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THE IMPACT OF THE PEER-TRAINING WORKSHOP ON NURSES' PERCEIVED CONFIDENCE IN PERFORMING A VENOUS ULCER PROPOSED PROTOCOL

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ABSTRACT

Introduction: Venous ulcer (VU) is the most common cause of skin integrity problems in the lower extremities. Knowledge and skills are equally important in managing VU. Objectives: To evaluate whether the peer-training workshop impacted the nurses' perceived confidence level in performing a venous ulcer (VU) proposed protocol. Materials and Methods: A convenience sample of 60- bedside registered nurses (RN) in an acute care hospital setting participated in a peer-training workshop which was provided by the outpatient wound care team. The acute care nurses were administered the Confidence-Scale (C-Scale) as a pretest and the demographic questionnaires prior to the peer-training workshop. The same group of nurses was administered the C-Scale as a posttest one week after the workshop. A paired-sample t- test was performed to evaluate the change in confidence level after the peer-training intervention. Results: There was a statistically significant improvement in confidence scores after the intervention for a total of five questions on the C-Scale. The theoretical framework for VU management peer-training workshop was based on the Constructivist theory that supported the impact of peer- to -peer training model. Conclusions: Globally, the result of this project can be presented to the international nursing institutions or hospitals for the model of peer-training crossing the countries. Peer-training workshop wound care outpatient-inpatient would be a model of training and VU management topic would be the target of educational intervention.

Keywords: Venous ulcer; Peer-training workshop; Proposed venous ulcer protocol; Self-confidence; Constructivists theory.

I. INTRODUCTION

Venous ulcer (VU) is the most common cause of skin integrity problems in the lower extremities. This type of wound accounts for 70%-90% of all leg ulcers [1]. Venous insufficiency condition or venous hypertensive stasis is the primary cause of VU. VUs are varied in size. They can be round or punched out, have irregular edges, and have moderate to large exudation. VU wound beds are usually friable, congested, and purple appearing granulation tissue. VU treatment modalities include local skin integrity repair and systemic venous return promotion [2], [3]. Compression therapy promotes venous blood return but requires an adequate arterial circulation. Knowledge and skills are equally important in managing VU.

Many wound care centers are built to meet the needs of wound and VU management. However, hospitalized patients might have a chronic wound that needs to be taken care of while they are treated for other medical conditions [4]. Bedside nurses sometimes struggled with VU management due to lack of training, lack of confidence, and lack of a practice guideline [3]. The gap in VU knowledge and clinical practice in the acute care setting affected the nurses' confidence that impacted the consistency of patient care delivery [5], [6].

Transforming the evidence-based practices (EBPs) into bedside care delivery is one of the outcomes that educational leaders should consider to increase patient quality of care, and to maintaining safety and consistency in healthcare services [7]. The challenge for nurse educators is preparing well-trained nurses to deliver the care safely and consistently [8]. Academically, nurses learn through the curriculum, skilled-building programs, and practicums. Clinically, nurses improve their skills and knowledge through continuing education. Nurses also learn from their colleagues' coaching, feedback, and experiences [9]. In both academic settings and healthcare facility settings, education plays a crucial role in the professional development of nurses. This study aimed to evaluate whether a peer-training workshop in performing a VU proposed protocol in an acute care setting impacted bedside care nurses' perceived self-confidence.

This prospective, quantitative, descriptive project studied nurses' perceived self-confidence in performing a VU proposed protocol in an acute care setting by comparing their perceived confidence scores before and after a peer-training workshop. The research question for this study was *whether a VU peer-training workshop impacted the perceived confidence levels of nurses in performing the VU proposed protocol at bedside care*? The PICOT format is as follows:

Population: The research population was the bedside RNs in the acute care setting including Med-Surg, Med-Tele, TSON, TCU, and ICU units.

Intervention: This project was a two- hour peer-training workshop in VU management.

Comparison: The data analysis was compare the nurses' perceived confidence scores before and after a peer-training workshop.

Outcomes: The proposed outcome is the change in nurses' perceived confidence score.

Time: The project was conducted for four months from May 2019 to September 2019. The interventional date was on June 6, 2019.

Hypothesis Testing (2-tailed): If a peer-training workshop changes bedside care nurses' perceived confidence level in performing the VU protocol, then the C-Scale posttest's score was different from the C-Scale pretest score.

Null hypothesis: There was no statistically significant change in the C-Scale's score of acute care bedside nurses after attending the peer-training workshop.

Alternate hypothesis: There was a statistically significant change in the C-Scale's score of acute care bedside nurses after attending the peer-training workshop.

II. MATERIALS AND METHODS

2.1. Setting and sample

The study sample was bedside RNs in a 147- bed hospital in Northern California including Medical-Surgical (Med-Surg) unit, Medical-Telemetry (Med-Tele) unit, Transitional Care Unit (TCU), Intensive Care Unit (ICU) and Trauma Surgical/ Ortho/Neuro (TSON) Unit. The accessible population of these RNs was about 75. The G* Power was used to identify the sampling size (Appendix 1). Using the two-tailed test with a large effect size of .08 power of 80%, and alpha of .05 indicates that a total sample of 57 participants was needed to achieve statistical power. Sixty subjects (n) were the appropriate number to have because the statistical power number is 57, and the accessible population is 75 (N).

2.2. Intervention and Theoretical framework

The intervention was a two-hour VU protocol peer-training workshop. The lesson plan included a handout of the VU protocol, a didactic PowerPoint presentation on the VU disease process and management, a peer-to-peer hands-on practice, and a discussion session. This intervention was provided by the wound care center team. The theoretical framework for the study of a peer-training workshop was based on the constructivist theory. The constructivist theory has multiple roots in psychology, philosophy, sociology, and educational approaches including Vygotsky in the 1930s, Piaget in the 1960s, and Bruner in the 2000s [10]. The constructivist theory proposes that learning occurs when the individual can integrate new knowledge with the knowledge that the individual already possesses. This theory explains, "How we learn by actively and consciously bringing our past experiences and understanding into a collaborative exercise" [11]. A peer-training workshop attempted to trigger the participants inquiring about their knowledge and skill, inspire them for the action, and assist them in reflecting their confidence in daily bedside practice. The nurse's perceived confidence level was measured and compared before and after this workshop (Appendix 2).

2.3. Instrumentation

The Confidence-Scale or C-Scale [12] was used to measure the confidence level for the pretest and posttest survey of this project. Initially, this scale was developed for use in measuring any psychomotor skill and was tested for the reliability and validity in the ability to measure confidence levels of nursing students associated with performing head-to-toe physical assessments. However, the C-Scale can be utilized with any nursing skill, type of patient or setting. The scale also has been used in other researches. The instrument consists of five statements that are answered using a Likert-type scale rating from one (not at all certain, I have much hesitation, not at all [confident], not at all [satisfied with my performance]) to five (absolutely certain for all steps, absolutely no hesitation, [confident]

for absolutely all of it, absolutely satisfied with all of it) [12]. Demographic questions were used to study the population's characteristics. The demographic questions included (1) the years of nursing practice, (2) highest level of nursing education, and (3) work setting. Demographic data such as frequencies of education level, year (s) of nursing practice, and current working setting could present the general characteristics of the sampling population. These questions provided the foundation of the sampling population. The differences of this foundation could be a trigger for future studies of the same VU management topic at this research site.

2.4. Method

A paper-pencil method was used to collect the demographic questionnaires, the pretest and posttest of the C-Scale [12]. Demographic questions were collected one time only along with the pretest. The C-Scale was used for pretest, which was collected right before the training; and for the posttest, which was collected one week after the training. The data was transferred to the Excel spreadsheet and put into the IBM Statistical Package for Social Sciences (SPSS) version 24 platform for analysis [13]. Utilizing the proxy is one of the ways to keep the participant's anonymity [14]. The proxy sent the project announcement email and the posttest reminder email. The RNs signed up for the study with the proxy at the wound care center a week before the intervention date. All RNs are welcome to join the workshop. However, only the consenting RNs took the survey questions. The participants created their individual test code numbers: The four digits of your mother's birthday without the year and the two letters of your mother's initial in the uppercase letters. All envelopes for the consent and survey documentation were labeled, sealed, and dated. The proxy signed on the sealed tag when all documents were placed inside each envelope.

2.5. Data analysis method

A *paired-sample t-test* was used to compare the mean score for the same group of people (bedside RNs in an acute care setting) on two different occasions (before and after intervention). The total score was compared for statistical significance between the two sets (a) *Time 1* for before the intervention and (b) *Time 2* for after the intervention. The assumptions for this paired *t*-test were tested for the normal distribution and the interval level. Sets of statistics were reported on the mean, standard deviation and standard error for total score T1 and T2 of the C-Scale instrument. If the data were skewed or non-normally distributed, the non-parametric Wilcoxon Signed Ranks Test could be used to analyze the data. This non-parametric test could be utilized when assumptions were not met [13]. The analysis could include reporting the median values to determine if the results were significant to support or reject the null hypothesis. The significance level was set at 95% or a $p < 0.05$. The demographic data of this project have analyzed the frequency for each variable such as "year of nursing practice," "highest nursing education level" and "current working setting." The year (s) of nursing practice's result identified the need for training VU's protocol to the target RN groups. The level of education's result indicated the future ongoing training needs for different levels of nursing education. The primary work setting's result could help educators having an effective training plan for the identified units.

III. RESULTS

Of the 75 RNs (*N*=75) in the ICU, TCU, TSON, Med-Tele, and Med-Surg units of the research hospital setting, 60 RNs signed the consent and 60 RNs (*n*=60) participated in the study. Sixty participants responded to the demographic questions. Sixty participants responded to the pretest. Sixty participants responded to the posttest. Therefore, the response rate was 100% which is considered acceptable for face-to-face surveys.

Demography

This project did not analyze the relationship between the demographic data and the C-Scale result. However, the summary of demographic data supported the following studies, plan of education, and the target population for future researchers. The frequency distribution of demographic variables (Table 1*)* showed that the majority of the subjects had five to 10 years of nursing practice (58.3%), had a BSN as their highest nursing education (51.7%), and worked at the intermittent care area (51.7%). These populations would be the priority targets for the research hospital's educational plan. The summary of the sample and characteristics of the demographic results indicated that intermittent care units included all levels of highest nursing education and all ranges of the years of experiences. On the other hand, ICU did not have any nurses with ADN degree and Med-Surg unit does not have PhD/DNP nurses. Therefore, intermittent care units would be the first population to focus for future VU management education at this research hospital.

Table 1. Frequency distribution of demographic variables of all participants.

	n	%
Year of Practice		
< 5	16	26.7
5-10	35	58.3
>10	9	15.0
Highest Nursing Education		
ADN	8	13.3
BSN	31	51.7
MSN	19	31.7
DNP/PhD	2	3.30
Work Setting		
ICU	7	11.7
Intermittent Care	31	51.7
Med-Surg	22	36.6

Confidence Scale (C-Scale) Questionnaire Data

Descriptive statistics were analyzed and reflected the overall mean of participant responses on the C-Scale pretest and posttest questions as presented in Table 2. The total score ranged from nine to 17 for pretest (ToQScT1) with mean score 11.8 (*SD*=11.8) and from 14 to 23 for posttest (ToQScT2) of *n*= 60 for each total score in the range of total score from 5 (lowest score of the confidence) to 25 (highest score of the confidence) in the 5-Likert-scale of the C-Scale. The statistics of five statements or questions of the C-Scale statements or questions were displaced and described in detail as the following:

Table 2. Total score five questions of pretest (ToQScT1) and posttest (ToQScT2) statistics.

	n	*Mean Statistic*	*Std. Deviation*	*Skewness*		*Kurtosis*	
				Statistic	*Std. Error*	*Statistic*	*Std. Error*
ToQScT1	60	11.9	2.08	.78	.31	-.19	.61
ToQScT2	60	19.1	2.01	-.23	.31	-.23	.31

Assumptions

Five major assumptions underline the paired-sample *t*-test: level of measurement, paired observations, independent observations, homogeneity of variance, and normal distribution for different scores [13], [15]. The first assumption is the level of measurement. The C-Scale data predictor variables were analyzed using the ordinal scale. The participants responded from level one, referring to little or no confidence, to a level five, referring to great confidence; therefore, the level of measurement assumption was met. Second, the assumption of paired observations was met by performing the participants' C-Scale pretest scores and posttest scores on total all questions. Third, the assumption of independent observation was met when each response is not affected by any other participant's response on both pretest and posttest, as well as other interventions with the same topic and teaching lesson [15]. The participants answered the C-Scale questionnaire independently. The hard copy of the questions was collected right after the test time was done and before the intervention started. There was no other wound care or VU care event that occurred at the research hospital during a week of data collection time frame. The posttest paper was given to the participants and collected individually by the proxy. Next, the assumption of homogeneity of variance was met for the C-Scale measurement pretest and posttest. There was no missing data for both *Time 1* and *Time 2*. The pretest and posttest groups consisted of the same population and the same number of participants. Finally, the assumption of normal distribution was met. Komogorov-Smirnov significant value was .015 and the Shapino-Wilk significant value was .085 which indicates normality. The assumption of normality was met; therefore, the parametric test was an appropriate test to utilize.

Paired Sample t-Test

There was a statistically significant increase in C-Scale score from Time 1 (M=11.9, SD=2.08) to time 2 (M=19.1, SD= 2.01), t (59) = 24.7, p<0.001 (two-tailed). The mean increase in C-Scale score was 7.23 with a 95% confidence interval ranging from 6.65 to 7.82. The eta squared statistic (.91) indicated a large effect size [13]. The result of this study showed the significance of change with the conduct of *paired sample t-test*. Therefore, the alternate hypothesis with a statistically significant change was the conclusion of this DNP project's statistics. The null hypothesis was rejected.

IV. DISCUSSION

VU Management Education for RNs in the Acute Care Settings

Of the 60 subjects, the participants responded 100% for both pretest and posttest. This high rate of participation was related to the small size of the study and the resulting high levels of interests and cooperation. Of the participants, the majority had five to 10 years of nursing practice, BSN as the highest nursing education, and intermittent care area as current work settings. The descriptive results of the demographic data supported the literature review: VU is a chronic condition that can be seen in the acute care setting and bedside RNs need more updated training to provide consistent care for this patient

population [16], [17],[18]. Provide continuing education to bedside RNs in acute care settings would be essential to fill the gap between theory and clinical practice. The result of this project may contribute to the wound care improvement program at the research hospital to increase the consistent care for the VU population.

Nurses' Perceived Confidence

Overall, the paired *t* test results demonstrated the statistically significant improvement of perceived confidence score after the intervention. Statistically, there were significant improvements in the total score and each of five questions of the C-Scale by *paired t test* analysis with $p<.0001$. This project's results reflected the impact of having a VU protocol and peer-training workshop in acute care settings. Nurses' confidence also brings benefits to the patients, increases nursing autonomy, and promotes the growth of the organization. Improving the quality of care by having an effective teaching program would be one of the goals for the educators to achieve.

Constructivist Conceptual Framework

The constructivist framework explains that people learn from the knowledge that they already have and the interaction with new materials and experts (Appendix 1) [10], [11]. Nurses already have their basic existing knowledge and experiences. Therefore, providing the updated information and new tools by interaction with new materials and people would trigger the nurses' learning in applying the new knowledge into clinical practice. The learning process would be more effective when learners are able to practice, ask questions, and reflect on their learning by the action. The outpatient wound care clinic and inpatient bedside peer-training model was a great example.

Limitation and recommendation

Future studies with random sampling design and relationships between demographic data were recommended. Limitations in sample size, a lack of randomization, and the absence of a control group limit the application of this project toward building the standardized education for bedside nurses. There was, however, a statistically significant result in the paired tests that provided meaningful data for supporting the peer-training method as an effective teaching strategy to fill out the gap between theory and clinical practice. Creating a standard of continuing education for bedside nurses would bring more benefits to the nurses and the hospital nurse educators as well as the students and faculty [19].

V. CONCLUSION

Results from this project can be used to support the wound care program at the research hospital in processing the VU proposed protocol and wound care education program. Peer-training workshop wound care outpatient-inpatient would be a model of training. VU management topic would be the target of an educational intervention for the intermittent care units as the first class and would be applied for the other units. Results of this project also can be used to support the teaching partnership between the hospital settings and the academic institutions: peer-training between faculty and preceptors as well as pre-licensed nursing students and beside nurses. In addition, the results of this project can be used to train the bedside nurses on specialty nursing practice such as dialysis or oncology. Globally, the result of this project can be presented to the international nursing institutions or hospitals for the model of peer-training crossing the countries.

Conflict of Interest: The authors declare that they have no conflict of interest.

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IMPROVING PATIENT OUTCOMES IN POST-ACUTE

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ABSTRACT

Introduction: *Historically post-acute after hours is managed by providers agreeing to take calls or assigned to a provider or part of the work description. Providers may not like taking calls after hours or call may start at the end of an already long working day. Not having designated providers may contribute to why more patients are sent to the emergency room in the middle of the night than during the day or delay in appropriate therapy.* **Methods:** *Our groups aim was to decrease the number of patients sent to the emergency room and improve the time between the first antibiotic was given and symptoms started while avoiding an increase in clostridium difficile. The method in how after-hours call was managed was changed. Instead of the providers in the practice taking turns being on call after hours, two designated providers took call as part of the pilot program. The designated providers' on-call had access to the patient chart and did consecutive nights to provide continuity in care. The post-acute care facilities spanned over a 120-mile radius.* **Results:** *Patients sent to the emergency room during after-hours from the post-acute averaged two patients per week with an average patient load of 2600 patients. There were no post-op readmissions within 30 days during the pilot period. First dose of antibiotics was given within the shift after blood and urine was collected and sent. Establishing partnership with after-hours radiology and vascular access supported the process. There was no incidence of clostridium difficile.* **Conclusion:** *Having dedicated providers for managing after-hours call can improve patient outcomes in post-acute care.*

Keywords: Post-acute, antibiotics, emergency room.

I. INTRODUCTION:

The quality of care in post-acute care is at risk related to access to providers [1]. In post-acute care access to medical care providers is limited compared to acute care [1], [2]. The structure of post-acute care does not have in house overnight coverage for acute changes or escalation of chronic illness. Historically post-acute after hours' clinical concerns is managed by on-call providers [1], [2], [3]. These providers either agree to take the call or the provider understands taking rotating calls is part of the work description [3]. The provider may not be familiar with the patient panel, the facility or the staff taking care of the patient. Compounding the issue of lack of familiarity is providers may not appreciate being on-call or call may start at the end of an already long working day [3]. Provider fatigue, lack of familiarity and lack of continuity are variables that impact the quality of patient outcomes [1], [2], [3]. Not having designated providers may contribute to why more patients are sent to the emergency room in the middle of the night than during the day or delay in appropriate therapy.