ORIGINAL ARTICLE

Exploring the effects of break nurses on nursing staff burnout

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ABSTRACT

Objective: Previous studies had found that rest breaks can not only prevent or improve negative reactions to stress in healthcare staff, but also reduce turnover in understaff conditions, improve work performance, and ultimately improve patient outcomes. As a result, many inpatient units had implemented a nursing position called a Break Nurse, whose sole purpose was to provide rest breaks. However, the implementation of a Break Nurse and its effectiveness was not reported in literature. Therefore, this quality improvement QI project proposed to implement Break Nurses on an acute care unit of impatient setting and investigate its effectiveness on nursing staff.

Methods: The selected unit previously utilizing a Break-Buddy model for securing rest breaks was able to start a two 8-hour shift Break Nurse model. The hypothesis is that the Two-Break-Nurse model, when compared with the Break-Buddy model, will better secure rest breaks, reduce burnout symptoms experienced by nursing staff. The validated tool used to measure burnout is the Maslach Burnout Inventory. The study utilized pre- and post-implementation self-report survey statistical analysis to report outcomes.

Results: In the end, 14 individuals had responded to both pre- and post-implementation surveys. The results show that there was statistically significant improvement of Emotional Exhaustion. Due to the small sample size, the measurement of Depersonalization and Personal Accomplishment did not show statistically significant improvement.

Conclusions: The Two-Break-Nurse model is effective at reducing emotional exhaustion for nursing staff. Further studies are needed to measure in a larger scale the effectiveness of break nurse model on other aspects of burnout and the improvement of clinical outcomes.

Key Words: Burnout, Break nurse, Emotional exhaustion, Nursing staff

1. INTRODUCTION

To guarantee rest breaks for nurses who work either an eight- or 12-hour shift, all acute care units, except for the Medical Telemetry unit, at a trauma center in Washington State have incorporated two break registered nurses (2BRNs) into their staffing plans. The management team of the Medical Telemetry unit recently decided to implement a 2BRNs staffing plan (intervention) as a trial. The purpose of this quality improvement project is to implement the two 2BRNs model into the unit's staffing plan, and to measure the impact of the project. The Principal Investigator (PI) used the Maslach Burnout Inventory-Human Service Survey (MBI-HSS) surveys to evaluate whether or not there is reduction in burnout and moral distress as a result of this intervention.

1.1 The problem

Burnout syndrome (BOS) is defined as symptomatology that develops when there is a discrepancy between the expecta-

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tions of the employee and the actual requirements of their position.[1] There are many different risk factors of BOS, but for the purpose of the project, increase in workload and lack of control over the work environment will be discussed.[1] Maslach & Jackson defined the term burnout and created the MBI, which is a commonly used tool in healthcare to measure job burnout.[2] Moss et al. support Maslach & Jackson's view of BOS having three stages, with each stage represented by a different symptom.[1,2] The first stage is shown by emotional exhaustion, commonly suffered by staff who cannot perceive the benefits of extensive efforts to a specific task. The second stage demonstrates feeling indifferent or negative towards work. A good example is when an individual unintentionally states negative comments towards coworkers or patients. The final stage is the reduced confidence and personal feeling of achievement, often manifesting when staff feel insufficient to perform the task required for their job.

1.2 Importance of the problem and possible solution

Typical symptoms, including feeling of anger, sinfulness, and disability as a result of moral distress, are similar to the symptoms of BOS.[3] For example, moral distress is stress experienced by staff when they are unable to provide the acceptable treatment and care to patients due to some barriers.[3,4] Therefore, it can manifest as reduced personal feeling of achievement, or the final stage of burnout. It is possible that moral distress could be due to nursing shortage and consequently, increased patient loads specific to registered nurses (RNs). Additionally, staffing shortages of other health professionals often lead to RNs taking on additional tasks, such as, ambulating the patients (due to physical therapist' shortage) and drawing laboratory specimens for blood tests (due to phlebotomist shortage). Symptoms experienced by moral distress and BOS are believed to be associated with the phenomenon of absent workers and high turnover rates.[2,3,5,6] Turnover rate is calculated by dividing the number of employees who left their employer by the average number of employees. High turnover rates indicate a higher number of workers leaving their jobs within an organization. Muir et al. found that reducing turnover rates is financially important.[7] A hospital with a burnout reduction program can reduce costs and lower turnover rates when compared to a hospital that does not address nurse burnout ($11,593 vs. $16,736 per nurse per year).

Not only does burnout affects nurses, it also affects patient outcomes. According to the systematic review by Dall'Ora et al., many studies have confirmed that self-reported burnout is positively associated with self-reported intention to quit.[8] A few cross-section survey studies have also found work neglect and poor quality of care well-associated with burnout symptoms.[9,10]

Current evidence suggests that nursing has been considered a job with high physical and psychosocial demands and an effective way to reduce burnout is to structuralize rest breaks. Brennan believe that individuals with different levels of resilience have various reactions to high job demands, and these reactions are called strains.[11] Negative strain effects such as fatigue and exhaustion can be prevented or improved by rest breaks.[12,13] According to Brenna, wellbeing is defined as "a state of emotional, physical and psychological health in the presence of feeling fulfilled and satisfied with life."[11] Wendsche et al. propose that regular rest breaks improve well-being and work performance and can moderate turnover rates in understaffed conditions, emphasizing the importance of regular rest breaks in nursing.[14–16]

1.3 Relevant scholarship

1.3.1 *Review of the literature*

The literature search focused on the effects of rest breaks on fatigue, burnout, or turnover phenomenon of nursing staff. Although burnout in nursing has been extensively addressed, it was important for the author to narrow down the effects of rest breaks on this issue. In July 2022, the databases CINAHL and MEDLINE were searched together using the EBSCO Host platform with the following terms: nursing staff AND break. There was no limitation set on the year of publication, country or the type of article. There were 615 results. The first two pages of articles titles were reviewed, and one article was found appropriate and selected.

After an initial search, the author deduced that "break" was a vague term as it may not refer to rest breaks at work and there is no control vocabulary for this concept. However, it was noticed that one title of an appropriate article used the term-work breaks.[13] To narrow down the search the terms nursing staff AND work breaks were searched again. Nineteen articles were found. At this point, two additional articles were selected after careful review.[17,18]

The author also found the interchangeability of the term burnout and fatigue, as it was mentioned that burnout and chronic fatigue are hard to differentiate.[17] Therefore, the author decided to switch the term from burnout to fatigue. Since COVID-19 was thought to be associated with fatigue or burnout, the terms COVID-19 AND fatigue were searched, 3,542 results were found. To narrow down, the author combined the term into burnout during COVID-19, and 20 articles were found. After review, one article was selected.[19]

As a final step, Google Scholar was searched with the term nursing burnout work breaks and one more article was selected.[16]

A total of five major articles published between 2017 to 2022 were reviewed. All five articles focused on rest breaks, while three were interventionally focused. Other reviewed articles were obtained from the reference lists pertaining to the five major articles.

1.3.2 *Population of interest*

The population of interest in the literature review was focused on the profession of nursing. Since the literature search was not limited to articles within the United States, Wendsche et al. found that missing or disturbances of rest breaks is more closely related to the occupation of nursing itself rather than policies or law differences between countries.[12,16] This indicates that nursing as a profession is a vulnerable population more susceptive to burnout than other profession, which warrants studies to investigate and develop effective methods to reduce burnout.

The population of focus for this project is impatient hospital nursing staff. Rest breaks for nursing staff in hospitals had been extensively researched and the PI had previous experience working as a registered nurse. Although the project was implemented on impatient nursing staff, the outcome and recommendation of this study can be applied to other areas of nursing. Nurses could be taking care of patients in outpatient or inpatient ambulatory settings, hospitals, nursing homes or home care. Although long term care environments can be busy as compared to home care setting, a cross-sectional study found that home care nurses are worse at securing their uninterrupted full rest breaks when compared to nursing home nurses.[15] Recent studies, therefore, had not only included nurses in inpatients care units, but also nurses in ambulatory care setting.[18]

1.3.3 *Current evidence*

Since the concept of break RN was not found in the literature, the literature review is a conglomerate of research bringing the attention to nursing burnout, turnover, and moral distress. Two recent descriptive studies emphasized positive outcomes in terms of reduced fatigue and turnover rates due to rest breaks.[16,17] Three interventional studies took different approaches to change the rest break environment and evaluate emotional outcomes post-intervention.[13,18,19]

Sagherian et al. used three validated tools to create self-reporting questionnaires to measure chronic fatigue, depression, anxiety, and insomnia in nurses. These results were then used to find association with the behavior of taking rest breaks. A significant finding was that acute fatigue is statistically significantly lowered, when comparing RNs who took rest breaks to those who did not take rest breaks.[17]

Wendsche et al. took a retrospective approach to evaluate turnover rates and specifically associated the results with regular rest breaks. The significant finding was that regularity of rest breaks can moderate the positive relationship between understaffing and turnover rates, meaning regular rest break can contribute to reducing turnover rates in understaffing situations.[16]

Out of the three quasi-experimental studies, although only one used the validated tool - Maslach Burnout Inventory-Human Service Survey (MBI-HSS), which is a variation of MBI tailored to assess human service employees, to measure burnout,[13] all three studies showed improvement in different aspects of psychological measures after specific rest break interventions. When garden was used instead of in-door rooms for rest breaks, burnout scores were significantly improved, indicating that burnout symptoms were reduced.[13] Although a validated tool was not available in the study by Pagador et al., the positive effects of serenity room and massage chairs on burnout symptoms were both statistically significant.[19] Rettig et al. then found self-reported mood improvement after participating in socializing activities during break.[18] Although the three studies used different interventions, it was obvious that all five studies embarked on a common understanding that rest breaks were important for reducing burnout and lowering anxiety.

1.3.4 *Study significance*

An important question or a potential gap was identified while reviewing the five articles. Although evidence was strong regarding benefits of rest breaks, there was a lack of studies reviewing whether the organizational policies and staffing had even allowed nurses to take breaks. Further studies should design an intervention that addresses the lack of structured rest break taking, while measuring its effect on burnout and other psychological symptoms. Therefore, this Doctor of Nursing Practice (DNP) project proposes such intervention that allows additional resources on the floor for nurses to secure rest breaks during their shift.

1.4 Philosophical foundation of research design and hypothesis

1.4.1 *Conceptual framework*

According to World Health Organization, burnout is not considered a medical diagnosis, but an occupational phenomenon included in the 11th Revision of the International Classification of Diseases (ICD-11).[20] Essentially, burnout should not be evaluated by solely examining individuals, but by the interactions they have with the environments they work in.[21] Therefore, the underlining theory providing the underpinning foundation of this research was the Job-Demands-Resource Model (JD-RM).[22] The JD-RM is unique as it explained the impacts of both job demands and

job resources on burnout and turnover of workers. To understand this model, the concept of job demand and job resource must be explained. Job demand is an aspect of a job that requires employees to exert physical and emotion effort, whereas job resources are health protecting factors that help the workers to achieve different job goals, reduce excessive psychological and physical exertion, and stimulate personal or professional growth.

The model proposes two major ideas.[22] First, individuals cannot achieve their job demands (heavy patient loads) without overexerting themselves when a job environment lack job resources.[22] Secondly, in such environments, employees will likely lose motivation to work and eventually withdraw from the job.[22] Job resource, therefore, is an important factor that can reduce burnout and turnover, and it is crucial to evaluate both job demands and job resources when burnout and turnover are increased.

Chronic or long-term understaffing, being one of the common factors that increases job demands, can cause high turnover.[23] Understaffing has become a common phenomenon in healthcare due to chronic nursing staff shortages. To address such problem, the model proposed that job resources can reduce the long-term effects of high job demands (burnout symptoms and increased turnover rates) because they help with goal achievements, skill development and recovery from strain.[16] A good example is that additional job training, a great example of job resource, was found to provide protection from burnout.[24] In this DNP project, the PI proposes an important job resource — break nurses (BRNs). A total of two BRNs are needed to provide rest breaks because one break nurse can only safely provide rest break to one bedside RN at a time. Two break RNs are also needed to provide lunch breaks to 9 or 10 bed-side nurses within a four-hour time frame. To ensure the job demands did not increase, the PI ensured that this was a single impatient unit-based staffing structure change — the nurse-to-patient ratio remains the same within the unit while adding BRNs on the floor to provide rest breaks and assistance with nursing tasks.

The IOWA model was also selected to guide the project.[25] Utilizing this model, a problem focused trigger - staff burnout - was identified. The author then investigated a possible solution to this problem via a literature search. Since there is enough evidence to suggest that rest breaks can be related to reduced burnout, a project related to securing rest breaks was warranted. However, there were insufficient articles that addressed break nurse as a role. Therefore, according to the IOWA model, expert opinions may be considered and utilized for the design of a clinical trial.[25] Additionally, the IOWA model also provided a pathway, which emphasized that the topic must be an organizational priority. Fortunately, it was a priority at the time as the Washington State law mandates uninterrupted lunch breaks, and retention and burnout have been one of the priorities for this trauma center.

1.4.2 *Setting assessment and planning*

While many acute care units at the trauma center have incorporated 2BRNs in their staffing plan, the selected unit has only one BRN. Since the 1BRN was unable to guarantee patient safety when covering for lunch breaks of all nine nurses, the break nurse's responsibility was changed to perform as a resource on the unit, essentially serving as a helper for all nursing staff on the floor. As a result, a break-buddy system existed for rest breaks, where two RNs would pair up to cover for each other when they each take breaks. However, phenomena such as answering phones during breaks or interrupted lunch break was noted. Incidents of day shift nurses unable to take a lunch break until afternoon (i.e., 4:00 p.m.) was not uncommon (the break buddy was also busy). The PI believed that the break buddy system was a major factor causing unscheduled breaks and interruption during breaks. In fact, studies had frequently argued that institutional policies, federal and state regulations, and staff shortage are major factors that cause RNs unable to take scheduled breaks or experience interruptions during breaks.[26] Additionally, according to the Washington state legislature Revised Code of Washington 49.12.480, employers must provide employees with uninterrupted meal and rest breaks. Therefore, using recommendation by Wendsche et al., this project proposes that 2BRNs, who would cover bedside nurses for scheduled breaks, should be established as part of the daily staffing plan to ensure the breaks meet the following criteria: (1) Rest breaks should be appropriate in duration, time frames and uninterrupted; (2) Rest breaks should allow social interactions during rest break; (3) There should be appropriate space for breaks that prevent work-related interruptions.[15]

1.4.3 *Hypothesis*

The implementation of 2BRNs staffing plan will reduce emotional exhaustion, reduced depersonalization and enhance feeling of personal accomplishment in nursing staff when compared to the previous break-buddy system. The null hypothesis (H0) is that 2BRNs staffing plan will have no effect on emotional exhaustion, reduced depersonalization and enhanced feeling of personal accomplishment in nursing staff.

2. METHODS

The general approach is to first obtain baseline data of burnout through surveys, then implement the 2BRNs staffing

model, and finally obtain post-intervention burnout data through surveys. The author was aware that such design would not prove a cause-and-effect relationship between the proposed 2BRNs staffing model and burnout data because many other factors can influence staff burnout symptoms. However, this design was appropriate to find associations between the intervention and the outcome. Details in regards to setting, participants, interventions, instruments and ethical aspects will now be discussed.

2.1 Organizational assessment

The mission of the trauma center is to improve the health of the public, and the public include the nurses and patient care assistants who work for the hospital. Therefore, this project proposes adding an important resource — an additional break nurse, followed by measuring its effect on burnout experienced by nursing staff. A vision of the trauma center is to also provide support for clinical innovations, which aligns with the proposed process improvement in this DNP project.

Although laws and policies are established regarding rest breaks, certain workplaces have not followed the rules and made the change. The break-buddy system on the unit suggested that nurses would take their breaks when important tasks are completed, such as medications administrations, patient transport arrangements, admission, and discharges. Essentially, nurses would take their breaks at their own time during a shift with no pre-determined time of rest or lunch breaks since staff have different tasks to complete due to different patient assignments. This often resulted in situations where one nurse is ready for break, but the buddy assigned to the nurse was too busy with work for lunch relief. Since break RNs were not available, the nurse might take a rest break while continuing to monitor a work phone. While other reasons might exist regarding why one chooses to hold on to a work phone during rest breaks, the structure of rest break taking was the most likely cause. During rest breaks, nurses were seen frequently interrupted by work tasks or phone calls regarding assigned patients, and some nurses were even forced to abandon their rest breaks to respond to emergencies.

2.2 Setting

A 30-bed Medical Telemetry Unit was selected as an appropriate unit for this intervention. During the day shift or shift from 07:00 a.m. to 19:30 p.m., nurse to patient ratio is 1:3 or 1:4. The unit usually has 11 RNs, including 1 Charge Nurse and 1 Break Nurse, and three Certified Nursing Assistants (CNAs) if the unit is well staffed. The most common diagnoses of patients are respiratory failure, neurological and spine post-operative recovery, and cardiac issues. Many patients are bedridden and need frequent repositioning to avoid skin breakdown. Some other patients may be easily agitated and need frequent attention. Some RNs and CNAs work 8-hour shifts and leave after 15:30 p.m. This has frequently caused heavier workload on RNs and CNAs after 15:30 p.m.

2.3 Needs and resources assessment

Not only was it necessary to improve the current structure of rest breaks because the law mandates uninterrupted and scheduled rest breaks, it was also appropriate to change the structure because a needs assessment survey was completed. To implement a break RN model appropriate for the unit, the PI initially gathered some opinions from the unit staff. To ensure this change was well-intentioned and well-supported by staff, anonymous surveys were sent to find out whether or not there was consensus from the majority of the staff to adopt this change. A baseline result had shown that 85 percent of the respondents were in favor of this change.

The key stakeholders of this projects were assistant chief nursing officer (CNOs) for acute care units, unit managers, clinical nurse specialist, and day shift nursing staff. Resources such as previous break RNs implementation researcher from other units were available to help implement this change. The PI had consulted staff who was crucial to the successful break RNs implementation on another acute care unit in the same trauma center. The options of implementation were then discussed with managers to design a suitable structure for trial, followed by an organizational SWOT analysis in preparation for the implementation of 2BRNs model (see Figure 1).

The author proposed the intervention to the unit managers at the end of May 2022. Since other acute care units had successfully implemented break RNs into their staffing plan already, assistant CNO for acute care units, Service Employee International Union (SEIU) and unit management team (both main and assistant managers) were all in favor of such model. This was important as they provide crucial support for this project.

Not only were the nurses on the unit in favor of this change, the managers emphasized that voices from all individuals must be heard, especially the certified nursing assistants (CNAs). Managers were frequently present at daily unit huddles to elicit any concerns from staff regarding any issues and problems encountered on the floor. Considering the different working cultures established in different units, frequent adjustments of the 2BRNs model during implementation was anticipated. Managers and the author had shown willingness to frequently monitor progress and approach staff with clear communications when problems occur.

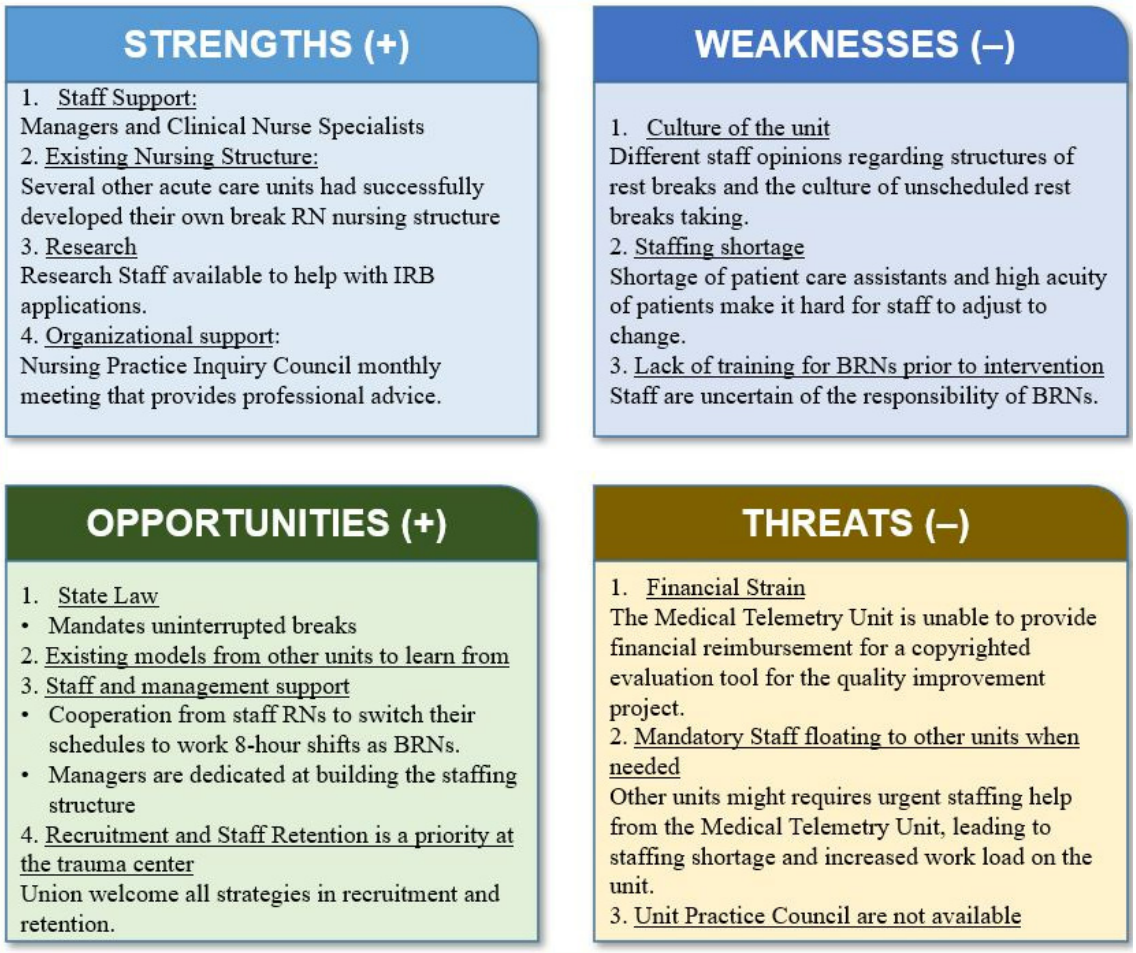


Figure 1. SWOT analysis of two break RNs model for the unit

2.4 Participants

The sampling method used in this project was purposive sampling. To ensure an appropriate representation of the unit, the list of nursing staff was carefully selected by the unit managers. First of all, since this intervention is unit-based, only RNs and CNAs hired to work on the unit could be included as subjects. This excludes all RNs and CNAs from travelling agencies. To reduce potential selection biases, there were no restrictions on age, gender, sexuality, marital status and other social backgrounds. To ensure all staff being investigated were familiar with the previous staffing model (or the break-buddy system), some new hire employees who had not worked in the unit prior to August 2022, were excluded by the unit managers. The author received a list of 45 staff, including 32 RNs and 13 CNAs.

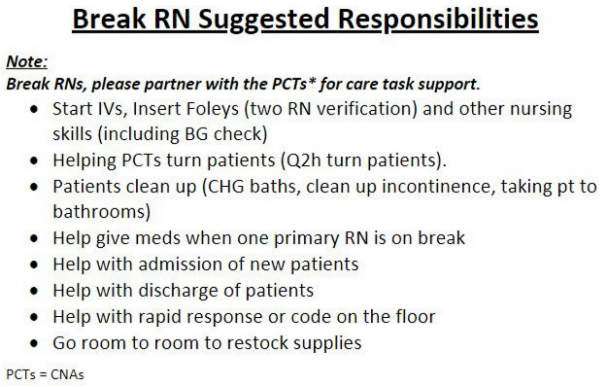
2.5 Intervention

Due to the restriction on the Union Contract, the unit budget was only able to provide 16 hours of break RNs in each shift. After discussion between the PI and management, a solution of two 8-hour shift break RNs was accepted and approved by staffing for trial.

Prior to intervention, since there was still uncertainty if such model would be effective, managers decided to implement the trial only on the day shift. The trial started on Sept 5 2022 and ended on Oct 31 2022. The trial period was a total of 56 days. Organizational assessment survey results indicates that break RNs favor working either 8am to 4:30 p.m. or 9:00 a.m. to 5:30 p.m. as well as break RNs serving as a resource on the unit (see Figure 2). Since there was difficulty at reaching consensus on how to assign times for lunch breaks, managers and the author consulted other units and proposed a template appropriate for the unit for lunch break sign-up (see Figure 3). In short, during the trial period, the shift time for break RNs was set as 8:00 a.m. to 4:30 p.m. OR 9:00 a.m. to 5:30 p.m., and the template in Figure 3 was used for lunch break sign-up.

This change also required one additional break RN each day shift. Management diligently worked with nurses who voluntarily adjusted their work patterns to cover some break nurse shifts. Per Diem staff were also encouraged to pick up extra

shifts as break nurses. Nursing management ensured that every single day shift of the two-month trial periods had two break nurses on the unit providing resources and rest breaks.



Break RN Suggested Responsibilities

Note:

Break RNs, please partner with the PCTs* for care task support.

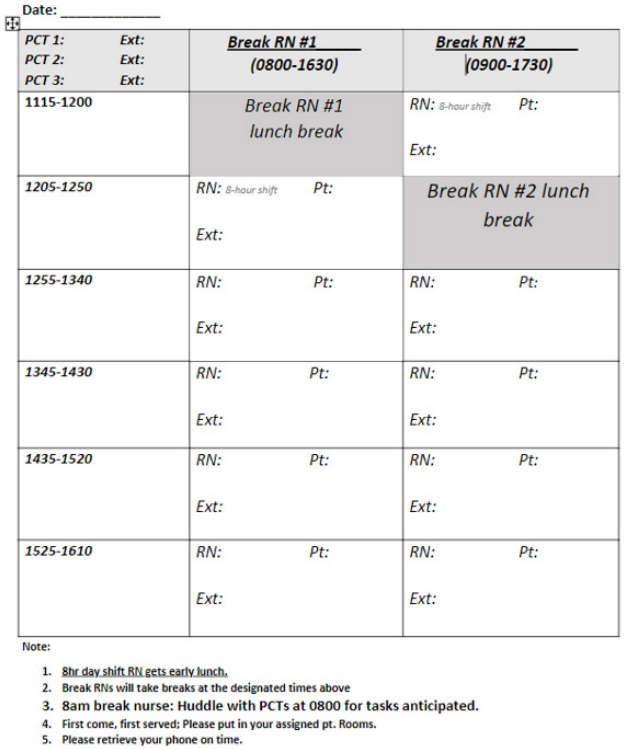
- Start IVs, Insert Foleys (two RN verification) and other nursing skills (including BG check)
- Helping PCTs turn patients (Q2h turn patients).
- Patients clean up (CHG baths, clean up incontinence, taking pt to bathrooms)
- Help give meds when one primary RN is on break
- Help with admission of new patients
- Help with discharge of patients
- Help with rapid response or code on the floor
- Go room to room to restock supplies

PCTs = CNAs

Figure 2. Break RN responsibilities

2.5.1 *Evaluation method and instrument*

The sample of 45 staff received a pre-intervention survey designed by the author in their work email sent by SurveyMonkey. After the intervention, they were asked to complete a post-intervention survey in the same manner. The questionnaire selected to measure burnout was the MBI-HSS. Not only is MBI-HSS the most original tool to measure burnout in human service setting, it also uniquely measures all three dimensions of burnout: Emotional Exhaustion (EE), Depersonalization (DP) and Personal Accomplishment (PA), whereas other burnout instruments measured only EE.[2,27] A recent burnout study by Haslam et al utilized MBI-HSS because the authors agreed with the definition of burnout provided by Maslach and her colleagues.[28] Montiel-Company et al. also has tested the validity and reliability of MBI-HSS29, revealing a test-retest reliability or reproducibility Intraclass Correlation Coefficient of 0.9529. The internal consistency of the survey was 0.922. See Figure 4 for sample questions of MBI-HSS.



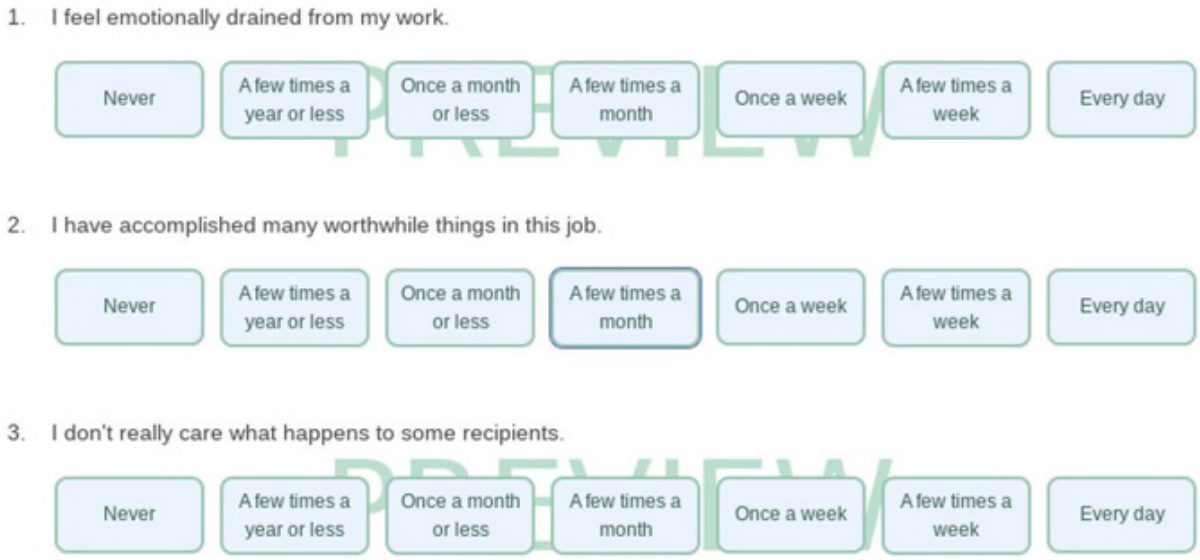
Date: _____

PCT 1: Ext: PCT 2: Ext: PCT 3: Ext:	Break RN #1 (0800-1630)	Break RN #2 (0900-1730)
1115-1200	Break RN #1 lunch break	RN: 8-hour shift Pt: Ext:
1205-1250	RN: 8-hour shift Pt: Ext:	Break RN #2 lunch break
1255-1340	RN: Pt: Ext:	RN: Pt: Ext:
1345-1430	RN: Pt: Ext:	RN: Pt: Ext:
1435-1520	RN: Pt: Ext:	RN: Pt: Ext:
1525-1610	RN: Pt: Ext:	RN: Pt: Ext:

Note:

1. 8hr day shift RN gets early lunch.
2. Break RNs will take breaks at the designated times above
3. 8am break nurse: Huddle with PCTs at 0800 for tasks anticipated.
4. First come, first served; Please put in your assigned pt. Rooms.
5. Please retrieve your phone on time.

Figure 3. Lunch break sign-up sheet



1. I feel emotionally drained from my work.

Never | A few times a year or less | Once a month or less | A few times a month | Once a week | A few times a week | Every day

2. I have accomplished many worthwhile things in this job.

Never | A few times a year or less | Once a month or less | A few times a month | Once a week | A few times a week | Every day

3. I don't really care what happens to some recipients.

Never | A few times a year or less | Once a month or less | A few times a month | Once a week | A few times a week | Every day

Figure 4. Sample questions of MBI

2.6 Ethical aspects

Every voluntary participant who completed both pre- and post-intervention survey were given a 5-dollar gift card, and this was not considered a coercive amount per Seattle Pacific University Institutional Review Board (IRB). In order to receive a copy of the pre-intervention survey and a corresponding post-intervention survey from the same individual, participants' names and email addresses were collected. To ensure confidentiality of their survey information, their consent to release that information to the author was obtained by clicking "I agree" after reviewing the consent electronically (the consent was shown prior to completing the electronic survey). The direct identifiers (emails) were stored separate from the survey results in a password-protected computer. Per consultation with hospital research staff, the link between direct identifier and completed surveys was destroyed after June 2023. The consent form, a copy of the instrument, and survey collection method were reviewed and approved by SPU IRB (#222305001).

3. RESULTS

3.1 Recruitment

From the initial pool of 45 survey participants, 3 were lost to attrition. After the PI completed data collection, there were total of 14 respondents who completed both pre- and post- implementation surveys (a response rate 31%), which met the goal response rate of 25%-50%. Other respondents completed either only the pre-implementation survey or only post-implementation survey, therefore, those data were excluded from the statistical analysis. To protect the identity of the respondents, only gender, age group, nursing experience group and time worked on the unit were collected as demographic data for descriptive analysis. Twelve respondents were female and two respondents were male, making female nursing staff a majority. The majority age group was $\geq$ 50 years of age, taking up almost half of the respondents (n = 6). More than half of the sample (n = 8) had over 10 years of nursing experience; Half of the sample (n = 7) had worked longer than 10 years in the unit undergoing the proposed change (see Table 1 for more details).

3.2 Statistics and data analysis

Burnout levels were the sole metric to inform both the PI and management team whether or not there was positive effect from the proposed two break RNs model. The null hypothesis was "There is no difference in burnout level prior and after practicing the 2BRNs model," while the alternative hypothesis was "The burnout out level after practicing the 2BRNs model is lower." The answers to MBI-HSS survey questions were on a 7-point Likert Scale, with each possible answer given a score from 0 to 6. These scores were initially classified as ordinal data. The PI then used Microsoft Excel to calculate means to measure each of the three stages of burnout: EE, DP, PA. Doing so not only allowed meaningful interpretations in cases of missing data, but the conversion to ratio data allowed the data to be used for inferential statistical analysis.[13,30] Higher mean scores of EE and DP, AND lower mean scores of PA, would indicate more severe burnout symptoms, and vice versa. Data from pre- and post- implementation surveys were tested for normality using Kolmogorov-Smirnov test and Shapiro-Wilk test (see Figure 5). EE and PA data were found to be normally distributed and two-tailed paired *t* tests were used for statistical analysis. DP data was not normally distributed and Wilcoxon test was used as a non-parametric test. The *p* value or significance level of less than .05 was used to decide whether there was a statistically significant change.

Table 1. Demographic characteristics of survey respondents

Sample Characteristics	Frequency (n)	Percentage (%)
Gender		
Male	2	14.3
Female	12	85.7
Age Groups		
≤ 29	1	7.1
30-39	4	28.6
40-49	3	21.4
≥5 0	6	42.9
Nursing Experience		
1-10 years	6	42.9
11-20 years	5	35.7
21-30 years	1	7.1
> 30 years	2	14.3
Time Worked on the Unit		
1-10 years	7	50
11-20 years	6	42.9
21-30 years	1	7.1

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
EE_pre Emotional Exhaustion mean score (pre-intervention)	.129	14	.200*	.955	14	.636
DP_pre Depersonalization mean score (pre-intervention)	.162	14	.200*	.967	14	.840
PA_pre Personal Accomplishment mean score (pre-intervention)	.124	14	.200*	.960	14	.729
EE_Post Emotional Exhaustion mean score (post-intervention)	.180	14	.200*	.914	14	.181
DP_Post Depersonalization mean score (post-intervention)	.290	14	.002	.851	14	.023
PA_Post Personal Accomplishment mean score (post-intervention)	.254	14	.015	.897	14	.101

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Figure 5. Tests for Normality

The PI along with the faculty chair at SPU was involved in project data analysis. The PI used SPSS software to perform

statistical analysis and results were verified with the faculty chair. Significant improvement in terms of EE was found comparing before and after the 2BRNs model (t = 4.357; p < .001), however, there was no significant improvement in terms of DP (Z = -1.750; p = 0.08) and PA (t = -1.371; p = .193).

Table 2. EE and PA *t* test table

		Mean	Std. Deviation	Std. Error Mean	95% CI		*t*	*p*
					LL	UL		
Pair 1	EE Pre	3.726	1.156	.309	0.690	2.048	4.357	< .001
	EE Post	2.357	1.010	.270				
Pair 2	PA Pre	4.080	.941	.252	-0.874	0.195	-1.371	.193
	PA Post	4.420	.810	.216				

Note. EE = Emotional Exhaustion; PA = Personal Accomplishment; LL = Lower Limit; UL = Upper Limit

Table 3. DP Wilcoxon signed rank test

		Mean	Std. Deviation	*Z*	*p*
Pair 3	DP pre	2.324	1.206	-1.750	.080
	DP Post	1.614	1.358		

Note. DP = Depersonalization

4. Discussion and Conclusion

4.1 Study findings

The result not only agreed with the literature search findings that taking rest breaks can help reduce burnout symptoms, but also provided the important evidence that regular, scheduled and structured rest breaks can reduce burnout symptoms to a certain degree, especially EE. Although there was no statistical significance of improvement in terms of DP and PA, a trend of improvement is identified while comparing the mean score between pre-intervention and post-intervention. (DP: 2.324 vs. 1.614; PA: 4.08 vs. 4.42; see Table 2&3). A smaller sample can also contribute to the lack of statistical significance.

4.2 Limitations

One of the biggest limitations of this study is that there was a variation of baseline burnout level and variation of effects depending on the individual respondents. Based on previous utilizations of the MBI for measurements of burnout, EE > 27, DP > 10, PA < 33 was used as meeting high levels of burnout.[21,28] Although all respondents experience burnout at a certain level, not all respondents experience high levels of burnout. Similarly, although the majority of respondents had reduced their burnout levels below high levels of burnout, two respondents who experienced a high level of burnout prior to the intervention did not reduce it to below a high level.

Although break RN models were utilized in other inpatient settings, the unit this model was implemented also gave the break RNs the responsibility of a Resource RN (see Figure 2). In the event of high patient workload and unexpected emergencies, break RNs were to assume the role of resource RNs and might not be able to complete the tasks primary RNs had asked them to complete during their rest breaks. It is important to know that this is simply one of the many factors that may have affected the perceived impacts of the break RNs on this unit.

Another limitation worth mentioning is that the unit-based secretary staff were not included for burnout level assessment. Throughout the project, they were critical at providing inputs for process changes, including break RN responsibilities and time slots for lunch breaks, etc. Including unit secretaries, who are very experienced in the organizational structures and workflows in future QI project or process evaluation studies, are crucial for smooth adoption to the new change.

4.3 Sustainability

If the proposed change is proven to be successful at reducing burnout, this change must be maintained with the best possible effort. One additional break RN will need to become readily available at all incoming day shifts on the unit. During the first two months trial periods, Per Diem and other employees who work at a lower full-time equivalent (e.g., 0.6 or 0.75 FTE) were encouraged to pick up shifts to work as break nurses. Other employees agreed to temporarily changing their current schedule patterns to work as an 8-hour break nurse. For example, the six 12-hour shifts within two weeks can be rearranged to four 12-hour shifts and three 8-hour shifts. Although these changes will allow the trial to happen, the changes to nurses' work schedule can be tiring,

complicated and hard to adapt.

It is crucial to maintain the current nurse to patient ratios while implementing the proposed change to ensure sustainability. After consulting with unit management, the PI had reported the positive statistical outcome to the Trauma Center Staffing Committee. Other data already collected by the facility, such as turnover rates, could also be used to aid decision-making. It was obvious that whether or not this model will sustain depend on a comprehensive cost-effective evaluation from administration, financial and executive departments. Program evaluation is needed to see if the investment of having an additional BRN is effectively reducing cost due to burnout, better patient outcomes, etc. The PI understands that this intervention could be a significant investment for both small or large facilities.

If this model is proven to help reduce cost, a potential increase in the total full-time equivalent staff needed on the unit, or an increase in unit budget allowance to hire full-time or part-time positions of break RNs can also make the outcomes more sustainable. In other words, hiring someone who provides resources and rest breaks in a scheduled pattern is more sustainable when compared to voluntary shift pick-ups that are incentivized by increased pay or voluntary shift arrangements.

4.4 Implications

The positive outcome of this project encourages future organizational structural change in different settings that focus on achieving guaranteed rest breaks and guaranteed resources at work. It's possible that the effects of this project are not limited to nurses only, as patient outcomes may be positively affected by this change. After all, the utilization of the break nurse role is often not limited to providing rest breaks but serving as a resource on the floor. For example, to be specific to acute care units, another great benefit of a resource would be early ambulation of patients, which may not be possible when resources are lacking. Increased ambulation can further contribute to faster discharge and reduce readmissions in hospitals. Many other benefits such as a reduction in falls, sepsis and pressure injuries occurrences could be possible if more resources were available to provide the care patients need.

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The author declares that there is no conflicts of interest.

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