Understanding Nursing Retention: A Study on Nurses' Perceptions Towards Work Efficiency, Workload, and Burnout

Chua Wei Yu[1]#*, Seah Jing Yan[1]#, Yong Jung Hahn[1]#, Lau Meng Er[2] and Yanika Kowitlawkul[3]

[1]Yong Loo Lin School of Medicine, National University of Singapore, Singapore

[2]Nursing Manager, Ng Teng Fong General Hospital, Singapore

[3]Assistant Professor, Alice Lee Centre for Nursing Studies/Yong Loo Lin School of Medicine, National University of Singapore, Singapore

#These three authors contributed equally as first authors

*Corresponding author: Chua Wei Yu, Yong Loo Lin School of Medicine, National University of Singapore, Singapore

ARTICLE INFO

ABSTRACT

Aims: To explore nurses' perceptions towards their work efficiency, workload, and burnout in an acute care hospital.

Background: The demand on healthcare systems has increased drastically in the past two years due to the COVID-19 pandemic, but countries have not been able to meet the increasing needs with a corresponding increase in the nursing workforce.

Introduction: The shortage of nurses, coupled with inefficient work processes have increased the workload and stress that hospital nurses face. It is associated with burnout which in turn hampers the efforts made to recruit and retain nurses.

Methods: A quantifying descriptive qualitative method with open-ended questions was used for this study. 57 nurses met the criteria and participated in our study. The survey questions were used to explore their working environment, perceptions towards their workload, and suggestions regarding work issues. The study was conducted at an acute care hospital in Singapore.

Results/Findings: Participants perceived manpower shortage, tasks which take time away from patient care, and miscommunication as causes of work inefficiency. A comfortable working environment, good colleagues, and salary were influencing factors for nurses to stay at their job.

Discussion: Finding solutions beyond increasing manpower to address workplace inefficiency, high workload, and burnout in nurses.

Conclusion: Patient care is at the heart of nursing. However, the high workload, manpower shortage, and workplace inefficiency has contributed to burnout and less time spent on it.

Implications for Nursing: Nursing managers and hospital administrators must examine what influences nurses to stay, and what gives them a sense of accomplishment in order to retain nurses.

Implications for Nursing Policy: Quarterly review of nurses' working environments could be implemented to promote a better working environment, as well as improve the retention of nurses.

Keywords: Burnout; Workload; Nurses; Retention; Efficiency; Turnover; Hospital

Introduction

According to the International Council of Nurses (ICN), the global shortage of nurses is a crisis that continues to adversely impact healthcare (International Council of Nurses Policy Brief, [1]). Reasons include the long working hours, wages that are below expectation, ageing populations, and most recently, the global pandemic which has diverted nurses away from their usual tasks. Having a sufficient nurse to patient ratio not only has many clinical and economic advantages in patient care (Simpson, et al. [2]), it is also essential in the running of a world class medical institution. The demand on healthcare systems has increased drastically in the past year (International Council of Nurses Policy Brief, [1]), but countries have not been able to meet the increasing needs with a corresponding increase in the nursing workforce (International Council of Nurses Policy Brief, [1]). In the first half of 2021 alone, 500 foreign doctors and nurses have resigned in Singapore, compared with 500 in the whole of 2020 and 600 in 2019 (Tan [3]). An extrapolation of the numbers results in a rough attrition rate of 8% for this group of healthcare workers (MOH [4]). A multitude of factors have contributed to this high attrition rate. Firstly, the increased working hours.

It has been over 20 months of continuous daily battles against the pandemic, and not only have a large majority of healthcare workers been unable to take leave since it started, over 90 percent of them will also not be able to clear their accumulated leave (Tan [3]). Additionally, monthly working hours are high, ranging from 160-175 hours per month (Tan [3]). This, coupled with inefficient work processes have increased the workload and stress that hospital nurses face (Hendrich [5]). These same factors are also associated with burnout, (Lin, et al. [6]) which in turn hampers the efforts made to recruit and retain nurses. Ultimately, this negatively affects nurse staffing and patient outcomes (Garcia, et al. [5,7]). Understanding the root cause of high turnover rate related workload would help to retain nurses in hospitals, which can in turn lower the turnover rate. The purpose of this study is to explore nurses' perceptions towards work efficiency, workload, and burnout in a hospital setting to gain more understanding of their views in enhancing nurses' retention in hospitals.

Methods

Design and Setting

A quantifying descriptive qualitative method with open-ended questions was used for this study. The demographic data and open-ended survey were developed according to the Grant, et al. [8] study. The survey was used to explore their working environment, perceptions towards their workload, and suggestions regarding work issues. The study was conducted at Ng Teng Fong General Hospital (NTFGH), an acute care hospital in Singapore.

Sample and Survey

Convenient sampling was adopted in this study. The eligible criteria were enrolled or staff nurses who had a minimum of two years of working experience in NTFGH. There were 80 nurses who completed the survey, but only 57 nurses who met the criteria, and were selected for the study. The survey included four sections;

1) Demographic data,

2) Job scope aspects that were inefficient,

3) Factors that cause nurses to burnout, and

4) What can be done to improve nurses' working experience.

Data Collection and Ethical Considerations

Ethics approval from NUS-IRB was granted before data collection. Permission for the administration of the survey was obtained from the nurse administrators. The invitation flyer and email with the online weblink were then sent out to eligible participants. The participants filled out the survey online and it took 3 weeks for data collection.

Data Analysis

The data was exported into an excel file, before the demographic and quantitative data were imported into SPSS (version 26). Descriptive analysis was used to describe the participants' characteristics. The content analysis method was used to identify the significant statements and key words. Lastly, qualification of the similar qualitative method was used to quantify the qualitative data and range the most common concepts/codes.

Results

Characteristics of Participants

The participants' profiles are presented in Table 1. Majority of the participants were female (86.0%). Three quarters of the participants (75.5%) were Staff Nurses, and the remaining one quarter (24.5%) were Enrolled Nurses. The mean age is 32.23 years old. On average the nurses worked for 9.28 years as a nurse, and 6.32 years in this hospital. They worked on average 41.83 hours a week and all the nurses work overtime at least 1 day of the week. Majority of the nurses worked at the inpatient department (96.5%). The nurses self-reported an average score of 3.09, 2.70 and 3.26 out of 5 for feeling overworked, satisfied, and burnt out respectively. When ranking the different aspects, majority of nurses (n=40, 70.2%) felt that patient care could be made more efficient. Coordinating the care of patients, communication, and answering/making phone calls were the subsequent aspects that nurses felt could be made more efficient. Preparing/clearing requisites was least able (n=11, 19.3%) to be made more efficient by nurses. Similarly, majority of nurses (n=37, 64.9%) felt that patient care burned them out the most. Answering/making phone calls, coordinating the care of patients, and communication were the next few variables that nurses felt burned them out the most. Likewise, preparing/clearing requisites was the task that least (n=7, 12.3%) burns them out. Table 2 presents the ranking of job scope aspects that can be made more efficient, and factors that impact nurses' burnout.

Table 1: Demographics of Nursing Population (N = 57).

Variable	Number (%)/ Mean	Range
Female	49 (86.0%)	
Male	6 (10.5%)	
Missing data	2 (3.5%)	
Job Role		
Enrolled Nurse	14 (24.5%)	
Staff Nurse	43 (75.5%)	
Department		
Inpatient	55 (96.5%)	
Emergency	2 (3.5%)	
How often do you work overtime in a week?		
Never = 0	0 (0%)	
1-2 times =1	36 (63.2%)	
3-4 times =2	14 (24.6%)	
5-6 times =3	5 (8.8%)	
More than 6 times =4	2 (3.5%)	
Age (years)	32.23 ± 6.6	23-53
Duration (as nurse) in years	9.28 ± 5.4	28-Feb
Duration (in hospital) in years	6.32 ± 3.1	14-Jan
Hours worked in a week	41.83 ± 6.6	Aug-60
Hours overtime in a week	3.06 ± 3.2	0-15
Overworked (on a scale from 0 to 5, with 5 being extremely overworked)	3.09 ± 1.5	0-5
Satisfaction (on a scale from 0 to 5, with 5 being highly satisfied)	2.70 ± 1.4	0-5
Burnout (on a scale of 0 to 5, with 5 being extremely burnout)	3.26 ± 1.4	0-5

Table 2: Aspect of job scope that can be made more efficient, and factors impacting nurses' burnout.

Variable	Number (%)
Aspect can be made more Efficient	
Patient Care	40 (70.2%)
Coordinating care of patient	24 (42.1%)
Communication	20 (35.1%)
Answering/Making phone calls	20 (35.1%)
Documentation	18 (31.6%)
Transportation	17 (29.8%)
Preparing/Clearing requisites	11 (19.3%)
Burnout Factors	
Patient Care	37 (64.9%)
Answering/Making phone calls	21 (36.8%)
Coordinating care of patient	16 (28.1%)
Communication	16 (28.1%)
Transportation	12 (21.1%)

Documentation	11 (19.3%)
Preparing/Clearing requisites	7 (12.3%)

Nurses' Perception and Experiences Regarding Work Related Issues

Work Efficiency: The results showed that the participants perceived manpower shortage (n=10, 22.7%) as the main factor that impacted their work efficiency. Tasks which take time away from patient care, (n=9, 20.5%) as well as miscommunication (n=7, 15.9%) were the next two perceived causes of work inefficiency. The nurses suggested increasing manpower (n=18, 34.0%) and having dedicated staff (n=17, 32.1%) in the areas of administration, discharge planning and care appointment, transportation, serving meals, and making calls. Better communication between healthcare teams (n=7, 13.2%) was also suggested.

Burnout: High workload (n=20, 14.9%), manpower shortage (n=14, 20.9%), and unreasonable demands from patients and family (n=10, 14.9%) were listed as the three main causes of burnout. The nurses suggested increasing manpower (n=26, 53.1%) , increasing and enforcing rest (n=7, 14.3%), as well as re-examining workflows (n=4, 8.2%) to be helpful for reducing burnout.

Workload: Suggestions on better workload management besides hiring more manpower included better teamwork (n=11, 23.9%), reduced job scope (n=10, 21.7%), as well as a better work life balance (n=5, 10.9%).

Time Spent: Nurses wished to spend less time on documentation (n=12, 32.7%), answering phone calls (n=7, 18.9%), and communication with patient's family (13.5%), while a large majority of them wished to spend more time on patient care (n=37, 74.0%) and self-care (n=9, 18.0%).

Accomplishment: Completing daily tasks (n=15, 22.7%), ending work on time (n=14, 21.2%), and patient recovery (n=9, 13.6%) were the three main reasons for nurses to feel accomplished at the end of the day. A comfortable working environment (n=10, 20.0%), good colleagues (n=9, 18.0%), and salary (n=8, 16.0%) were influencing factors for nurses to stay at their job. Table 3 presents nurses' perceptions and suggestions on work related issues.

Table 3: Nurses' perception and suggestion on work related issues.

Category	Nurse Perception (Number, %)	Suggestion (Number, %)
Work efficiency	- Manpower shortage (10, 17.5%)	- Increase manpower (18, 31.6%)
	- Tasks which take time away from patient care (9, 15.8%)	- Dedicated staff to:(17, 30.0%)
	- Miscommunication (7, 12.3%)	- Administrative matters (2, 3.5%)
	- Inefficient patient transport (3, 5.3%)	- Discharge planning and care appointment (3, 5.3%)
	- Repeated documentations (3, 5.3%)	- Patient transport (6, 10.6%)
	- Schedules keep changing (3, 5.3%)	- Serving and clearing diets (1, 1.8%)
	- Others (9, 15.8%)	- Picking up calls (3, 5.3%)
		- Better communication between healthcare teams (7, 12.3%)
		- Others (11, 19.3%)
Burn out	- High workload (20, 35.1%)	- Increase manpower (26, 45.6%)
	- Manpower shortage (14, 24.6%)	- Increase and enforce rest (7, 12.3%)
	- Unreasonable demands from patients and family (10, 17.5%)	- Re-examine workflows (4, 7.0%)
	- Poor work efficiency (6, 10.5%)	- Better teamwork with healthcare team (3, 5.3%)
	- Unnecessary tasks (5, 8.8%)	- Decrease workload (3, 5.3%)
	- Phone calls	- Others (6,10.6%)
	- Documentation	
	- Meal delivery	
	- Portering	
	- Others (12, 21.0%)	

Workload			Suggestions to better manage workload (apart from hiring more manpower)
			- Better teamwork (11, 19.3%)
			- Reduce job scope (10, 17.5%)
			- Better work life balance (5, 8.8%)
			- Dedicated staff for
			- Administrative matters (4, 7.0%)
			- Others (16, 28.1%)
Time Spent	Wishes to spend lesser time on:		Wishes to spend more time on:
	- Documentation (12, 21.1%)		- Patient care (37, 64.9%)
	- Answering phone calls (7, 12.3%)		- Self-care (9, 15.8%)
	- Communication with patient's family (5, 8.8%)		- Others (4, 7.0%)
	- Following up on discharge queries (4, 7.0%)		
	- Accompanying patients to procedures (4, 7.0%)		
	- Others (5, 8.8%)		
Accomplishment	- Completing daily tasks (15, 26.3%)		
	- Ending work on time (14, 24.6%)		
	- Patient recovery (9, 15.8%)		
	- Patient care (8, 14.0%)		
	- Appreciative patient (6, 10.5%)		
	- Others (14, 24.6%)		
Influencing factor to staying	- Comfortable working environment (10, 17.5%)		
	- Good colleagues (9, 15.8%)		
	- Salary (8, 14.0%)		
	- Bonded (5. 8.8%)		
	- Others (18, 31.6%)		

Discussion and Nursing Implications

In this study, we explored nurses' perceptions towards work efficiency, workload, and burnout issues.

Work Efficiency

The results showed that the top three main inefficiencies were attributed to a manpower shortage, tasks which take time away from patient care, and miscommunication between healthcare professionals. The problem of a nursing shortage in Singapore is not new (Chua [9]) and the COVID-19 pandemic has only accentuated it (Chia [10]). Manpower shortage made many nurses experience burnout amidst other issues such as a lack of recognition and protection against abuse (Yip, et al. [11]). With insufficient supply to meet the demands in hospitals, it is unsurprising that there are work inefficiencies. The logical solution that was suggested by those surveyed was to hire more nurses. Despite the demand for nurses, these vacancies are still not filled due to the hardships of the job and the reduced influx of foreign nurses (Begum [12]). Thus, the root of the problem that needs to be tackled is how to improve nurses' working conditions to make the job more desirable. The nurses surveyed also reported that they were often preoccupied by non-patient care centred tasks such as documentation, transportation of patients, and answering calls. The nature of these tasks dictates that nurses spend a significant amount of time away from essential patient care (Yen, et al. [13]) and thus they feel it is inefficient.

To address this, those surveyed suggested hiring dedicated staff to handle these tasks. This would free up nurses for tasks that make better use of their skill sets (Goh [14]). Lastly, the nurses surveyed attributed a significant amount of inefficiencies to miscommunication between healthcare professionals, particularly with doctors. Miscommunication leads to, in the best case, time wasted, and in the worst case, medical errors that severely affect patients (Tjia, et al. [15]). Those surveyed suggested improving the communication framework between healthcare professionals (Matziou, et al. [16]) as this would improve relations between nurses and doctors, and ultimately increase the level of patient care.

Burnout

The study found that the most pressing factors impacting burnout were the high workload, a manpower shortage, and unreasonable demands from patients and their family. The top two factors of a high workload and a manpower shortage are closely related. Nurses surveyed commented that the volume of work that had to be done greatly exceeded the current nurse staffing levels. They remarked that there were "too many things to do at the same time" and that "they cannot possibly be everywhere at once". These result in insufficient rest, and a long-term high-stress environment which drastically increases burnout rates among nurses (Tan, et al. [17]). Nurses also often faced unreasonable demands and abuse from patients and their families, and this was worsened during the COVID-19 pandemic when nurses had a higher workload. Abuse can come in both the physical and verbal forms and can result in nurses being psychologically traumatised and emotionally drained (Chua [18]). To tackle these issues, the nurses surveyed suggested once again increasing manpower, increasing and enforcing rest times, as well as re-examining workflows. As mentioned previously, increasing manpower is a complex process, and the root of the problem should be targeted instead (Begum [12]).

The nurses highlighted that rest should be increased and enforced, and this was related to their other suggestion of workflows having to be re-examined. They identified poor scheduling of staff which caused many nurses to have to be called back to work on their designated rest days, thus decreasing much needed rest and relaxation, and increasing the incidence of burnout. Having sufficient time to rest and relax is essential in preventing burnout (Demerouti [19]), and thus this offers an alternative to help nurses while manpower shortages cannot be adequately dealt with.

Workload

Our study found that nurses perceived their workload to be high, which was closely related to the manpower shortage and burnout they face. The majority of nurses in the study felt that better teamwork would help better manage their workload while hiring more manpower remains challenging. The finding was in congruence with studies (Yanchus, et al. [20,21]) that have addressed how good teamwork is an antidote to high workload and inadequate staffing. Benefits of effective teamwork include improved coordination of care, efficient use of healthcare services and enhanced communication (Babiker, et al. [22]). Nurse leaders can benefit from these findings by recognizing the importance of creating a work environment that promotes collaboration and teamwork among nurses, and the multidisciplinary team they work with (Nutter [21]). In particular, good communication, trust and mutual respect, and accountability are aspects that would aid in the development of a more effective team (Yanchus, et al. [20]). Creating such an environment would enhance the quality of healthcare, improve patient safety, and better engage nurses who want to remain part of a thriving unit (Nutter, [21]).

However, a significant number of nurses felt that better work-life balance, a reduced job scope, and increasing manpower were still the best way forward in managing their workload. This suggests that while increasing teamwork among nurses may be a promising strategy, it is equally imperative to investigate and adjust nurses' workloads accordingly to safeguard them from possible fatigue (Cho, et al. [23]).

Time Spent

Documentation was the most frequently mentioned task that the nurses wished to spend less time on. Various literature has attributed this to firstly, documentation compromising on patient care (Momenipour, et al. 2019). This is in line with our findings where 65% of the nurses wished to spend more time on patient care instead. Secondly, the perception that the amount of time spent on documentation is disproportionately high (Momenipour, et al. 2019). Lastly, concerns regarding the amount of time invested into documentation in proportion to its utility (Momenipour, et al. 2019). An observational study (Lim, et al. [24]) has shown significantly less time was spent on patient care activities, but more time on documentation by nurses. It has been suggested that efforts should be made to look into how time spent on documentation can be reduced, such as eliminating duplicate documentation so that nurses can devote more time to patient care (Lim, et al. [24]).

Based on our findings, more than three-quarters of the nurses wanted to spend more time on patient care, but they were overwhelmed by other aspects of their job. Being overwhelmed by aspects of their work that are unrelated to patient care can lead to emotional exhaustion and burnout, hence contributing to lower effectiveness (Dyrbye [25]).

Emotional exhaustion can also damage the hospital's and nursing staff's reputation from the patient's point of view (Aiken [26]). While being able to help others was the top reason for students choosing to undertake a nursing degree (Wilkes, et al. [27]), the inability to perform up to their personal expectation could lead to burnout and decreased job satisfaction (Dyrbye [25]). It is important for nursing managers and hospital administrators to adjust the workload of non-patient care items and allow nurses to devote more time to patient care. Self-care was the second most mentioned item that nurses wanted to spend more time on. With Singapore already facing a nursing shortage (Chua [9]) before the COVID-19 pandemic, the nursing manpower shortage was felt even more acutely during the pandemic, further straining the already stretched nursing resources (Chia [10]). Several new initiatives to support the mental well-being of nurses were then launched, which included mental wellness training, self-care and research programmes, online chat bots, peer-support networks, and counselling services (MOH [4]). However, for nurses that mentioned self-care, they wanted enforcement of sufficient break times and mandatory rest days. Hence, it is instrumental to support the mental well-being of nurses, and this includes sufficient break times and mandatory rest days as well.

Accomplishment

Based on our results, completing daily tasks was the greatest self-reported factor for feeling a sense of accomplishment, followed by ending work on time, and subsequently patient recovery. Completing daily tasks has been linked to personal accomplishment, and it has an effect on the well-being of an individual (Donaldson [28]). A sense of accomplishment has an effect on the reward system pathway in the body, and tasks with intermediate difficulty induces the greatest sense of achievement (Nakai [29]). This result may be of interest to nurse managers and hospital administrators in understanding the perspective and mindset of their nurses. Understanding and creating a manageable set of daily tasks would be critical in defining the nurses' perception of their ability, as well as promoting a sense of accomplishment. Ending work on time was the second most self-reported factor for accomplishment. We postulate that this could be due to the intense workload the nurses face on a daily basis. Moreover, all the surveyed nurses reported working overtime weekly. Several possible reasons for working overtime include pressure to conform, a high workload, enhancing self-development (Watanabe [30]), and extra overtime income (Stimpfe [31]). Working overtime involuntarily demonstrated a detrimental effect on mental health and work engagement at both the ward and personal level (Watanabe [30,31]). Nursing managers and hospital administrators could take extra steps to investigate this issue.

Influencing Factor to Stay

The greatest factors for nurses staying on in the hospital were a comfortable working environment, followed by good colleagues, and the salary. Having a comfortable working environment is essential for the psychological health of nurses, and the work environment is a significant factor for the retention of nurses (Wei [32]). Research has shown that a comfortable working environment provides nurses with perceptions of autonomy, control over their practice, good nurse-physician relationships, as well as organisational support (Cortelyou-Ward [33]). Nursing managers and hospital administrators could take into consideration how nurses are coping with their working environment and colleagues on a regular basis. Retention rates for newly graduated nurses were significantly higher in working environments that were rated healthy or very healthy compared to working environments that needed improvement (Kramer [34]). Quarterly review of the nurses' working environment could be implemented to promote a comfortable working environment as well as improve the retention of nurses [35-39].

Limitations

Our study consisted of nurses from one hospital and might not be representative of the situation at other hospitals in Singapore. Only enrolled and staff nurses were involved in this study while other healthcare professionals were not accounted for.

Conclusion

Patient care is at the heart of nursing but the high workload, manpower shortage and workplace inefficiency have contributed to burnout and less time spent on patient care. Nursing managers and hospital administrators must examine what influences nurses to stay, and what gives them a sense of accomplishment in order to retain nurses. Developing retention strategies and interventions, along with examining their effectiveness, are highly recommended for future research.

Author Contributions

- Study design: CWY, SJY, YJH, LME, YK
- Data collection: CWY, SJY, YJH, LME
- Data analysis: CWY, SJY, YJH
- Manuscript writing: CWY, SJY, YJH, YK
- Critical revisions for important intellectual content: YK
- CWY, SJY, YJH contributed equally in the process of this research study.

Acknowledgement

Conflict of Interest

The authors have declared no conflict of interest.

References

1. (2021) International Council of Nurses Policy Brief: The global nursing shortage and nurse retention.

2. Simpson KR (2016) The American Nurses Association's White Paper on Nurse Staffing. MCN, The American Journal of Maternal/Child Nursing 41(3): 139.

3. Tan C (2021) More healthcare workers in s'pore quit amid growing fatigue as covid-19 drags on. The Straits Times.

4. (2022) MOH (Ministry of Health). (2019) Addressing shortage of nurses. News 5 August.

5. Hendrich A (2022) Maximizing the Impact of Nursing Care Quality.

6. Lin RT, Lin YT, Hsia YF, Kuo CC (2021) Long working hours and burnout in health care workers: Non-linear dose-response relationship and the effect mediated by sleeping hours-A cross-sectional study. Journal of occupational health 63(1): e12228.

7. Garcia CL (2019) Influence of Burnout on Patient Safety: Systematic Review and Meta-Analysis. Medicina (Kaunas, Lithuania) 55(9): 553.

8. Grant MJ, Booth A (2009) A typology of reviews: An analysis of 14 review types and associated methodologies. Health Information & Libraries Journal 26(2): 91-108.

9. Chua GP (2020) Challenges Confronting the Practice of Nursing in Singapore. Asia-Pacific journal of oncology nursing 7(3): 259-265.

10. Chia O (2022) Nurses and volunteers wanted amid healthcare manpower shortage as covid-19 cases surge. The Straits Times. Retrieved.

11. Yip C, Chia L (2022) Why some healthcare workers in Singapore's hospitals have quit - and others soldier on. CNA.

12. Begum S (2021) Singapore needs more nurses amid covid-19 pandemic and Ageing Population. The Straits Times.

13. Yen PY (2018) Nurses' Time Allocation and Multitasking of Nursing Activities: A Time Motion Study. AMIA. Annual Symposium proceedings. AMIA Symposium, pp. 1137-1146.

14. Goh T (2021) Tan Tock Seng Hospital Staff Step up to help nurses stretched by covid-19 pandemic. The Straits Times.

15. Tjia J (2009) Nurse-physician communication in the long-term care setting. Journal of Patient Safety 5(3): 145-152.

16. Matziou V (2014) Physician and nursing perceptions concerning interprofessional communication and collaboration. Journal of Interprofessional Care 28(6): 526-533.

17. Tan B (2020) Burnout and associated factors among health care workers in Singapore during the COVID-19 pandemic. Journal of the American Medical Directors Association 21(12): 1751-1758.

18. Chua N (2021) Borderline abuse of healthcare workers can be just as harmful in the long run. The Straits Times.

19. Demerouti E (2015) Strategies used by individuals to prevent burnout. European Journal of Clinical Investigation 45(10): 1106-1112.

20. Yanchus NJ (2017) 'You just can't do it all': A secondary analysis of nurses' perceptions of teamwork, staffing and workload. Journal of Research in Nursing 22(4): 313-325.

21. Nutter PJ (2020) Correlational Impact of Workload, Teamwork and Retention Rate for Clinical Nursing Units. Master of Science in Nursing Theses and Projects 18.

22. Babiker A (2014) Health care professional development: Working as a team to improve patient care. Sudanese journal of paediatrics 14(2): 9-16.

23. Cho H, Sagherian K, Scott LD, Steege LM (2022) Occupational fatigue, workload and nursing teamwork in hospital nurses. Journal of advanced nursing 78(8): 2313-2326.

24. Lim ML, Ang SY (2019) A time-motion observation study to measure and analyse clinical nursing workload in an acute care hospital in Singapore. Proceedings of Singapore Healthcare, pp. 124-128.

25. Dyrbye LN (2019) Burnout and Satisfaction with Work-Life Integration Among Nurses. Journal of Occupational and Environmental Medicine 61(8): 689-698.

26. Aiken LH, Sermeus W, Van den Heede K (2012) Patient safety, satisfaction, and quality of hospital care: Cross sectional surveys of nurses and patients in 12 countries in Europe and the United States. BMJ 344: e1717.

27. Wilkes L, Cowin L, Johnson M (2015) The reasons students choose to undertake a nursing degree. Collegian 22(3): 259-265.

28. Donaldson SI, Van Zyl LE, Donaldson SI (2022) Perma+4: A framework for work-related wellbeing, performance and Positive Organizational Psychology 2.0. Frontiers in Psychology 12: 817244.

29. Nakai T (2017) Sense of Accomplishment Is Modulated by a Proper Level of Instruction and Represented in the Brain Reward System. PLOS ONE 12(1): e0168661.

30. Watanabe M, Yamauchi K (2018) The effect of quality of overtime work on nurses' mental health and work engagement. J Nurs Manag 26(6): 679-688.

31. Stimpfe AW, Fletcher J, Christine T Kovner (2019) A comparison of scheduling, work hours, overtime and work preferences across four cohorts of newly licensed registered nurses. Journal of Advanced Nursing 75(9): 1902-1910.

32. Wei H, Sewell KA, Woody G, Rose MA (2018) The state of the science of nurse work environments in the United States: A systematic review. International journal of nursing sciences 5(3): 287-300.

33. Cortelyou Ward KH, Unruh L, Fottler MD (2010) The effect of work environment on intent to leave the nursing profession: a case study of bedside registered nurses in rural Florida. Health Serv Manage Res 23(4): 185-192.

34. Kramer M, Halfer D, Maguire P, Schmalenberg C (2012) Impact of healthy work environments and multistage nurse residency programs on retention of newly licensed RNs. J Nurs Adm 42(3): 148-159.

35. Maier CB, Aiken LH, Busse R (2017) Nurses in advanced roles in primary care: Policy levers for implementation. OECD Health Working Papers No. 98.

36. Tan Wu Meng (2022) Impact of Covid-19 on resignation and recruitment of healthcare professionals. MOH (Ministry of Health).

37. Wan Rizal (2022) Supporting mental well bring of healthcare professionals amidst Covid-19 pandemic and preventing burnout. MOH (Ministry of Health).

38. (2022) SNB (2020) Annual Report. SNB | Home.

39. Teo J (2021) Singapore explores all options with nurses in short supply. The Straits Times.

Assets of Publishing with us

- Global archiving of articles
- Immediate, unrestricted online access
- Rigorous Peer Review Process
- Authors Retain Copyrights
- Unique DOI for all articles

https://biomedres.us/