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# Burnout syndrome and nurse-to-patient ratio in the workplace

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# **BURNOUT SYNDROME AND NURSE-to-PATIENT RATIO IN THE WORKPLACE**

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# BURNOUT SYNDROME AND NURSE-to-PATIENT RATIO IN THE WORKPLACE

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## *ABSTRACT*

**Introduction:** Burnout among Registered Nurses has been a great concern within the U.S. healthcare system and has been reported in many hospitals. Nurse Burnout has been defined as a chronic response to work-related stress comprising three components or dimensions: emotional exhaustion, depersonalization, and personal accomplishment. The purpose of this research was to analyze the nurse-to-patient ratio to determine how it affects the psychological, mental, emotional health and the nurse overall productivity in the workplace.

**Methodology:** The methodology was a review of literatures and a semi-structured interview. There were four primary databases and one website used in this research, and 31 articles were consulted for this literature review.

**Results:** Study on Psychological, Mental, and Emotional Health and Nurse Productivity in Burnout Syndrome Regarding Nurse-to-Patient Ratio

**Discussion:** The expert's observed causes for nurse dissatisfaction in their position and general fatigue were attributed to mismanagement of personnel and resources, lack of follow through, extended shifts and stretched personal requirements all of which lead to feelings of burnout.

**Conclusion:** The nurse-patient ratio is a direct determinate of the effects of psychological, mental, emotional health and nurse productivity in the workplace which also determines the patients' overall health.

**Key words:** 'nurse burnout' OR 'burnout syndrome' AND 'nurse-to-patient ratio' OR 'workplace' OR 'physical and mental stress' AND 'burnout outcomes'.

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## INTRODUCTION

Burnout Syndrome has been a significant issue in the work environment and its occurrence has grown substantially by 60%-70% over the past decades (Cañadas-De la Fuente, et al., 2015). One of the most common definitions of Nurse Burnout has been a chronic response to work-related stress comprising three components or dimensions: emotional exhaustion, depersonalization, and personal accomplishment (Cañadas-De la Fuente, et al., 2015). Nurses

represented the largest clinical staff population, about 55% in hospitals or general medical facilities; it has been this area most reformers have chosen to focus efforts to reduce costs. These efforts have considered nurses and the cost of their labor as an expense that can easily be cut back by increased hours and a decreased labor force (Li, Pittman, Han, & Lowe, 2017). In addition, 2,976 hospitals in 2013 under the Affordable Care Act's Hospital Readmissions Reduction Program were penalized because of the high nurse-to-patient ratio; 28% received average penalty, while 9% received the maximum penalty (McHugh, Berez, & Small, 2013).

The minimum nurse-to-patient ratio in both hospitals and ambulatory units has been recommended as 1:6 in medical-surgical units and behavioral units, 1:4 in step-down, telemetry, or intermediate care units and for non-critical emergency rooms, 1: 2 for Intensive Care Unit or trauma patients and post-anesthesia units, and 1:1 for every patient under anesthesia (Tevington, 2011). A high nurse-patient ratio has had risky consequences, including high stress levels and mental exhaustion among nurses and has led to an increase in mistakes and accidents, and resulted in a surge in malpractice suits (Rassin & Silner, 2007). The United States (US) population qualified for Medicare totaled 35.1 million. By 2030, the same population has been estimated to increase to 69.7 million and by 2050 to 81.9 million (Holdren, Paul, & Coustasse, 2015). The US Bureau projected between 2012 and 2060, the U.S. population will expand from 314 million in 2012 to 420 million in 2060, an increase of 34% (U.S. Census Bureau, 2014). A large contributing factor to the rise of nurse burnout has been inadequate nurse-patient ratios a condition that has amplified due to high demands in a progressively aging population and because of changes to the health care model (McHugh, Kutney-Lee, Cimiotti, Sloane, & Aiken, 2011).

Broken down by type of nurse, and turnover rates for RNs, LPNs, and CNAs are estimated to be as high as 56%, 51%, and 75%, respectively (Donoghue, 2009). Higher turnover rates in the nursing fields and higher demands of a growing patient field has perpetuated this cycle and has led to burnout, negative patient outcomes, practitioner and patient dissatisfaction and nurse shortage (McMullan, 2014). In 2015, the turnover rate for bedside RNs increased to 17.2%, up from 16.4% in 2014, and the average cost of turnover for a bedside RN expanded from \$37,700 to \$58,400 resulting in an average hospital losing \$5.2 million to \$8 (Donoghue, 2009). As financially debilitating as the costs of empty nursing positions have been for healthcare organizations, those nurses experiencing burnout who do not leave their positions had an even larger financial liability as the loss of motivation has led to a lack of patient care and mistakes resulting in the hospital or other healthcare facility facing a possible liability situation (Henderson, 2015). Up to 63% of preventable errors fell in the nursing sector, many attributed to lack of attention or performance from Burnout Symptoms (Henderson, 2015).

When Burnout Syndrome occurred across the workforce, it has been more commonly observed in nurses because of the emotional aspect of their occupation, especially in hospitals and psychiatric wards where common exposure to stress, inflexible policies, improper work assignments, poor training, inadequate remuneration, employee conflict and complex or unknown patient needs occurred (Ahanchian, Meshkinyazd, & Soudmand, 2015). The nature of this occupation places nurses into situations where they are often unprepared to handle due to lack of training, ability, support, resources or knowledge; leading to a high level of internalized anguish (Ahanchian, et al, 2015). Burnout Syndrome has been shown to increase about 23% for each additional patient added to the nurse's shift workload and most of the nurses have been obligated to work overtime (Holdren, et al, 2015).

The purpose of this research seeks to analyze the nurse-to-patient ratio to determine how it affects the psychological, mental, emotional health, and the nurse productivity within the workplace.

## METHODOLOGY

The working hypotheses were as follows: Hypothesis I, when insufficient nurse-to-patient ratio exists, physiological, mental and emotional burnout will increase. Hypothesis II insufficient nurse-to-patient ratio causes physical exhaustion and overwork, which effectively decreases nurse productivity in the workplace.

The methodology for this study was a qualitative literature review based on the research framework adapted from Lin (2012), which was to examine the factors, causes and consequences of burnout among RNs. The components of Burnout Syndrome and high nurse-to-patient ratio have consequences, such as the increase in turnover and retention among RNs in hospitals, which threatens patient's safety and quality of care. One the most commonly used instruments for the measurement of burnout was the Maslach Burnout Theory, which explained emotional exhaustion, and inefficacy in Burnout. The internal validity of the selected framework has been successfully tested in previous studies (see Figure 1). Additionally, the methodology for this study was performed following the steps of a systematic review supported with a semi-structured interview, which was tape-recorded with an experienced RN (see Appendix 1).

### *Search Strategy*

The search for facts, statistics, and relative information in peer reviewed publications was performed utilizing the following professional electronic databases: PubMed, Academic Search Premier, ProQuest and EBSCO. In addition, reputable websites of professional organizations,

foundations, and government agencies were also used. Key publications were identified using the subsequent terms: 'nurse burnout' OR 'burnout syndrome' AND 'nurse-patient ratio' OR 'workplace' OR 'physical and mental stress' AND 'burnout outcomes'. Literature was selected for review based on relevance to the study of Burnout Syndrome and Nurse-Patient Ratio in the Workplace.

### *Inclusion, Exclusion, and Assessment*

The current literature review was restricted to publications from 2008 to 2017. All results were extracted from studies conducted in the US and published in English. The search was also limited to research studies and reports from government and professional organizations with primary and secondary data. The relevance of 41 publications was assessed through titles; key words, abstracts, and citations, 31 publications were selected for the analysis, 18 of which were used in the results section.

## RESULTS

### *Nurse-to-Patient Ratio in Burnout Syndrome*

In 2015, 14 million Americans were employed in the health care field, representing 10 % of the U.S. work force (Jonas & Kovner, 2015). High nurse-to-patient ratios within this nursing workforce have been a concern for some time. As of 2015, 14 states addressed nurse staffing in hospitals in law/regulation, among other limiting efforts (ANA, 2015). In addition, California has been the only state to passing legislation regulating nurse-to-patient ratios. This law established specific Registered Nurse (RN) to patient ratios for specific hospital divisions. San Francisco, California hospitals mandated a ratio of one RN to four patients compared to the practice created in Great Brittan, which only requires one RN to every eight patients. This has led to better

overall demeanor in nurses of California, lower levels of staff sickness, and the economic aspect of lower staff turnover (Strachan-Hall, 2017). A 2010 study at the University of Pennsylvania, showed 29% of nurses in California experienced high burnout, compared to 34% of nurses in New Jersey and 36% of nurses in Pennsylvania, states without minimum staffing ratios during the period of research. The study further demonstrated 20% of nurses in California reported dissatisfaction with their jobs, compared with 26% and 29% in New Jersey and Pennsylvania (Doring, 2013). Furthermore, each additional patient over four per nurse carried a 23% risk of increased burnout. It also led to a decrease of 15% with job satisfaction. In August 2012, approximately one-third of nurses reported an emotional exhaustion score of 27 or greater, considered by medical standards to be “high burnout” (Doring, 2013).

Another study concluded that support for mandatory nurse-to-patient ratios stems from the belief that a regulated RN staff would increase positive patient outcomes and decrease nursing shortage numbers, which has been present but difficult to calculate due to average working age of nurses, and the supply of nurses working (Adams, 2017). High nurse-to-patient ratio, greater than 1:4, psychological/mental, emotional health difficulties, and nurse productivity have brought many questions and issues to the medical field (Kath, Stichler, Ehrhart, & Sievers, 2013).

### *Psychological and Mental Health in Burnout Syndrome*

Moustaka and Constantinidis (2010) stated the average person was looking for quality health care within a healthful atmosphere when choosing a hospital or any alternative medical organization. The results of their study concluded that burnout resulting from work stress overload, such as an imbalance in nurse-to-patient ratio, has led to psychological dissonance and an imbalance in health care. The study further observed nurse stress was very unpredictable and

stressful, and had multiple phases, which included emotional stress, working environment, interpersonal relationships, individuality, and mental issues.

A psychological contract, characterized by tough multiple bonds between employee and employer, psychological obligations, which are crucial and intangible factors that can be impossible to measure conventionally, and specific responsibilities, such as patient overload has been considered (Jamil, Raja, & Darr, 2013). This contract has been of high importance due to the so-called “mental documentation” that any staff member of an organization needed to feel connected to their workplace. When this mental contract was distressed by an event, as patient overload, it led to aggression, betrayal, job dissatisfaction, stress, and burnout. As reported by research, this contract had an unpredictable impact on nurses’ work attitude, especially if already in a displeased state with their current position (Jamil, Raja, & Darr, 2013).

The psychological contract was also an interpretation based on any single person. Regarding employers and the possible negative effects, this relationship was especially poignant. By breaking this contract, fairness and individual differences, such as increased patients on one nurse versus another, and outcomes had influenced and were important to nurse retention (Rodwell, & Gulyas, 2013). A stressful work place, job dissatisfaction, and lack of general positivity could also occur, which all tied into burnout (Jamil, Raja, & Darr, 2013). It was found that psychological capital had effects on the psychological nurse burnout and coping style was a mediator in the relationship (Ding, et al., 2015).

### *Emotional Health in Burnout Syndrome*

Emotional labor, by Gray (2010), correlates with nursing discipline research. In a cross-sectional survey study of 183 nurses conducted by Bartram, Casimir, Djurkovic, Leggat, &

Stanton (2012) the relationship between high performance work systems, such as high nurse-to-patient ratio, emotional labor, burnout and intention to leave were evaluated. Previous studies showed that emotional labor and burnout were associated with an increase in intention to leave within the nursing discipline and evidenced that high-performance work systems directly resulted in decreased turnover. Perceived high-performance work systems were moderately negative within the relationship between emotional labor and burnout (Bartram, et al., 2012). A study by Soo-Ok and Mee-Suk (2015) examined the relationship of emotional labor and job burnout. With 217 clinical nurse participants, job burnout showed positive correlation with emotional labor, and negative correlation with positive resources (Soo-Ok & Mee-Suk, 2015).

Emotional intelligence correlates with emotional burnout. In a study conducted by Hong, Lee, & Sook (2016) turnover intention was tested through emotional labor, job stress nurse-to-patient ratio, emotional intelligence, and burnout in efforts to identify the effect of emotional intelligence between the variables. The findings indicated that emotional intelligence had a mediation effect between emotional labor and burnout. If emotional intelligence increased, a resulting decrease in negative effects of emotional labor and burnout occurred (Hong, Lee, & Sook, 2016).

Female nurses make up more majority of the nursing field, with only 11% percent of licensed nurses from 2010 to 2013 being male (Nursing World, 2014). A study of the differences in emotional response demonstrated men and women have gender differences in emotional experience and emotional expressivity. The findings suggested when watching videos that induce emotional response, men had more intense emotional experiences, whereas women had higher emotional expressivity, particularly for negative emotions. In addition, gender differences depended on the specific emotion type but not the valence (Deng, Chang, Yang, Huo,

& Zhou, 2016). According to the research, and as stated previously, the field of nursing is mostly comprised of women and women display a higher expressivity towards emotion. These results show the need for a balance between nurse-to-patient ratio, to account for the fact that emotions could not be taken over by patient overload.

### *Nurse Productivity in Burnout Syndrome*

Research shows a direct correlation between staffing levels and patient outcomes for specific nurse-sensitive signals, with lower patient to nurse ratios, 1:4 or less, associated with better outcomes (Shuldham, Parkin, Firouzi, Roughton, & Lau-Walker, 2009). Higher quantity of work and patient load per nurse directly affected facility productivity and patient outcomes. In an article by the Department for Professional Employees (DPE) (2016) it was stated that, aside from the occupational hazards caused by understaffing created by high patient to nurse ratios, numerous previous studies researched from this study have shown a correlation between inadequate nurse staffing and poor patient outcomes. High nurse-to-patient ratios, greater than 1:4, with each additional patient added, is associated with a 7% increase in hospital mortality that could be caused by patient infections, bedsores, pneumonia, cardiac arrest, and accidental death. Larger than four patients per nurse work-loads and hospitals with staffing levels in the bottom 30% are more likely to be in the worst 10% of facilities for heart failure, electrolyte imbalance, sepsis, respiratory infection, and urinary tract infections. It was also noted that every additional patient added to a hospital staff nurse's workload was associated with a 7% increase in hospital mortality (DPE, 2016).

Work shift length for a nurse and the responsibility to cover unscheduled shifts has directly influenced feelings of exhaustion and a tendency towards a nurse vacating their position in search for something more fulfilling or concerned with their stress levels. A standard nursing

shift of 12 hours was often stretched to 18 as a cost cutting measure to take advantage of previously employed nurses, rather than a more expensive strategy to hire more. Further, to maintain patient safety, when a nurse is ill and cannot work or otherwise disposed, the burden falls to other nursing professionals and a 12-hour shift can easily lead to a 24-hour shift and increased exhaustion (see Table 1).

## DISCUSSION

The purpose of the study was to analyze the nurse-to-patient ratio to determine how it affected the psychological, mental, emotional health and the nurse overall productivity in the workplace. Burnout Syndrome has led to the expansion of psychological, mental as well as physical difficulties for RNs, which has compromised job performance and patient safety, and increased nurse turnover.

Expert's observed causes for nurse dissatisfaction in their position and general fatigue attributed to mismanagement of personnel and resources, lack of follow through, extended shifts and stretched personal requirements, all of which contribute to burnout. Some states, such as California, legally mandate nurse-to-patient ratios requiring a consistent level of nurse staffing and support for each patient admitted (Strachan-Hall, 2017). The state in which the expert worked was not a state that had a pre-determined and consistently monitored ratio (DPE, 2016). While there was a suggested norm of two patients for every one nurse, this ratio was often skewed as some patients required more attention than others or the floor was overpopulated by patients and understaffed which is viewed as a common expense-cutting practice. Management changes in a healthcare facility, like one observed in the expert's career, resulted in a replacement of staff with the new staff being trained inadequately at their hire date or receiving ongoing and time consuming on-the-job training. This change of trained staff with ill-trained

replacements led to remaining staff members overseeing more than a standard two patients to maintain patient safety. Additionally, a lack of follow through on promises made by administration or replacement of administration and their agendas increased nurse dissatisfaction and contributed to burn out.

Many hospitals have attracted and recruited talented nurses into open positions with promises of future positions in cutting edge fields. These promises often to fail or an agreed upon timeline was extended indefinitely. The resulting effect was motivated nurses being unable to pursue their ambitions and being required to fulfill duties that they did not desire, or thought would be a temporary means to an end and ultimately led to unmotivated nursing professionals.

#### *Limitations and Practical Implications*

This literature review was limited due to the restrictions in the search strategy used, such as the number of databases searched, and publication bias may have affected the availability and quality of the research identified during the search. Further, researcher's biases and publication's biases could also affect the results of the study. Understanding the Nurse Burnout Syndrome can improve the quality of healthcare and decrease its cost when applied for clinical decisions, patient care and limiting nurse turnover. The findings of the study could be utilized by health system providers for growth and expansion of patient-centered health care while increasing the effectiveness and efficiency of its services.

#### **Conclusion**

In conclusion, nurse-to-patient ratio has shown to significantly change the way the nursing profession conducts services and produces outcomes. The literature review concluded this was especially true in the regards to psychological, mental, emotional health. Nurse-to-

patient ratio is a direct determinate of nurse performance and patient health status, thus supporting both hypotheses.

## REFERENCES

- Adams, J. (2017). *Facts on the nursing shortage in North America*. [ANA]. Retrieved March 28, 2017, from <https://www.nursingsociety.org/connect-engage/about-stti/stti-media/nursing-shortage-information/facts-on-the-nursing-shortage-in-north-america>
- Ahanchian, M. R., Meshkinyazd, A., & Soudmand, P. (2015). Nurses burnout in psychiatric wards. *Journal of Fundamentals of Mental Health*, 17(5), 260-264.)
- American Nurse Association [ANA], (2015). *Nurse Staffing*. Retrieved from <http://www.nursingworld.org/MainMenuCategories/Policy-Advocacy/State/Legislative-Agenda-Reports/State-StaffingPlansRatio>
- Bartram, T., Casimir, G., Djurkovic, N., Leggat, S. G., & Stanton, P. (2012). Do perceived high performance work systems influence the relationship between emotional labor, burnout and intention to leave. A study of Australian nurses. *Journal of Advanced Nursing*, 68(7), 1567-1578. doi:10.1111/j.1365-2648.2012. 05968.x
- Cañadas-De la Fuente, G. A., Vargas, C., San Luis, C., García, I., Cañadas, G. R., & De la Fuente, E. I. (2015). Risk factors and prevalence of burnout syndrome in the nursing profession. *International Journal of Nursing Studies*, 52(1), 240-249. doi: 10.1016/j.ijnurstu.2014.07.001
- Deng, Y., Chang, L., Yang, M., Huo, M., & Zhou, R. (2016). Gender Differences in Emotional Response: Inconsistency between Experience and Expressivity. *Plos One*, 11(6), e0158666.
- Department for Professional Employees [DPE], (2016). *Safe-Staffing Ratios: Benefiting Nurses and Patients*. Retrieved February 16, 2017, from <http://dpeaflcio.org/programs-publications/issue-fact-sheets/safe-staffing-ratios-benefiting-nurses-and-patients/>
- Ding, Y., Yang, Y., Yang, X., Zhang, T., Qiu, X., He, X., & Sui, H. (2015). The mediating role of coping style in the relationship between psychological capital and burnout among Chinese nurses. *Plos One*, 10(4), e0122128.
- Dorning, J. (2013, February). Safe-Staffing ratios: Benefiting Nurses and Patients. *Department for Professional Employees*. Retrieved March 28, 2017, from <http://dpeaflcio.org/wp-content/uploads/Safe-Staffing-Ratios-2013.pdf>

- Donoghue, C. (2009). "Nursing Home Staff Turnover and Retention: An Analysis of National Level Data." *Journal of Applied Gerontology* 29(1): 89–105.
- Gray, B. (2010). Emotional Labor, gender and professional stereotypes of emotional and physical contact, and personal perspective on the emotional labor of nursing. *Journal of Gender Studies*, 19(4), 349-360. Doi:10.1080/09589236.2010.514207
- Henderson, J. (2015). The Effect of Hardiness Education on Hardiness and Burnout On Registered Nurses. *Nursing Economic*, 33(4), 204-209.)
- Holdren, P., Paul III, D. P., Coustasse, A. (2015, March). Burnout syndrome in hospital nurses. *Paper presented at BHAA International 2015 in Chicago, IL, (2-5).*
- Hong, E., & Lee, Y. S. (2016). The mediating effect of emotional intelligence between emotional labour, job stress, burnout and nurses' turnover intention. *International Journal Of Nursing Practice*, 22(6), 625-632. doi:10.1111/ijn.12493
- Jamil, A., Raja, U., & Darr, W. (2013). Psychological contract types as moderator in the breach-violation and violation-burnout relationships. *Journal of Psychology*, 147(5), 491-515. doi:10.1080/00223980.2012.717552
- Jonas, S., & Kovner, R. (2015) *Health Care Delivery in the United States*. New York, NY: Springer Publisher Company
- Kath, L. M., Stichler, J. F., Ehrhart, M. G., & Sievers, A. (2013). Predictors of nurse manager stress: a dominance analysis of potential work environment stressors. *International journal of nursing studies*, 50(11), 1474-1480.
- Li, S., Pittman, P., Han, X., & Lowe, T. J. (2017). Nurse- Related Clinical Nonlicensed Personnel in US Hospitals and Their Relationship with Nurse Staffing Levels. *Health Services Research*, 52(S1), 422-436.
- Lin, Y. W. (2012). The causes, consequences, and mediating effects of job burnout among hospital employees in Taiwan. *Journal of Hospital Administration*, 2(1), p15.
- McHugh, M. D., Berez, J., & Small, D. S. (2013). Hospitals With Higher Nurse Staffing Had Lower Odds Of Readmissions Penalties Than Hospitals With Lower Staffing. *Health Affairs (Project Hope)*, 32(10), 1740–1747. <http://doi.org/10.1377/hlthaff.2013.0613>
- McHugh, M. D., Kutney-Lee, A., Cimiotti, J. P., Sloane, D. M., & Aiken, L. H. (2011). Nurses' widespread job dissatisfaction, burnout, and frustration with health benefits signal problems for patient care. *Health Affairs*, 30(2), 202-210.
- McMullan, S. P. (2014). Organizational structure and work environment predictors of adverse events as reported by nurse anesthetists (Doctoral dissertation). *Rutgers University-Graduate School-Newark*.

- Moustaka, E., & Constantindis, T. (2010). Sources and effects of Work-related stress in nursing. *Health Science Journal*, 4(4). 210-216.
- Nursing World. (2014). The Nursing Workforce 2014: Growth, Salaries, Education, Demographics & Trends. *American Nurse Association*. Retrieved February 15, 2017, from <http://www.nursingworld.org/MainMenuCategories/ThePracticeofProfessionalNursing/workforce/Fast-Facts-2014-Nursing-Workforce.pdf>
- Rassin, M., & Silner, D. (2007). Trends in nursing staff allocation: the nurse-to-patient ratio and skill mix issues in Israel. *International Nursing Review*, 54(1), 63-69.
- Rodwell, J., & Gulyas, A. (2013). The impact of the psychological contract, justice and individual differences: nurses take it personally when employers break promises. *Journal of Advanced Nursing*, 69(12), 2774-2785. doi:10.1111/jan.1216
- Shuldham, C., Parkin, C., Firouzi, A., Roughton, M., & Lau-Walker, M. (2009). The relationship between nurse staffing and patient outcomes: A case study. *International Journal of Nursing Studies*, 46(7), 986-992. doi:10.1016/j.ijnurstu.2008.06.004
- Soo-Ok, K., & Mee-Suk, W. (2015). A study on Emotional labor, Positive resources and Job burnout in clinical Nurses. *Journal of The Korea Academia-Industrial Cooperation Society*, 16(2), 1273-1283. doi:10.5762/KAIS.2015.16.2.1273
- Stimpfel, A. W., Sloane, D. M., & Aiken, L. H. (2012). The Longer The Shifts For Hospital Nurses, The Higher The Levels Of Burnout And Patient Dissatisfaction. *Health Affairs (Project Hope)*, 31(11), 2501–2509. <http://doi.org/10.1377/hlthaff.2011.1377>
- Strachan-Hall, E. (2017). California has won case for nurse-patient ratios. *Nursing Management-UK*, 23(9), 15
- Tevington, P. (2011). Mandatory nurse-patient ratios. *Medsurg nursing*, 20(5), 265
- U.S. Census Bureau (2014). *Population Estimates and Projections the Baby Boom Cohort in the United States*. Retrieved February 18, 2017, from <https://www.census.gov/prod/2014pubs/p25-1141.pdf>

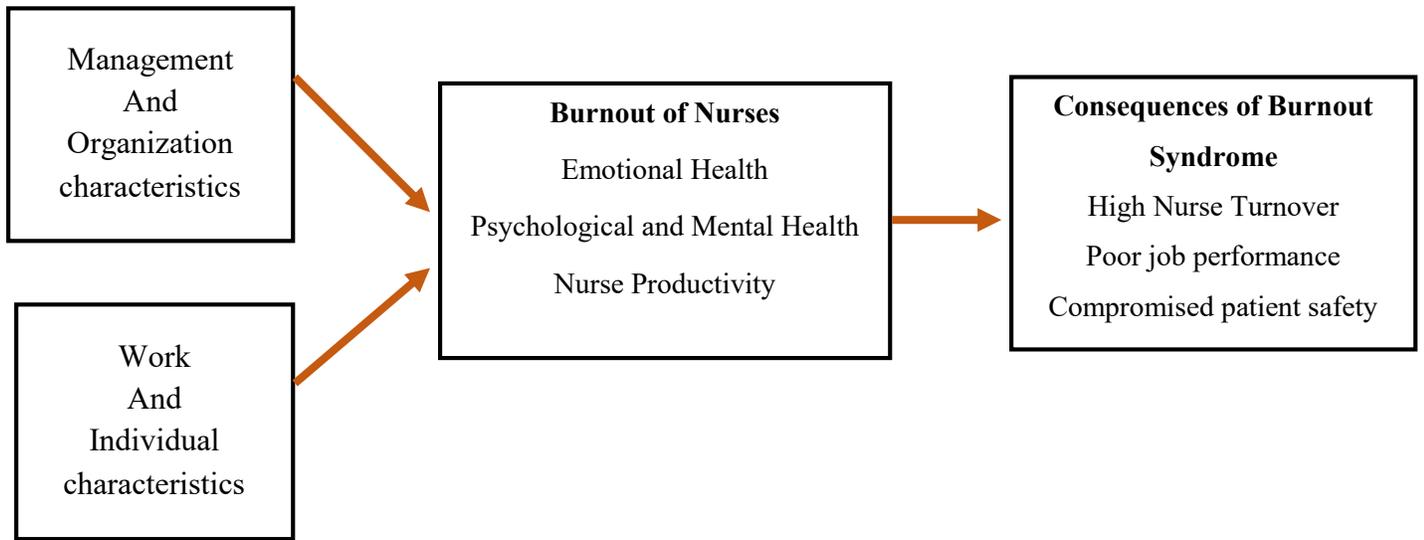


Figure 1: Conceptual Framework adapted from Lin, 2012

## Appendix 1:

### Questions for semi-structured interview of Burnout Syndrome and Nurse-Patient Ratio in the Workplace

1. How long have you been a nurse?
2. How many hospitals have you worked in?
3. What is the longest hourly shift you have worked?
4. What is the average nurse –to-patient ratio for you is the best-case scenario?
5. Have you ever experience any signs of Burnout Syndrome?
6. Did you experience these symptoms when you had many patients assigned to you? If so, what was the number?
7. What do you think about nurse shortage in general?
8. Have you ever thought to change your career?
9. What do you think, which benefits will help in a long run to prevent or reduce the Burnout Symptoms?
10. Describe how high nurse -patient ratio affects your work?
11. Rate from **1** to **5** which of the following are important qualities for the nurse?
  - Physical health
  - Psychological health
  - Productivity
  - Stress Resistance
  - Problem solving
12. How do you get informed about new projects and shift hours that you must cover?

Table 1: Nurse Satisfaction with Scheduling And Nurse Outcomes, By Shift Length

	<b>Shift length, hours</b>			
	<b>8-9</b>	<b>10-11</b>	<b>12-13</b>	<b>&gt;13</b>
<b>SATISFACTION WITH SCHEDULING</b>				
Satisfied with schedule				
Strongly agree	85%	82%	88%	84%
Strongly disagree	15	18	12	16
Actively participate in scheduling				
Strongly agree	66	66	79	73
Strongly disagree	34	34	21	27
Flexible work schedules are available				
Strongly agree	67	65	73	66
Strongly disagree	32	35	27	34
<b>OUTCOMES</b>				
Burnout score				
≥27	20	31	44	56
<27	80	69	56	44
Job dissatisfaction				
Little/very dissatisfied	24	35	25	43
Very/moderately satisfied	76	65	75	57
Intention to leave employer within a year				
No	11	15	15	25

	Shift length, hours			
	8-9	10-11	12-13	>13
Yes	89	85	85	75

(Stimpfel, Sloane, & Aiken, 2012)

Table 2: Summary of Study on Psychological, Mental, and Emotional Health and Nurse Productivity in Burnout Syndrome Regarding Nurse-Patient Ratio

Effects of Nurse-to-Patient Ratio on Nursing	Author/Year	Key Findings/Outcomes
Nurse-to-Patient ratio in Nursing Burnout	Jonas & Kovner, 2015 ANA, 2015 Strachan-Hall, 2017 Doring, 2013 Adams, 2017	-10 % of workforce in America employed in health field. -California only state to pass law on nurse-patient ratio. -Nurse patient-patient ratios have led to better nurse demeanor, less sickness, and lower nurse turnover. -Nurses with ratio standards had less burnout. 20% California, 34% New Jersey, 36% Pennsylvania, and job dissatisfaction 20% California, 26% New Jersey, 29% Pennsylvania. - Support for ratios concluded from supply of working nurses and nursing shortages.
Psychological and Mental Health	Moustaka & Constantindis, 2010 Jamil & Darr, 2013 Rodwell, 2013 Ding, et al, 2015	-Work overload, such as nurse-patient ratio, can lead to psychological dissonance. -Psychological contract can be broken by nurse-patient ratio, causing burnout, aggression, betrayal, and job dissatisfaction. - Breaking psychological contract through uneven ratios among staff can influence retention. -Psychological capital has effects on psychological burnout and coping style is a mediator.

<p>Emotional Health</p>	<p>Bartram, et al, 2012</p> <p>Soo-Ok &amp; Mee-Suk, 2015</p> <p>Hong, &amp; Young, 2016</p> <p>Nursing World, 2014</p> <p>Deng, Chang, Yang, Huo, &amp; Zhou, 2016</p>	<ul style="list-style-type: none"> <li>-Emotional labor, such as high ratio, was positively associated with intention to leave the workplace.</li> <li>-Perceived high performance work systems negatively moderate the relationship between emotional labor and burnout.</li> <li>-Positive correlation with emotional labor and burnout and negative correlation with positive resources.</li> <li>-Emotional intelligence had a mediation effect between emotional labor and burnout.</li> <li>-Females were the majority of nursing.</li> <li>-Women have a higher expressivity towards emotion.</li> </ul>
<p>Nurse Productivity</p>	<p>Shuldham, Parkin, Firouzi, Roughton, &amp; Lau-Walker, 2009</p> <p>DPE, 2016</p>	<ul style="list-style-type: none"> <li>-Lower patient rations were associated with better patient outcomes.</li> <li>-Higher patient load per nurse was associated with poor patient outcomes.</li> </ul>