Evidence Based Practice Project

Student Name

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Introduction

This student advanced practice nurse will complete a clinical appraisal of articles pertaining to the PICOT question "Are nurses who are not provided adequate coverage for breaks during a working shift, compared to those nurses who are provided adequate coverage for breaks, at risk for compromising patient safety?" Often nurses work 8-12 hour shifts without taking adequate breaks. The importance of nurses to engage in breaks has even caused the American Nurses Association (ANA) to provide evidence-based recommendations, for both nurses and employers, to address the problem and facilitate healthier work conditions (ANA, 2014). This appraiser has often been faced with balancing breaks with patient care, which prompted more investigation into finding out if the lack of taking breaks impacted nursing fatigue and/or posed risk to patient care.

Literature Search

To begin researching this essential topic, this student advanced practice nurse obtained electronic information from Academic Search Premier, CINAHL and PubMed using key words nursing, fatigue and breaks in the search engine. Search parameters included peer reviewed journals with full text availability and literature written in English from 20012 through 2017. Attached in appendix A is a detailed PRISMA diagram for this literature search. There was a total of 698 articles obtained through Academic Search Premier and CINAHL electronic databases with keywords nurse and fatigue. No articles were identified using PubMed. After eliminating non-academic journals, 681 articles remained. This student advanced practice nurse then narrowed the search to full text articles only, which narrowed the search to 526 articles to be considered. After excluding non-English and other countries, 340 articles were left for

review. This student then added the key word breaks, reducing the results to 6 articles to be reviewed. These six, full-text articles were reviewed and after exclusion, 5 articles remained that addressed the research question focusing specifically on nursing fatigue and breaks (see Appendix A). These 5 articles were included, reviewed and synthesized (see Quantitative Evidence Table and Synthesis Tables as Appendices B and C).

Current Evidence

The American Nurses Association (ANA) has identifies that both registered nurses (RNs) and employers share responsibility for the prevention of nursing fatigue. This author has completed a literature review relating to the strategy of the inclusion of work breaks during the scheduled work shift of registered nurses. Evidence was identified and a comprehensive research appraisal of each selected article to determine the strength of evidence using the Joanna Briggs Institute (JBI) FAME Scale (ASPAN, 2014a) and the rigor used in research design determined using the ASPAN JBI Evidence Appraisal Tools (ASPAN, 2014b).

Article 1

This appraiser will complete a clinical appraisal of the research article entitled "Effects of Rest-Break Intention on Rest-Break Frequency and Work-Related Fatigue," (Blasche et al, 2017) with intent to identify the procedures of the researcher's process, defining strengths and weaknesses in the research and evaluating its creditability in nursing practice (Grove, 2013). This cohort article provided a mixed method, dual study research. Study 1 was compromised of 5 small-medium sized Viennese companies that examined the association between rest break intention and the number of breaks taken over 4 consecutive work days. The data was obtained using diary entries and questionnaires. The variables under study included for study 1 was the

average number of breaks taken in a work day and rest break intention. The Effort-Reward Imbalance Scale was used to examine the data collected and was found to have an internal consistency of α = 0.69. The study questionnaire used was developed and validated by Richter (2013). Study 1 used very reliable tools of measurement to analyze the diary entries and questionnaires and the overall scale of reliability was α = 0.81. Study 1 concluded that 17% of the participants took a lunch break lasting 20.2 minutes. It also concluded that those taking smoke breaks averaged 3.4 breaks during a work day, while non-smokers averaged 2.6 breaks during a work day.

In study 2, three Austrian nursing homes were used with each nursing home housing approximately 100 permanent residents. Study 2 used the same variables that were used in study 1 and added the covariates of age, living with partner, dependent children, place of employment and hours worked. Study 2 used a German questionnaire (Eigenzustandsskala) 6-point Likert scale to measure fatigue, distress and effort motivation. The scale reliability for study 2 was α = 0.66 and concluded that strong rest-break intention was correlated to lower levels of fatigue and distress at the end of the work day.

Overall Blasche et al. provided rigorous and reliable data in this level 3a, cohort research study (ASPAN, 2014a). There was no IRB approval provided. Blasche et al. excluded male nurses as the number of male participants was very small and a limitation to this study. It was concluded that work breaks were determined by the individual's intention to take a break. Implications for nursing practice include strengthening rest-break intentions, by encouraging employees to take more breaks, will decrease end-of-day fatigue and distress (Blasche et al., 2017) (see Appendix B).

Article 2

The second article this appraiser will review is "The Effects of Work Breaks on Staff Nurse Performance," (Rogers et al, 2004). In this level 3a, cohort research study (ASPAN, 2014a), data was collected using questionnaires and log books to examine work hours, errors and episodes of drowsiness and actual sleep on duty. There were 4,320 randomly selected American Nurses Association (ANA) members to participate in this research of which 834 were excluded without explanation. The remaining 891 participants were mailed two 28-day log books with postage paid return envelopes of which 393 were returned. The participants were asked to document no break or meal break was taken during their work shift, if there was a break or meal break, but no relief of patient responsibilities and if there was a break or meal break that was free from patient responsibilities. All participants were full time employees and worked in a hospital setting. Data was collected and analyzed using the Generalized Estimating Equation (GEE) for non-independence between repeated measurements from the same nurse. An Odds Ratio (OR) was used to evaluate the odds of making an error when taking a breaks verses not taking a break. Both GEE and OR tests and confidence intervals (CI) were two-sided with an $\alpha = 0.05$. Final results of this research concluded that 10% of the participants had no opportunity to take breaks, 43% took breaks while maintaining patient responsibilities and 47% were afforded breaks with no patient responsibilities. The average meal breaks for an 8-hour shift was 23.4 minutes and 22.3 minutes for 12-hour shifts. There was no significant information to suggest increased errors occur when breaks were not taken, however, it was suggested that management develop a culture that encourages staff to take breaks and eat,

meals free from patient responsibilities. IRB was obtained, and no limitations were identified by the researcher or this appraiser (Rogers et al, 2004) (see Appendix B.

Article 3

The next article that this appraiser will examine is "Rest during shift work in the emergency department," (Mitra et al., 2008). In this level 3a, cohort research study (ASPAN, 2014a), the researcher collected information through survey collection of medical doctors in the emergency department (ED) of a 300-bed suburban hospital in Melbourne, Australia. These ED doctors were asked to document the number of breaks taken, the duration of these breaks and their tardiness level at the end of their shift. The researcher stored data in Microsoft Excel and used the Fisher's exact test comparison tool that was found to be significantly significant with a two-tailed P value < 0.05. The researcher also used the Student's t-test and Mann-Whitney U-test to test parametric and non-parametric values and no significant data for these tools was provided. Information gathered from this research determined that once doctors were aware, breaks were increased by nearly 50%. Limitations to this research included taking place at one hospital and no definite number of participants was included. Also, there was no IRB approval mentioned (Mitra et al., 2008) (see Appendix B.

Article 4

Article four, entitled "Supervisors' Support for Nurses' Meal breaks and Mental Health" (Hurtado et al., 2015), used cross-section surveys to explored meal breaks when supported by the supervisor of the unit. In surveying the predictors of meal breaks and psychological distress related to meal breaks, this level 3a, cohort research study (ASPAN, 2014a), discovered that 3.4/5 nurses engage in meal breaks and that 4.3/5 supervisors support nurses leaving the unit

for meal breaks. Information was obtained by random sample of nurses working in 2 Boston teaching hospitals. Inclusion criteria included registered nurses (RNs), license practicing nurses(LPNs), and patient care assistants(PCAs) working 20+ hours per week. Not included were other healthcare professionals, those working less than 20 hours per week and those on leave of absence for more than 12 weeks. There was a total of 1,595 RNs, LPNs and PCAs working across 85 units that participated. Psychological distress was measured using the K6 questionnaire, with an internal consistence of $\alpha = 0.80$ that was complemented with item-response theory (IRT) calibration, while meal break frequency and supervisors support was measured using a 5-point Likert scale. The Job Content Questionnaire was also use for measuring supervisor support with an $\alpha = 0.87$. Correlation determined that break frequency was associated with psychological distress, however, interaction effect among psychological distress, meal breaks, and supervisor support was not statistically significant ($\beta = 0.004$). Limitations of this research included demographic information and the participant's preference or need concerning meal breaks. No IRB approval information was provided (Hurtado et al, 2015) (see Appendix B.

Article 5

The final article that this student nurse practitioner will appraise is "Transforming Work Breaks to Promote Health" (Taylor, 2005). Although this article was a level 4, expert opinion (ASPAN, 2014a), the author provided recommendations for and benefits to partaking in work breaks. Recommendations made by Taylor, 2005, included what the author referred to as "Booster Breaks." A booster break was described as breaks in the form of group exercise, yoga or mediation. In siting other research, the author suggests booster breaks would decrease

unhealthy behaviors and promote healthy lifestyles, while decreasing common chronic diseases such as hypertension, diabetes and obesity. These recommendations offered by the author can apply to all work places, not just nurses. As this was expert opinion, no IRB was obtained, and no specific sample was provided (Taylor, 2005) (see Appendix B.

Synthesis of Evidence

After review of the current evidence, related to nursing fatigue and breaks, several imperative factors can be identified and translated to clinical practice (see Appendix C). Most importantly, it has been identified that many people, nurses included, work without taking adequate rest breaks during their shift, which can lead to worker's fatigue. Another important factor gained from this EBP project is that breaks occurs more frequently when the worker makes the intention to take a break. Although this student was looking for concrete evidence to support why nurses need to have breaks free of patient care responsibilities to ensure there is no compromise in patient care, that did not happen. What was found is that globally, work breaks are essential for personal health and wellbeing and, to date, lack of breaks free from patient responsibilities does not pose risk to patient care. What was also found is that employers and management should cultivate a work break encouraging environment and stress to its workers to engage in taking breaks. Work breaks allow for less fatigue and sleepiness. As nurses, it is encouraged to take breaks during the work shift, as nurses must take care of self-first, in order to care for others.

Anticipated Practice Outcomes

The current evidence related to nursing fatigue and breaks as it pertains to compromising patient care is significant and should be applied to nursing practice. Although no

significant data supported patient care risks, data did support that prolonged work times without breaks can lead to fatigue and sleepiness (see Appendix C). Management should create an environment, free from patient responsibilities to ensure proper care for the nurse. Many nurses neglect to take breaks for fear of feeling as though they are abandoning the patient. Management could hire a designated nursing support team whose sole responsibility is to provide complete patient care coverage, allowing the shift nurse to have patient free responsibilities to rest and/or take meal breaks. By law, and varying by state, nurses are allotted a certain time per work shift to have breaks. The evidence provided in this EBP project proves that these breaks, although essential, are not always taken. In hiring a nursing support team to provide breaks, the nurse could engage in taking proper meal breaks free from patient care. It was suggested by Taylor (2005) to provide booster breaks that allows the nurse to partake in yoga, meditation or group fitness. The concept of booster breaks is not foreign. The Hospital of the University of Pennsylvania has a nursing renewal center that offers chair massages, meditation rooms and group fitness, however, without abandoning patient care responsibilities, how can the nurse engage in such activities?

Ideally, management will get approval to hire 1 relief nurse for every 4 nurses working during a shift. The hiring criteria will include 3-5 years nursing experience specific to the hiring department, in addition to meeting all other departmental hiring requirements. The relief nurse will be a 20-hour per week employee which includes hospital holidays and weekends. As a 20-hour employee, part time benefits will be included in the hiring process. The relief nurse will provide four 1-hour breaks per shift worked and will be responsible for complete patient care during the 1-hour break coverage. During this 1-hour break, free from patient responsibilities,

the shift nurse can engage in eating, exercise, meditation, or any other chosen activity. Once the nurse returns from break, a brief and detailed reports will be given, and the relief nurse will move to the next assigned nurse to provide the same break. Some variations to this could include one 45-minute break and one 15-minute break separate from each other or two 30-minute breaks separate from each other. However, the goal is to provide the shift nurse with the allotted and recommended work break and free from patient care responsibilities.
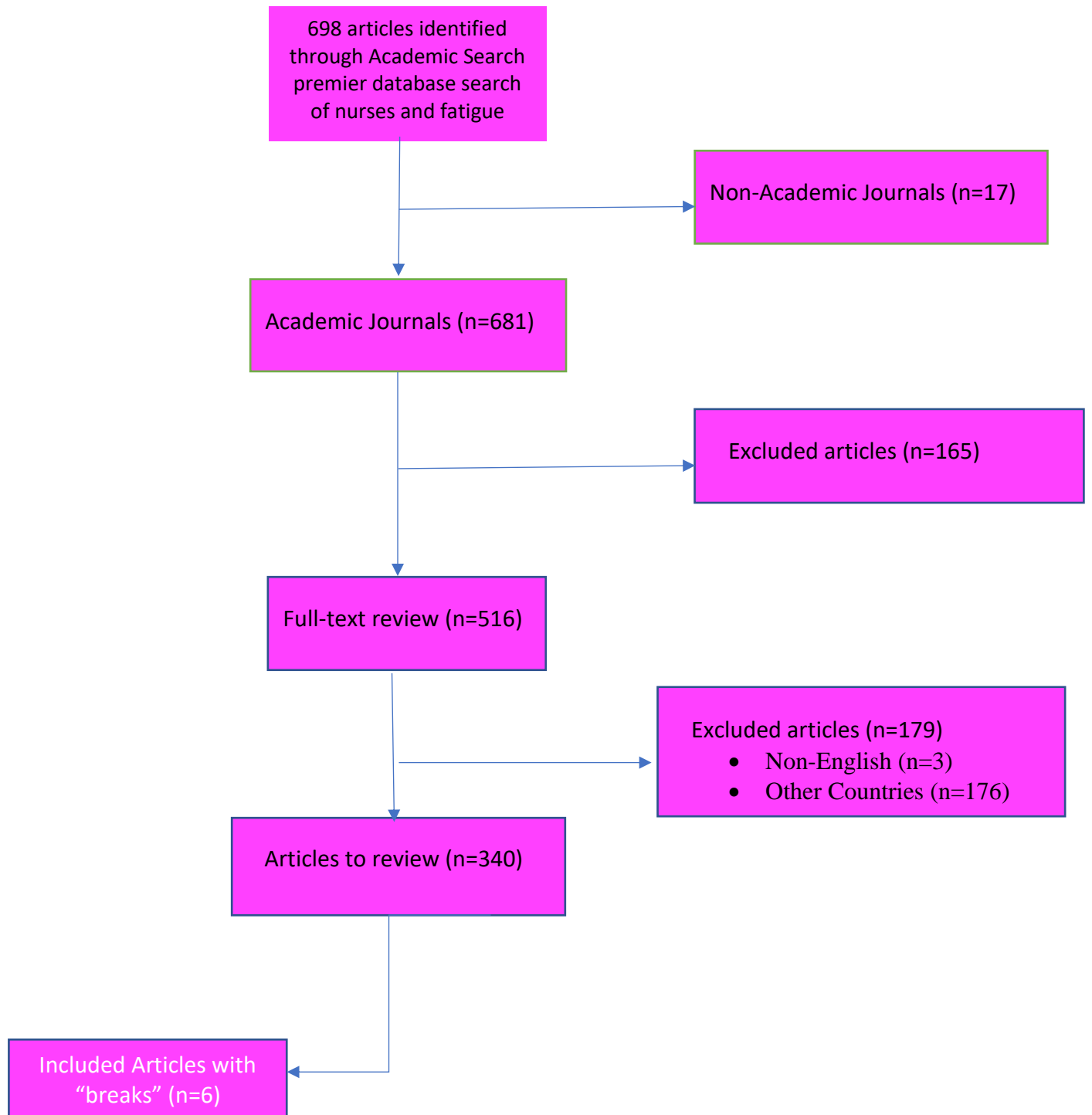
Conclusion

As rewarding as it may be, caring for patients can be mentally and physically draining. It is important for the nurse to have opportunities to care for self. Many nurses work long days and multiple shifts per week, which can prevent caring for self. Ensuring that breaks, free from patient responsibilities, is necessary in cultivating healthy work environments and promoting healthy lifestyles. It's not a privilege to have a break, it is a right of every nurse to have a break and should be support by all employers and management teams. Although there was no significant data to support that nursing fatigue and sleepiness compromises patient care, there is reliable data to support breaks decrease fatigue and sleepiness and are essential in promoting overall nursing performance.

References

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Appendix A: PRISMA Diagram

698 articles identified through Academic Search premier database search of nurses and fatigue

Non-Academic Journals (n=17)

Academic Journals (n=681)

Excluded articles (n=165)

Full-text review (n=516)

Excluded articles (n=179)
- Non-English (n=3)
- Other Countries (n=176)

Articles to review (n=340)

Included Articles with "breaks" (n=6)

Appendix B: Quantitative Evidence Table

First Author (Year) Title IRB Approval	Research Design Method Level of Evidence	Sample/Setting Inclusion/Exclusion	Major Variables DV/IV	Measurement Tools Used; Reliable/Valid	Data Analysis
Blasche, G. (2017) Effects of est-Break Intention on Rest-Break Frequency and Work-Related Fatigue No IRB Approval	Mixed Method Diary Entries Cohort Design Level 3a	5 small-medium sized Viennese companies (study 1) 3 Austrian nursing homes with approx. 100 permanent residents in each No inclusion/exclusion mentioned	**Study 1** ~ DV=average number of breaks/day ~ IV=rest break intention **Study 2** ~ Study 1 variables and covariates of age, living with partner, dependent children, place of employment and hours worked.	**Study 1** ~ Effort-Reward Imbalance Scale with an internal consistency of α=0.69 ~ Study questionnaire was developed & validated by Richter (2013) ~ Study 1 scale of reliability was α=0.81 **Study 2** ~ German Questionnaire (Eigenzustandsskala) with a 6-point Likert scale and an internal consistency of α=0.85	**Study 1** ~ # of rest breaks M=2.9 with 17% of participants taking a lunch break ~ Length of lunch breaks M=20.2 mins. ~ Smokers breaks M=3.4 and non-smokers 2.6 **Study 2** ~ Avg rest break intention M=9.33
Roger, A. (2004) The Effects of Work Breaks on Staff Nurse Performance IRB Approval	Questionnaire Log Books Cohort Design Level 3a	Random sample 4,320 ANA members 834 excluded for ineligibility (eligibility criteria not mentioned) 891 included and mailed two 28-day log books with paid return postage 393 returned completed log books	~ No break or meal periods ~ Had a break/meal period but nor relieved of patient duties ~ Had a break/meal period free of patient duties 393 RNs FTE Worked in a hospital	~ Generalized Estimating Equation (GEE) used for non-independence btwn repeated measurements from the same nurse ~ Odds Ratio (OR) is the ratio of the odds of making an error when taking a break verses not taking a break ~ GEE and OR significance tests and confidence intervals (CI) were 2-sided with a α=0.05	~ 5,211 shifts examined ~534 (10%) no opportunity for break ~2,249 (43%) breaks with patient duties ~ 2,429 (47%) breaks with no patient duties ~ Meal breaks avg 23.4 minutes for 8-hour shifts, 22.3 minutes for 12-hour shifts and 25.7 minutes for shifts over 12 hours.
Mitra, B. (2008) Rest during shift work in the emergency department No IRB Approval	Survey collection Cohort Design Level 3a	300-bed suburban hospital in eastern Melbourne (Australia) no number of participants provided All participants were medical staff (appears MDs only) All participants volunteered	Number of breaks Duration of breaks End of sift tardiness Unspecified number of medical staff ED only	~ Data stored in Microsoft Excel ~ Fisher's exact test comparison tool with two-tailed P values < 0.05 was considered statistically significant ~ Parametric and non-parametric vales were tested with Student's t-test and Mann-Whitney U-test	233 completed surveys ~ 121 (42.7% shifts worked) from phase 1 (no break) ~ 112 (40.7% shifts worked) from phase 2 (with a break) ~ 20 surveys excluded for being incomplete ~ 4-week study ~ 2 phases (phase 1 no breaks and phase 2 with breaks) ~ Phase 1 – 33.03% took uninterrupted breaks ~ Phase 2 – 60.95% took uninterrupted breaks ~ Doctors who took breaks also reported a significantly subjective tardiness score (P<0.001) and objective fatigue scores were P=0.065
Hurtado, D. (2015) Supervisor's Support for Nurses' Meal Breaks and Mental Health No IRB Approval	Cross-section survey Cohort Design Level 3a	2 Boston teaching hospitals Random sample Inclusion: RNs LPNs PCAs 20+ hours worked per week Excluded: Other healthcare professionals Leave of absence > 12 weeks Work <20 hours per week, travel/contract workers and per diem workers	~ Supervisors' break-specific support is positively associated with nurses' frequency of meal breaks ~ Higher frequency of meal breaks associated with lower psychological distress ~ The interaction of break-specific support with nurses' meal break frequency is negatively associated with psychological distress 1,595 RNs, LPNs and PCAs working in 85 units	Psychological distress: ~K6 questionnaire with internal consistency of α=0.80 and complemented with item-response theory (IRT) calibration SAS 9.3 ~ Meal break frequency ~ 5-point Likert scale 1/3 SAS 9.3 Supervisor support ~ 5-point Likert scale ~ Job Content Questionnaire (JCQ) with an α=0.87 ~ MOLUS v. 4.2	Predictors of meal breaks ~ Avg nurses' meal break = 3.4 on the 5-pint Likert scale ~ Supervisor support of nurses leaving the unit for breaks was 4.3 on the 5-point scale Psychological distress ~ 1/3 of group did not any psychological distress ymptomsK6 mean was 2.0 of 24 possible Points ~ Correlation showed break frequency was associated with psychological distress ~ The interaction effect among psychological distress, meal breaks & supervisor support was not statistically significant (β=0.004)
Taylor, W. (2005) Transforming Work Breaks to Promote Health No IRB Approval	Expert opinion Leve 4	No specific sample provided Sites other's research	"Booster Break" in forms of group exercise, yoga, meditation. Anyone in the work force	Suggested tool: RE-AIM framework	Booster breaks would decrease unhealthy behavior, increase/promote healthy lifestyles with hopes of decreased common chronic diseases such as HTN, DM, Obesity

Appendix C: Synthesis Table

Author, Year, Article Title, Research Design, Level of Evidence	Summarized Results Statistical Significance	Evidence Synthesis Clinical Significance
• Blasche, G. (2017) • Effects of est-Break Intention on Rest-Break Frequency and Work-Related Fatigue • Mixed Method • Diaries Entries • Cohort Level 3a	**Study 1** ~ # of rest breaks M=2.9 with 17% of participants taking a lunch break ~ Length of lunch breaks M=20.2 mins. ~ Smokers breaks M=3.4 and non-smokers 2.6 **Study 2** ~ Avg rest break intention M=9.33	The results of this study suggest the average number of rest breaks taken during a work day is indeed associated with a person's rest break intention. It also suggests that rest break intention predicts the increase in fatigue and distress over the work day.
• Roger, A. (2004) • The Effects of Work Breaks on Staff Nurse Performance • Questionnaire • Log Books • Cohort Level 3a	5,211 shifts examined ~ 534 (10%) no opportunity for break ~ 2,249 (43%) breaks with patient duties ~ 2,429 (47%) breaks with no patient duties Meal breaks avg 23.4 minutes for 8-hour shifts, 22.3 minutes for 12-hour shifts and 25.7 minutes for shifts over 12 hours.	Management should develop a culture that encourages short rest breaks and meal breaks free of patient responsibilities by hiring/assigning relief staff. There was no clinical evidence that lack of proper breaks increase patient care risks, however, duty free breaks are encouraged to assist nurses in their belief of taking a break means abandoning their patients.
• Mitra, B. (2008) • Rest during shift work in the emergency department • Survey collection • Cohort Level 3a	233 completed surveys ~ 121 (42.7% shifts worked) from phase 1 (no break) ~ 112 (40.7% shifts worked) from phase 2 (with a break) ~ 20 surveys excluded for being incomplete • 4-week study • 2 phases (phase 1 no breaks and phase 2 with breaks) • Phase 1 – 33.03% took uninterrupted breaks • Phase 2 – 60.95% took uninterrupted breaks Doctors who took breaks also reported a significantly subjective tardiness score ($P<0.001$) and objective fatigue scores were $P=0.065$	Prolonged work times without breaks lead to fatigue and sleepiness. Although may ED providers do not take rest/meal breaks, they are encouraged for overall performance.
• Hurtado, D. (20150 • Supervisor's Support for Nurses' Meal Breaks and Mental Health • Cross-section survey • Cohort Level 3a	Predictors of meal breaks ~ Avg nurses' meal break = 3.4 on the 5-pint Likert scale ~ Supervisor support of nurses leaving the unit for breaks was 4.3 on the 5-point scale Psychological distress ~ 1/3 of group did not any psychological distress symptomsK6 mean was 2.0 of 24 possible points ~ Correlation showed break frequency was associated with psychological distress The interaction effect among psychological distress, meal breaks & supervisor support was not statistically significant ($\beta=0.004$)	Although supervisors support of meal breaks was highly reported, many nurses' reports of meal breaks were not highly correlated even with the supervisor's support. However, nurses who take more frequent meal breaks, on average, have lower psychological distress which can improve a worker's mental health. Meal breaks should provide daily opportunity for fatigue recovery and more enjoyable meals. Enjoying meals and leisure/personal time have positive influences on mental health.
• Taylor, W. (2005) • Transferring Work Breaks to Promote Health • Expert opinion • Level 4	No statistical significance provided	Booster breaks would decrease unhealthy behavior, increase/promote healthy lifestyles with hopes of decreased common chronic diseases such as HTN, DM, Obesity