroni
Awareness of handover SBAR (1–5)	3.06 ± 0.41	3.27 ± 0.52	3.69 ± 0.40	3.80 ± 0.51	39.252 (<0.001)	a < b < c, d
Utilization of handover SBAR (1–5)	3.50 ± 0.43	3.57 ± 0.53	3.86 ± 0.45	3.92 ± 0.52	15.801 (<0.001)	a < b < c, d
Competency of handover SBAR (1–5)	2.17 ± 0.64	2.66 ± 0.74	3.30 ± 0.65	3.57 ± 0.71	42.429 (<0.001)	a < b < c, d
Communication self-efficacy (1–7)	4.93 ± 0.79	4.95 ± 0.92	5.62 ± 0.85	5.79 ± 0.91	8.051[2] (0.001)	a, b < c, d
Satisfaction with handover education (1–10)	—	5.50 ± 2.25	7.19 ± 1.55	6.98 ± 1.57	10.059 (<0.001)	b < c, d

Note: Post-test 1: After lectures for handover ISBARQ communication.

Post-test 2: After ISBARQ role-plays based on the scenario.

Post-test 3: After ISBARQ role-plays based on the nursing case.

Abbreviation: ISBARQ: introduction, situation, background, assessment, and recommendation, questions.

[1]Analysed by repeated measures ANOVA

[2]Wilk's Lambda test statistics was used because Mauchly's sphericity condition was not met.

Taxonomy, a stepwise approach to education helps learners develop competencies in analysing, evaluating and creating, beyond the simple stages of remembering and understanding (Krautscheid, 2008). Therefore, this stepwise curriculum can be considered consistent with the stages of Bloom's Revised Taxonomy: applying, analysing, evaluating and creating.

Scenario-based education using SBAR in nursing provides a logical order, thereby improving communication skills (Noh & Lee, 2018; Thomas et al., 2009). The development of clinical handover structure and content for nursing students should be based on qualitative research and the accurate transfer of critical information is required to enhance clarity and understanding of handovers (Giske et al., 2018). With the education programme using the ISBAR handover tool for healthcare providers, overall improvement in communication was achieved, along with enhanced handover structure and consistency, self-confidence in handover and patient care and safety (Thompson et al., 2011). Moreover, a literature review on nursing handover strongly suggested that a structured tool be used because of a variety of handover mnemonic systems in use that provide learners with memory structures (Anderson et al., 2015). Similarly, the handover content organized and learned in this study was also based on the ISBARQ elements to improve handover knowledge and technique among nursing students, which suggests the need to introduce a structured system in handover education.

Previous studies showed that nursing students' communication skills were improved after lectures combined with role-playing than after a simple lecture programme (Kesten, 2011; Noh & Lee, 2018). Furthermore, communication skills, self-confidence and ability to organize information in a prompt and concise manner were enhanced among students who performed role-plays based on nursing cases (Thomas et al., 2009). This indicates that scenario-based and nursing case-based role-plays serve as significant instructional approaches for nursing students who arrange communication between health professionals.

Meanwhile, increased awareness of handover SBAR was observed after lecture education than before ISBARQ education, as well as after scenario-based and nursing case-based role-plays compared with after lecture education. Such awareness increased after scenario role-plays compared with before SBAR education (Wang et al., 2015). This result suggests that awareness of SBAR may vary depending on the stages of education but it can be promoted by different instructional methods. This study showed that students' awareness of handover SBAR increased with the stages of education, which suggests the need for a stepwise approach in communication education.

In this study, 2 hr of education based on scenario and nursing case role-plays were provided for 2 weeks on a weekly basis and the participants were invited to analyze two scenarios and two nursing cases, respectively, for each type of role-play and apply the results to the ISBARQ elements before role-playing. It can be concluded that the scenarios and nursing cases with different content allowed students to understand different patient situations, become familiar with the ISBARQ elements and have self-confidence in handover while role-playing. Repeated practice in handover increased student performance (Lee et al., 2016) and the participants also appeared to be more confident in handover as they became familiar with the handover system through repeated practice. Meanwhile, because insufficient research has been conducted on stepwise handover education for nursing students, further research is needed to examine awareness of handover SBAR.

Lectures did not improve communication self-efficacy in handover, but scenario and nursing case role-plays successfully improved communication self-efficacy. Training programmes, team-based learning and role-plays designed to improve communication skills of nursing students (Bong, 2013; Jeong & Seo, 2017; Noh & Lee, 2018) had a positive effect on communication self-efficacy, all of which, therefore, support the results of this study. A standardized

communication system helps students feel more confident and less anxious about handover reporting (Kostiuk, 2015). Furthermore, repeated practice increases student performance and self-efficacy in handover (Lee et al., 2016) and participating in handover, equipped with structured handover techniques, has been reported to increase students' self-confidence (Malone et al., 2016). Enhanced self-efficacy allowed the participants in this study to develop confidence in handover. Students expressed less fear of handover as they practiced and became familiar with structured ISBARQ handover procedures and their successful practice resulted in higher handover self-efficacy. The scenario and nursing case role-plays in this study allowed students to practice the ISBARQ system and handover and are expected to serve as an approach to handover education for nursing students.

Finally, higher levels of student satisfaction with handover education were observed in the scenario and nursing case role-plays than in the lectures. Higher levels of student satisfaction with case-based role-play than with passive lecture-based education indicate that student participatory education should be considered when choosing instructional methods for handover education. Handover ISBARQ protocols can be viewed as handover etiquette. It has been reported that nurses' attitudes are important in handover (Giske et al., 2018) and that nurses' emotional expression would lead to more effective transfer of handover information (Lee, Cumin, Devcich, & Boyd, 2015).

In this study, students learned nursing handover at multiple levels. Students took over the instructional lectures for understanding and analysed the scenarios according to the ISBARQ system and lastly, applied their own nursing case to the ISBARQ system to nursing handover. This programme allowed students to experience various cases according to the recurring ISBARQ system. It is thought that this stepwise ISBARQ education programme raised their confidence and satisfaction in handover communication because the students repeatedly experienced the nursing handover system and handover cases.

This study is meaningful as a newly attempted study that identifies the effects of the ISBARQ system with nursing students as part of the curriculum. Students experienced caring communication through the nursing handover norms and gained confidence in their communication in nursing practice through the standardized communication experience with ISBARQ. Furthermore, using familiar scenarios and nursing cases to practice nursing handover has the effect of repetitive learning and can further help with critical analyses of a patient's situation.

Communication education may vary from school to school and the communication system applied for nursing handover education may also vary, so the generalizability of this study is limited. In addition, this study examined nursing handover education programme effects in a single group without a control group, because there were not enough students.

5 | CONCLUSION

A nursing handover programme using ISBARQ improved nursing students' awareness of handover SBAR, communication self-efficacy and satisfaction with handover education after each step of instructional lectures (Step 1), scenario-based role-playing (Step 2) and nursing case-based role-playing (Step 3). Although instructional lectures improved awareness of handover SBAR, communication self-efficacy and satisfaction with handover education only increased after scenario and nursing case-based role-playing. This demonstrates that nursing handover education for students is more effective than lectures, as students' gain experience through role-playing. It is also meaningful to apply norms that should be followed during handover, as well as the content of nursing handover ISBARQ. We suggest conducting a pre-test - post-test control group experimental design to confirm the effectiveness of the nursing handover programme in further research. In addition, we propose a further study that develops scenarios for handover education and tests the standardized nursing handover system by various situations.

6 | RELEVANCE FOR CLINICAL PRACTICE

This study is meaningful in that Bloom's revised taxonomy was applied to a nursing handover programme and then the effect of each step was confirmed by proceeding from low-level to high-level learning. It is also meaningful to apply norms that should be followed during handover, as well as the content of nursing handover ISBARQ. Standardized handover training will prevent common nursing failures in handover, such as negligence, delay and duplication of work and increase nurse's confidence, better patient etiquette and improve patient care.

ACKNOWLEDGEMENTS

We would like to thank the nursing student who participated in this research, the IRB who approved the research, and the Editage Company who edited the English.

CONFLICT OF INTEREST

No conflict of interest has been declared by the author(s).

AUTHOR CONTRIBUTION

Yoon Goo Noh: Study design and Manuscript writing. Yoon Goo Noh and Insook Lee: Data collection. Insook Lee: Data analysis.

ORCID

Yoon Goo Noh https://orcid.org/0000-0002-1319-2983
Insook Lee https://orcid.org/0000-0001-6090-7999

REFERENCES

Anderson, J., Malone, L., Shanahan, K., & Manning, J. (2015). Nursing bedside clinical handover–an integrated review of issues and tools. *Journal of Clinical Nursing*, *24*(5–6), 662–671. https://doi.org/10.1111/jocn.12706

Ayres, H. W. (2005). *Factors related to motivation to learn and motivation to transfer learning in a nursing population* (Unpublished doctoral dissertation). Raleigh, NC: North Carolina State University.

Bong, E. J. (2013). Effect of interpersonal relationships and communication curriculum were utilized group activities on interpersonal relationships and communication self-efficacy among nursing student. *Journal of Korea Contents Association*, *13*(10), 394–402. https://doi.org/10.5392/JKCA.2013.13.10.394

Cho, Y. S., Kwon, S. J., Yun, M. Y., Lee, M. H., An, S. H., & Kong, Y. J. (2016). Development and evaluation of a nursing handoff protocol for intensive care units. *Journal of Korean Critical Care Nursing*, *9*(2), 1–12.

Effkena, J. A., Carley, K. M., Gepharta, S., Verran, J. A., Bianchi, D., Reminga, J., & Brewer, B. B. (2011). Using ORA to explore the relationship of nursing unit communication to patient safety and quality outcomes. *International Journal of Medical Informatics*, *80*(7), 507–511. https://doi.org/10.1016/j.ijmedinf.2011.03.015

Funk, E., Taicher, B., Thompson, J., Iannello, K., Morgan, B., & Hawks, S. (2016). Structured handover in the pediatric postanesthesia care unit. *Journal of PeriAnesthesia Nursing*, *31*(1), 63–72. https://doi.org/10.1016/j.jopan.2014.07.015

Giske, T., Melås, S. N., & Einarsen, K. A. (2018). The art of oral handovers: A participant observational study by undergraduate students in a hospital setting. *Journal of Clinical Nursing*, *27*(5–6), e767–e775. https://doi.org/10.1111/jocn.14177

Holahan, C. K., & Holahan, C. J. (1987). Life stress, hassles and self-efficacy in aging: A replication and extension. *Journal of Applied Social Psychology*, *17*(6), 574–592. https://doi.org/10.1111/j.1559-1816.1987.tb00331.x

Jeong, C. Y., & Seo, Y. S. (2017). Effect of the convergence communication training program for communication self efficacy, communicative competence and interpersonal relations of nursing students. *Journal of Digital Convergence*, *15*(5), 271–280.

Jeoung, Y. O., & Bak, Y. I. (2015). Communicative norms for the effective communication in nursing handover. *Textlinguistics*, *38*, 121–143.

Kesten, K. S. (2011). Role-play using SBAR technique to improve observed communication skills in senior nursing students. *Journal of Nursing Education*, *50*(2), 79–87. https://doi.org/10.3928/01484834-20101230-02

Kim, E. M., Yu, M., Lee, H. Y., Ko, J. W., Cho, E. Y., & Kim, E. S. (2014). Development of nursing handoff practice guideline and standards for Korean hospital. *Journal of Korean Clinical Nursing Research*, *20*(1), 1–14.

Kim, S. H., Kim, E. M., Choi, Y. K., Lee, H. Y., Park, M. M., Cho, E. Y., & Kim, E. S. (2013). An exploration about current nursing handover practice in Korean hospitals. *Journal of Korean Clinical Nursing Research*, *19*(2), 181–194.

Korea Institute for Health Accreditation (2014). *Standard investigation for approval accreditation in critical health institute (ver.2.1.)*. Retrieved from http://www.koiha.kr/member/kr/board/establish/establish_BoardView.do

Kostiuk, S. (2015). Can learning the ISBARR framework help to address nursing students' perceived anxiety and confidence levels associated with handover reports? *Journal of Nursing Education*, *54*(10), 583–587. https://doi.org/10.3928/01484834-20150916-07

Krathwohl, D. R. (2002). A revision of Bloom's taxonomy: An overview. *Theory into Practice*, *41*(4), 212–218. https://doi.org/10.1207/s15430421tip4104_2

Krautscheid, L. C. (2008). Improving communication among healthcare providers: Preparing student nurses for practice. *International Journal of Nursing Education Scholarship*, *5*(1), 1–13. https://doi.org/10.2202/1548-923x.1647

Lee, E. H., Jung, Y. H., Kim, J. S., Song, R. Y., & Hwang, G. U. (2008). *Statistical methods for health care research*. Seoul, Korea: Koonja

Lee, H., Cumin, D., Devcich, D. A., & Boyd, M. (2015). Expressing concern and writing it down: An experimental study investigating transfer of information at nursing handover. *Journal of Advanced Nursing*, *71*(1), 160–168. https://doi.org/10.1111/jan.12484

Lee, J., Mast, M., Humbert, J., Bagnardi, M., & Richards, S. (2016). Teaching handoff communication to nursing students: A teaching intervention and lessons learned. *Nurse Educator*, *41*(4), 189–193. https://doi.org/10.1097/NNE.0000000000000249

Lillibridge, N., Botti, M., Wood, B., & Redley, B. (2017). An observational study of patient care outcomes sensitive to handover quality in the post-anaesthetic care unit. *Journal of Clinical Nursing*, *26*(23–24), 4786–4794. https://doi.org/10.1111/jocn.13833

Malone, L., Anderson, J., & Manning, J. (2016). Student participation in clinical handover–an integrative review. *Journal of Clinical Nursing*, *25*(5–6), 575–582. https://doi.org/10.1111/jocn.13081

Manser, T., & Foster, S. (2011). Effective handover communication: An overview of research and improvement efforts. *Best Practice & Research Clinical Anaesthesiology*, *25*(2), 181–191. https://doi.org/10.1016/j.bpa.2011.02.006

Marshall, S., Harrison, J., & Flanagan, B. (2009). The teaching of a structured tool improves the clarity and content of interprofessional clinical communication. *Quality and Safety in Health Care*, *18*(2), 137–140. https://doi.org/10.1136/qshc.2007.025247

Noh, Y. G., & Lee, I. (2018). Effect of stepwise communication education program using SBAR among nursing students: Focusing on scenarios and nursing case-based role playing. *Journal of Korean Academic Society of Nursing Education*, *24*(2), 115–126. https://doi.org/10.5977/jkasne.2018.24.2.115

Park, S. H., & Lee, T. W. (2016). Predicting patient safety behaviors of nurses in inter-hospital transfer. *Journal of Korean Academy of Nursing Administration*, *22*(3), 230–238. https://doi.org/10.11111/jkana.2016.22.3.230

Sarvestani, R. S., Moattari, M., Nasrabadi, A. N., Momennasab, M., Yektatalab, S., & Jafari, A. (2017). Empowering nurses through action research for developing a new nursing handover program in a pediatric ward in Iran. *Action Research*, *15*(2), 214–235. https://doi.org/10.1177/1476750316636667

Smeulers, M., Lucas, C., & Vermeulen, H. (2014). Effectiveness of different nursing handover styles for ensuring continuity of information in hospitalized patients. *Cochrane Database of Systematic Reviews*, *6*, CD009979. https://doi.org/10.1002/14651858.CD009979.pub2

Thomas, C. M., Bertram, E., & Johnson, D. (2009). The SBAR communication technique: Teaching nursing students professional communication skills. *Nurse Educator*, *34*(4), 176–180. https://doi.org/10.1097/NNE.0b013e3181aaba54

Thompson, J. E., Collett, L. W., Langbart, M. J., Purcell, N. J., Boyd, S. M., Yuminaga, Y., … McCormack, A. (2011). Using the ISBAR handover tool in junior medical officer handover: A study in an Australian tertiary hospital. *Postgraduate Medical Journal*, *87*(1027), 340–344. https://doi.org/10.1136/pgmj.2010.105569

Wang, W., Liang, Z., Blazeck, A., & Greene, B. (2015). Improving Chinese nursing students' communication skills by utilizing video-stimulated recall and role-play case scenarios to introduce them to the SBAR technique. *Nurse Education Today*, *35*(7), 881–887. https://doi.org/10.1016/j.nedt.2015.02.010

Weingart, C., Herstich, T., Baker, P., Garrett, M. L., Bird, M., Billock, J., … Bigham, M. T. (2013). Making good better: Implementing a standardized handoff in pediatric transport. *Air Medical Journal*, *32*(1), 40–46. https://doi.org/10.1016/j.amj.2012.06.005

How to cite this article: Noh YG, Lee I. Effects of a stepwise handovers ISBARQ programme among nursing college students. *Nursing Open*. 2020;7:1551–1559. https://doi.org/10.1002/nop2.537