

Analysis of the Number of Nurses Needs Based on the Formula of the Indonesian National Nurse Association in Inpatient Installation of Bahagia General Hospital, Makassar

Yayuk Amriani¹

¹Hospital Administration Study Program, Faculty of Public Health, Hasanuddin University, Indonesia

Abstract

The hospital is one form of health service facility that can be organized by the government or the private sector. Health services in hospitals can be in the form of inpatient services, outpatient services, and emergency care services which include medical services and non-medical services. Based on this description, this study aims to analyze the need for the number of nurses based on the Indonesian National Nurses Association at the inpatient installation of RSU Bahagia Makassar. The study used situation analysis, labor supply analysis, gap analysis, and labor demand analysis which were calculated using the formula for calculating the results of the Indonesian National Nurses Association (PPNI) Workshop. The results showed that based on the analysis of the need for nursing staff according to the calculation formula of the workshop results of the Indonesian National Nurses Association (PPNI) as many as 57 nursing staff. Meanwhile, the need for the number of nurses based on the analysis of the PPNI formula for the I treatment room was 18 people, the second care room was as many as 18 people. 29 workers and the third treatment room need ten workers.

Keywords: Service, Nurse, Hospital

1. Introduction

A health service facility built by either government or private parties is called a hospital (Kakemam et al., 2021). Its services may include inpatient, outpatient, and emergency care services like medical and non-medical ones. The Decree of the Minister of Health (Permenkes) Number 3 of 2020 concerning Hospital Classification and Licensing states that a hospital is a health service institution that organizes individual health services that provide inpatient, outpatient, and emergency services. The complexity and structure of the hospital make it has many kinds of activities like medical and nursing actions, financial activities, and individual and group interactions (Kaihlalanen et al., 2021). The hospital is a vital health center that must be able to provide good quality service for its patients. All patients require excellent health services (Parker et al., 2021).

The improvement of service quality must be accompanied by better nursing services. This can be through the improvement of nurse performance (Kagaya et al., 2021). Hospitals can generally be divided into three categories: medical, regional, and district hospitals (Chiao et al., 2021). Bahagia General Hospital is a private hospital located in Makassar city. In the beginning, it was a special hospital which later changed to a general one. Therefore, the hospital can help people who need excellent and plenary health services and emphasize fast, precise, accurate, reliable, and professional actions at an affordable cost. The health services quality relates to the customers' or patients' satisfaction. However, Bahagia hospital still cannot

meet these requirements because many patients still complain about the quality of the services provided. From the profile of Bahagia Makassar General Hospital in 2021, it has Nursing Services (Inpatient) with a capacity of 64 beds. Meanwhile, there is only 50 nursing staff.

After the researcher used an inclusive, consultative, and comprehensive methodology to develop a capabilities framework, nursing and midwifery organizations in Australia approved the National Nursing and Midwifery Digital Health Framework for use (Cummings et., al, 2021). Bed Occupation Ratio (BOR) is an indicator to measure the level of bed occupation in a hospital (Russel & Middleton 2021). The data from 2018 to 2021 show a fluctuating trend. The highest BOR was in 2019 with an achievement rate of 72%. Meanwhile, the lowest one was in 2020 with a percentage of 45%. In 2021, the BOR percentage was 65%. The average BOR for the last four years is 59%.

In general, the achievement of the BOR of Bahagia Makassar General Hospital is not following the ideal standard (60-85%). It does not mean the quality is bad. It is due to limited sources of energy that the workload increases but the quality declines. That is why people are reluctant to come to the Bahagia Hospital Makassar. Length of Stay (LOS) is the treatment period of a patient. The ideal value is 6-9 days. The average number of patients treated at the Bahagia hospital from 2018 to 2021 has not yet reached the ideal number. The average length of stay is only four days. This means that treated patients recover too quickly. It may be also the patient has no change in their condition, so the LOS

is still far from the ideal number.

Bed Turn Over (BTO) is an indicator to measure the frequency of bed use. The average frequency of BTO in the last four years is 71 times. The highest BTO occurred in 2019 (86 times). Meanwhile, the one was in 2020 (59 times). Therefore, the average BTO for the last four years is far from the ideal standard of 40-50 times. This research aims to analyze the nurses' needs by estimating their workloads and calculating the number of nursing staff as the basis for planning nursing staff so that future management can organize a more effective and efficient number of nursing staff.

2. Literature Review

Hospital

According to Law Number 44 of 2009 Concerning Hospitals, a hospital is a health service institution that provides complete individual health services like inpatient, outpatient, and emergency services (Rubbiana, 2017). It must be able to provide the maintenance and restoration of health. According to the Decree of the Minister of Health of the Republic of Indonesia Number 983/Menkes/SKXI/1992, the duty of a public hospital is to carry out health services efficiently and effectively by prioritizing healing and maintenance efforts carried out in harmony and integrated ways to improve, prevent, and make referrals. A hospital functions to provide medical and non-medical support services, nursing services and care, referral services, education and training, research and development, and general and financial administration (Rubbiana, 2017).

The Class-A General Hospital has the facilities and capabilities of broader specialist and subspecialty medical services. The Class-B General Hospitals have facilities and capabilities for medical services of at least 11 limited specialties and subspecialties. Class C General Hospital has the facilities and capabilities of basic specialist medical services. Class D General Hospitals have basic medical service facilities and capabilities (Rubbiana, 2017).

Nurse

Nursing is a professional service integrated with health services. It is based on the knowledge and tips of nursing. It has comprehensive biological-psychological-social-spiritual-cultural services and aims at individuals, families, groups, and communities. It is also to keep and maintain healthy and sick individuals and covers all processes of human life. The role of the nurse can be interpreted as others' expected behavior according to their position in the system influenced by social conditions in the nursing profession and constant external impacts (West et., al 2021).

A nurse must carry out her role and tasks as a provider of nursing care. These tasks can be done according to some stages in the nursing process. They were agreed upon at the 1983 Workshop (Tri Buana, 2019), including conveying concern and

respect for clients (sincere interest). Second, if the nurse is forced to delay service, the nurse is willing to give a friendly explanation to the client (an explanation about the delay). They will show the client respect as shown by her behavior, talks to the client in a way that is oriented towards the client's feelings (subject to the patient's desire and not based on personal feelings), prevent insulting words (derogatory), accept the client's critical attitude, and try to understand the clients from their point of view (see the patient's point of view). Nurses are vital members of a healthcare team. Before becoming professionals, they must be able to overcome many challenges as nursing students. Their success can affect them physiologically, psychologically, and emotionally (Purimahua et al., 2021).

Nurses tend to experience training from a very different perspective (Banwell et al., 2021). Ethiopian nurses should identify factors related to work stress (goal number two) (Girma et al., 2021). When the patient comes for the appointment closest to the next scheduled study follow-up time, the research nurse will call and invite them to come earlier to have the data collection (Liu et al., 2021). Sometimes, they also make reporting errors with no incentives. However, for some severe mistakes, they might get punishment by their manager (Kakemam et al., 2021).

Nurses often create reporting errors due to the nature of their profession (Bodys-Cupak et al., 2021). Nurses often experience and deal with many work stressors depending on their position and duties. Chang et al., 2021). To avoid mistakes, newly graduated nurses do not perform all the physical assessment skills they learned during clinical encounters (Chen & Liu, 2021).

Effective teaching methods are essential for exploring advanced professional skills in nurses and preparing them with the necessary training (Jeon & Park, 2021). There must be training for nursing students because they can acquire new knowledge and socio-emotional skills (Jiménez-Rodríguez, 2021).

3. Methods

There are some methods or formulas to calculate the need for nurses like the Ratio Method, the Gillies Formula, the Douglas Formula, and the PPNI Formula.

Results and Discussion

The effectiveness and efficiency of nursing staff are greatly supported by the provision of appropriate nursing care and adequate competence (Chen et., al 2021). Therefore, it is necessary to carry out strategic and systematic planning in meeting their needs. Good planning consists of client classification based on dependency, methods of providing nursing care, categories of nursing staff, and calculation of the number of nursing staff. For this reason, there must be the contribution of the nursing manager in analyzing and planning the nurses' needs in a

hospital unit. The analysis of the nursing needs includes some factors related to their workloads; (1) Number of clients treated per day/week/month/year in unit; (2) Condition or level of client dependency; (3) Average client treatment period; (4) Measures of direct and indirect care; (5) The required frequency of actions; (6) Average direct and indirect nursing time; (7) Grant of leave.

Based on the data of the nursing staff in the Inpatient Ward installation, in December 2021 there were 50 patients across all Inpatient rooms at the Bahagia Makassar Hospital (Table 7). The highest distribution of nurses in treatment room I was 26 (52%), and the least was in treatment room III with 9 persons (18%). The results showed that there are 57 nurses based on the formula for calculating the results of the Workshop on the Indonesian National Nurses Association (PPNI). Therefore, treatment room II needs the most nurses (29), while treatment room III only needs ten nurses. In general, there are 57 nurses needed according to the formula for calculating the results of the Indonesian National Nurses Association (PPNI) Workshop.

The current number of available staff is still not appropriate compared with the calculation results. There should be necessary addition and reduction in each room. Based on the calculation of the needs of the Workshop on the Indonesian National Nurses Association (PPNI), there is still a difference in the number of nursing staff (7 persons).

The calculation of the number of nursing staff using the PPNI formula is slightly different from another formula. The calculation using the PPNI formula uses some workload inputs like required patient care time per day, number of beds (TT), TT utilization rate (BOR), number of effective working days, and number of effective working hours for nursing staff in providing treatment to the patients. Therefore, this method can take into account the nurses' needs by involving elements of workload measurement. The calculation results show that the number of nurses needed is 57 persons after obtaining an additional reserve requirement of 25%. This statistical figure, compared with the available staff, is not sufficient. It is because there is still a difference of 7 nurses.

The calculation results using the formula from the Indonesian National Nurses Association Workshop (PPNI) show that there are excesses and shortages of nursing staff in all inpatient rooms, especially in treatment room II (14 nurses). Meanwhile, treatment room III requires one more nursing staff. Also, in the treatment room, I should reduce the eight-nursing staff. Differences or gaps will result in additional workloads for the nursing staff. This issue will reduce service quality and customer/patient satisfaction (Saglam et al., 2021).

This calculation method has advantages and disadvantages. It can calculate the workload associated with the services like TT utilization rate (BOR) which is strongly related to the average number of patients treated in one day (Connolly, M, et., al., 2021). It means that a higher utilization rate

of TT will also require a higher amount of energy. The same thing applies to patient care in 24 hours.

The long treatment period will increase the workload of health workers, especially nurses. That is why there should be additional staff. The weakness of this method is that it can only calculate the need for nursing staff in inpatient rooms. It is not applicable to staff in the emergency room and polyclinic. Another disadvantage is that it cannot calculate the type of workers needed. The calculation results using the formula from the Indonesian National Nurses Association (PPNI) show that there are higher needs of nursing staff than those using other methods like the Gillies and Douglass formulas. This is because this method takes into account the reserve requirement of 25%. It is a reserve requirement for non-nursing activities and staff absences that do not meet effective working time. Bed occupancy rate (BOR) reflects the percentage of the utilization of beds in a hospital (Cummings et al., 2021).

A relatively high BOR indicates more nurses are needed (Heine, M., et. al., 2021). The value of BOR significantly influences the need for nurses. This means that the need for an appropriate number of nurses will increase the achievement of sufficient BOR value. The head of the treatment room said that currently, the number of nursing staff at Bahagia Hospital of Makassar is not appropriate based on the comparison of the number of beds and the availability of staff. There has been an analysis of the workforce's needs but it still adheres to the bottom-up planning model. The analysis still considers some suggestions from the bottom (heads of rooms) who know more about the existing workers' conditions in the treatment room.

The interview results explain that the determination of the need for treatment room staff does not use certain standards or calculations. The head of the room identifies the need for nurses based on daily observations. If the existing nurses cannot serve all patients adequately, they can decide to add other staff. The addition of health workers, especially nurses, requires careful planning. This can be done if the head of the room knows how to calculate the staff need based on different methods. For this reason, hospital management should conduct training on identifying and deciding the need for health workers. Therefore, so the heads of the rooms have specific guidelines for determining how many nurses are needed. The effectiveness and efficiency of nursing staff are greatly supported by the provision of appropriate nursing care and adequate nurse competence. Thus, there must be strategic and systematic planning to meet the needs of nursing staff (Mirino et al., 2022).

The nursing staff is the greatest health workforce. They have nursing care characteristics like being constant, continuous, coordinative, and advocative. They also work closely and continuously with people that need assistance in all healthcare settings (Bodys et al., 2021). Therefore, there should be several competent nurses to provide nursing care and work

in health teams at every order and level of health services. This is to achieve the success of the national health program that provides optimal benefits to the community. The main challenge is working without adequate knowledge and skill preparation to critically analyze health problems and make the right decisions. This is exacerbated by inadequate support systems and unfavorable working conditions (limited numbers of workers and increased workloads).

Besides, the referral system and planning for the patients' return treated at the hospital to home are less efficient and effective. Inadequate nursing staff (staffing) in different healthcare settings has reached crisis proportions in all regions. This fact reflects that the crisis and the decline in nursing staff have increased the number of days in the hospital, morbidity and mortality rates, and cases of negligence that could have been prevented. Policymakers must pay attention to these issues in planning health human resources comprehensively and establishing an adequate ratio of nurses and patients in all settings or health facilities.

The nursing workload is everything that nurses achieve in their work that measures the treatment quality (Rashid et al., 2021). The workload shows many activities must be carried out during their shift. They are classified as direct or indirect activities (Joseph et al., 2021). Some examples of direct activities are monitoring vital signs, administering drugs, administering intravenous fluids and blood, dressing wounds, sending and receiving patients from the operating room, and educating families and patients. Meanwhile, the documentation process is a form of indirect nursing activity. Bed occupancy, patient awareness, and availability of staff resources are also included in the nursing workload (Mansour & Abu Sharour, 2021).

These workloads become the main challenges for individuals to keep trying to carry out the work to achieve maximum results. However, increasing workloads can influence their physical abilities and result in physical and emotional fatigue (Connolly et al., 2021). Safe staffing does not only mean the number and type of nursing staff to provide nursing care to clients but also includes workload, work environment, patient complexity, staff skill level, a combination of nursing staff, cost efficiency, and its relationship to outcomes for patients and nurses, and patient safety.

The calculation results show that the nerve rooms at Tanjungpura University Hospital need 15 nurses who must be available to maximize services, especially nursing services. There are only 13 nurses available. There are also some impacts caused by unideal staffing in the treatment rooms. This is related to the optimal nursing care that will affect client and family satisfaction (Hasanah et al., 2022). This is in line with the results of a previous study (Mawikere et al., 2021) that shows there is a relationship between the workload of nurses and the level of patient satisfaction in providing nursing care in the inpatient

rooms of GMIM Pancaran Kasih hospital of Manado city.

Planning is vital for every manager of treatment rooms. This is because good and proper planning can fulfill the need for personnel in each room. Thus, it will maximize nursing services. On the other hand, inappropriate planning will increase the nurse's workload and negatively affect the provision of nursing services. This is in line with the results of previous research.

Rizky et al (2018) that there is a relationship between the number of staff and the Workload of Implementing Nurses in Class III Inpatient Rooms at Wates general hospital.

High levels of workload will distract the nurses' focus on providing the best nursing care. This is due to physical fatigue. This can also reduce the service's accuracy and later increase the risk of an accident and other unwanted consequences. Human errors will cause losses to the patient's families and nurses (Molloy et al., 2019). This research has found a relationship between workload and nurse performance in implementing patient safety at Stella Maris Hospital Makassar: Relationship between Work Loads and Nursing Performance in Implementing Patient Safety in Stella Maris Makassar Hospital (Fajri et al., 2020). The workload is greatly influenced by the following factors; (1) The number of nurses; one of the problems that often arise in hospitals is the unbalanced workload of the nurses. It is difficult for managers to know the quality of the workload because it is based on subjective complaints. This situation usually starts from the planning stage, where the need for nurses is not the same as the work capacity of a healthcare institution; (2) The working environment; can be a source of workload like work demands, responsibilities, and relationships among the nurses; (3) Leadership; a good leader must be able to coordinate his subordinates and create a conducive and dynamic work environment and plan the career development of nurses actively. He must also be able to motivate the nurses to be good workers and have the foresight to improve their professionalism; (4) Nurse's responsibilities; responsibilities are related to the patients and other nurses. Working with new nurses in certain rooms or those who have just graduated can increase the workload. It could also be due to a sense of responsibility for the patients' safety being handled by the new nurses. For this reason, to keep the services running well, there must additional nurses.

The current needs of the inpatient nurses must be adjusted to their workload. There should be an analysis to check whether there is an excess or shortage of nurses. Then, the nurse's performance must be improved along with the increasing workload (Kurniasari, 2017). Undesirable events (KTD) can reduce the risks. One of which is by reducing the workload of the nurses in a room.

This is in line with the previous research (Retnaningsih & Fatmawati, 2018) which found a relationship between a nurse's workload and the

implementation of patient safety in the Inpatient Room. Nursing staff factors must be considered well, including the type of staff based on ability and the number of nursing staff to perform professional nursing. Nurses with a heavy workload can experience physical fatigue. In the end, there is the potential for work deviations which will reduce nurse performance and service quality (Wicaksana, 2021). The personnel planning must be in line with the actual needs. By doing so, the staff organization will be better and more precise. The services provided will also be better, including the documentation of nursing care. A previous study (Nadila et al., 2020) showed that workload relates to nursing care documentation. Besides, higher levels of workload will increase the risk of injury like low back pain (Sari, 2020).

4. Conclusions And Recommendations

This research analyzes the need for additional nurses based on the formula of the Indonesian National Nurses Association at the Bahagia Hospital inpatient installation in Makassar city. The findings generate some following conclusions; (1) The analysis of the need for nursing staff according to the formula resulting from the Indonesian National Nurses Association (PPNI) workshop shows that there should be 57 additional nursing staff; (2) The number of nurses needed based on the PPNI formula analysis for treatment room I is 18. Treatment room II needs an additional 29 staff, while treatment room III needs ten staff; (3) Each inpatient room has a different difference. The treatment room I has a difference of 8 workers with the existing 26 workers. Treatment room II has a difference of 14 workers from the current 15 workers. Treatment room III has a difference of one person with the current nine workers.

References

- Alam, S., Raodhah, S., & Surahmawati, S. (2018). Analisis Kebutuhan Tenaga Kesehatan (Paramedis) Berdasarkan Beban Kerja Dengan Menggunakan Metode Workload Indicator Staffing Needs (WISN) di Poliklinik Ass-Syifah UIN Alauddin Makassar. *Al-Sihah: The Public Health Science Journal*, 10(2), 216–226. <https://doi.org/10.24252/as.v10i2.6903>.
- Alhassan, R. K., Ayanore, M. A., Diekuu, J. B., Prempeh, E., & Donkor, E. S. (2021). Leveraging e-Learning technology to enhance pre-service training for healthcare trainees in Ghana: evidence from a pilot project and pointers to policy reforms. *BMC Health Services Research*, 21(1), 1-16.
- Ananta, P. G., & Dirdjo, M. M. (2021). Hubungan Antara Beban Kerja Dengan Kinerja Perawat Di Rumah Sakit: Suatu Literature Review. *Borneo Student Research*, 2(2), 929. <https://journals.umkt.ac.id/index.php/bsr/article/download/1565/784>
- Austen, K., & Hutchinson, M. (2021). An aging life has less value: A qualitative analysis of moral disengagement and care failures evident in Royal Commission oral testimony. *Journal of Clinical Nursing*, 30(23-24), 3563-3576.
- Banwell, E., Humphrey, N., & Qualter, P. (2021). Delivering and implementing child and adolescent mental health training for mental health and allied professionals: a systematic review and qualitative meta-aggregation. *BMC medical education*, 21(1), 1-23.
- Beda, N. S., Komariah, E. D., Anggriani, E., & Feramita, B. T. (2019). Hubungan Beban Kerja Dengan Kinerja Perawat Dalam Mengimplementasikan Patient Safety Di Rumah Sakit Stella Maris Makassar. *Bali Medika Jurnal*, 6(2), 173–183. <https://doi.org/10.36376/bmj.v6i2.80>.
- Bodys-Cupak, I., Majda, A., Kurowska, A., Ziarko, E., & Zalewska-Puchała, J. (2021). Psychosocial components determining the strategies of coping with stress in undergraduate Polish nursing students. *BMC nursing*, 20(1), 1-13.
- Bratiyani, A. (2018). Pengaruh Beban Kerja Dan Motivasi Terhadap Kinerja Perawat Di Rsud Dr. a. Dadi Tjokrodipo Bandar Lampung. *Journal of Chemical Information and Modeling*. 2001, 13–35.
- Chang, P. Y., Chiou, S. T., Lo, W. Y., Huang, N., & Chien, L. Y. (2021). Stressors and level of stress among different nursing positions and the associations with hyperlipidemia, hyperglycemia, and hypertension: a national questionnaire survey. *BMC nursing*, 20(1), 1-10.
- Chen, S. L., & Liu, C. C. (2021). Development and evaluation of a physical examination and health assessment course. *Nurse Education Today*, 107, 105116.
- Chiao, L. H., Wu, C. F., Tzeng, I., Teng, A. N., Liao, R. W., Yu, L. Y., ... & Su, T. T. (2021). Exploring factors influencing the retention of nurses in a religious hospital in Taiwan: a cross-sectional quantitative study. *BMC nursing*, 20(1), 1-8.
- Churruca, K., Ludlow, K., Wu, W., Gibbons, K., Nguyen, H. M., Ellis, L. A., & Braithwaite, J. (2021). A scoping review of Q-methodology in healthcare research. *BMC medical research methodology*, 21(1), 1-17.
- Cloutier, D., Stajduhar, K. I., Roberts, D., Dujela, C., & Roland, K. (2021). 'Bare-bones' to 'silver linings': lessons on integrating a palliative approach to care in long-term care in Western Canada. *BMC Health Services Research*, 21(1), 1-13.
- Comrie-Thomson, L., Gopal, P., Eddy, K., Baguiya, A., Gerlach, N., Sauvé, C., & Portela, A. (2021). How do women, men, and health providers perceive interventions to influence men's engagement in maternal and newborn health? A qualitative evidence synthesis. *Social Science & Medicine*, 291, 114475.
- Connolly, M., Ryder, M., Frazer, K., Furlong, E., Escibano, T. P., Larkin, P., ... & McGuigan, E. (2021). Evaluating the specialist palliative care clinical nurse specialist role in an acute hospital setting: a mixed

method sequential explanatory study. *BMC palliative care*, 20(1), 1-9.

Cummings, E., Moran, G., Woods, L., Almond, H., Procter, P., Makeham, M., ... & Schaper, L. (2021). Methodology for the development of the Australian national nursing and midwifery digital health capability framework. *Studies in health technology and informatics*, 284, 135-142.

Di, P., Gmim, R. S. U., Airmadidi, T., Era, D. I., That, F., On, R., Workload, T. H. E., Nurses, O. F., & Gmim, A. T. (2022). Factors That Role in The Workload of Nurses At Gmim. 13(February 2021), 244–258.

Fajri, N., Yusni, Y., Usman, S., Syahputra, I., & Nurjannah, N. (2020). Analisis Kebutuhan Tenaga Keperawatan Berbasis Beban Kerja Dengan Metode Workload Indicator Staff Need (Wisn) Di Instalasi Gawat Darurat (Igd) Rumah Sakit Ibu Dan Anak Provinsi Aceh. *Jurnal Kesehatan*, 13(2), 178–189. <https://doi.org/10.24252/kesehatan.v13i2.16304>

Girma, B., Nigussie, J., Molla, A., & Mareg, M. (2021). Occupational stress and associated factors among health care professionals in Ethiopia: a systematic review and meta-analysis. *BMC public health*, 21(1), 1-10.

Handarizki, H. W. (2019). Analisis Beban Kerja Perawat di Instalasi Rawat Inap Rsud Sidoarjo. *Majalah Kesehatan Masyarakat Aceh (MaKMA)*, 2(3), 39–47.

<https://doi.org/10.32672/makma.v2i3.1495>.

Hasanah, U., Trissya, M., Bhakti, W. K., & Jiu, C. K. (2022). Pedoman Perhitungan Ilyas Di Ruang Saraf Rs Universitas Tanjungpura Pontianak. 13(2), 67–70.

Heine, M., Lategan, F., Erasmus, M., Lombaard, C. M., Mc Carthy, N., Olivier, J., ... & Hanekom, S. (2021). Health education interventions to promote health literacy in adults with selected non-communicable diseases living in low-to-middle income countries: A systematic review and meta-analysis. *Journal of Evaluation in Clinical Practice*, 27(6), 1417-1428.

Jeon, J., & Park, S. (2021, December). Self-Directed Learning versus Problem-Based Learning in Korean Nurse Education: A Quasi-Experimental Study. *In Healthcare* 9(12). 1763. MDPI.

Jiménez-Rodríguez, D., Arrogante, O., Giménez-Fernández, M., Gómez-Díaz, M., Guerrero Mojica, N., & Morales-Moreno, I. (2021). Satisfaction and beliefs on gender-based violence: a training program of Mexican nursing students based on simulated video consultations during the CoViD-19 pandemic. *International journal of environmental research and public health*, 18(23), 12284.

Joseph, O. R., Flint, S. W., Raymond-Williams, R., Awadzi, R., & Johnson, J. (2021). Understanding Healthcare Students' Experiences of Racial Bias: A Narrative Review of the Role of Implicit Bias and Potential Interventions in Educational Settings. *International Journal of Environmental Research and Public Health*, 18(23), 12771.

Kagaya, Y., Tabata, M., Arata, Y., Kameoka, J., & Ishii, S. (2021). Employment of color Doppler

echocardiographic video clips in a cardiac auscultation class with a cardiology patient simulator: discrepancy between students' satisfaction and learning. *BMC Medical Education*, 21(1), 1-8.

Kaihlainen, A. M., Gluschkoff, K., Laukka, E., & Heponiemi, T. (2021). The information system stress, informatics competence and well-being of newly graduated and experienced nurses: a cross-sectional study. *BMC health services research*, 21(1), 1-8.

Kakemam, E., Gharaee, H., Rajabi, M. R., Nadernejad, M., Khakdel, Z., Raeissi, P., & Kalhor, R. (2021). Nurses' perception of patient safety culture and its relationship with adverse events: a national questionnaire survey in Iran. *BMC nursing*, 20(1), 1-10.

Karina. (2019). Gambaran Beban Kerja Perawat di Ruang Cempaka Rsud Majalaya. Paper Knowledge. *Toward a Media History of Documents*, 7(2), 107-115.

Kurniasari, A. P. (2017). Analisis Beban Kerja dan Kebutuhan Tenaga Perawat Menggunakan Workload Indicator of Staffing Need. Universitas Brawijaya.

Lech, S., O'Sullivan, J. L., Wellmann, L., Suppliet, J., Döpfmer, S., Gellert, P., ... & Nordheim, J. (2021). Recruiting general practitioners and patients with dementia into a cluster randomized controlled trial: strategies, barriers, and facilitators. *BMC Medical Research Methodology*, 21(1), 1-13.

Liu, X., Fowokan, A., Grace, S. L., Ding, B., Meng, S., Chen, X., ... & Zhang, Y. (2021). Chinese patients' clinical and psychosocial outcomes in the 6 months following percutaneous coronary intervention. *BMC Cardiovascular Disorders*, 21(1), 1-12.

Mansour, H., & Abu Sharour, L. (2021). Results of survey on the perception of patient safety culture among emergency nurses in Jordan: Influence of burnout, job satisfaction, turnover intention, and workload. *Journal of Healthcare Quality Research*, 36(6), 370–377.

<https://doi.org/10.1016/j.jhqr.2021.05.001>

Mawikere, Y., Manampiring, A. E., & Toar, J. M. (2021). Hubungan Beban Kerja Perawat Dengan Tingkat Kepuasan Pasien Dalam Pemberian Asuhan Keperawatan di Ruang Rawat Inap Rsu Gmim Pancaran Kasih Manado. *Jurnal Keperawatan*, 9(1), 71. <https://doi.org/10.35790/jkp.v9i1.36771>

Mirino, R., Ratag, G. A. E., & Wantania, J. J. (2022). Analysis of the Need for Number of Nurses Based on Workload at the Inpatient Installation of the Sorong Regency Hospital, West Papua, during the Covid-19 Pandemic. *Medical Scope Journal*, 3(2), 169. <https://doi.org/10.35790/msj.v3i2.39393>

Mohammadi, F., Jahromi, M. S., Bijani, M., Karimi, S., & Dehghan, A. (2021). Investigating the effect of multimedia education in combination with teach-back method on the quality of life and cardiac anxiety in patients with heart failure: a randomized clinical trial. *BMC Cardiovascular Disorders*, 21(1), 1-9.

Molloy, L., Beckett, P., Chidarikire, S., Scott, M. P., Guha, M. D., Tran Merrick, T., & Patton, D. (2021).

'First tonight, the contentious new code telling nurses to say, 'sorry for being white': Mental health nurses' beliefs about their Code of Conduct and cultural safety for Aboriginal and Torres Strait Islander Peoples. *International Journal of Mental Health Nursing*, 30(6), 1630-1639.

Mulyasih, I., Sulistiadi, W., & Sjaaf, S. A. (2019). Analisis Hubungan Beban Kerja dan Produktivitas Kerja Terhadap Kinerja Keperawatan Di Instalasi Rawat Inap Ruang Internis RSUD Banten. *Jurnal Bidang Ilmu Kesehatan*, 9(1), 7–23.

Musdaleni. (2022). Analisis Beban Kerja Perawat di Masa Pandemi Covid 19 Di Kota Pekanbaru. *Jurnal Pendidikan Dan Pelatihan*, 6(1).

Nadila, N., Setiawan, H., & Rizany, I. (2020). Beban Kerja dengan Kualitas Pendokumentasian Asuhan Keperawatan sesuai SNARS. *Jurnal Kepemimpinan Dan Manajemen Keperawatan*, 3(2), 62.

Ningsih, D, D. S. (2018). Analisis Beban Kerja dan Kebutuhan Perawat di Ruang Cendrawasih RSUD Arifin Provinsi Riau Tahun 2017. *Menara Ilmu*, XII (80), 21–26.

Pandapotan, S. (2022). Analisis Hubungan Antara Beban Kerja Perawat Dengan Stres Kerja Ruang Intensif Di Rsu Mitra Medika Amplas Medan Tahun 2020. *Jurnal Penelitian Kesmas*, 4(2), 15–20. <https://doi.org/10.36656/jpkpsy.v4i2.872>

Parker, K. J., Phillips, J. L., Lockett, T., Agar, M., Ferguson, C., & Hickman, L. D. (2021). Analysis of discharge documentation for older adults living with dementia: A cohort study. *Journal of clinical nursing*, 30(23-24), 3634-3643.

Permadani. (2016). Gambaran Perhitungan Kebutuhan Tenaga Keperawatan Di Instalasi Rawat Inap Multazam li Rumah Sakit Islam Pku Muhammadiyah Tegal Tahun 2016. A Psicanalise Dos Contos de Fadas. Tradução Arlene Caetano, 466.

Purimahua, D. I., Manik, M., & Manurung, E. I. (2021). Fear of Death between Nursing Students in the Academic and Professional Programs. *Open Access Macedonian Journal of Medical Sciences*, 9(T5), 1-5.

Rashid, P., Ronald, M., & Kong, K. (2021). Cultural safety and racism. *ANZ journal of surgery*, 91(12), 2829-2832.

Rembet, I., Jayanti, N., & Susanti, R. (2021). Analisis Perencanaan Tenaga Keperawatan Dengan Menggunakan Research Framework Di Rs X. 202001005, 31.

Retnaningsih, D., & Fatmawati, D. F. (2018). Beban Kerja Perawat terhadap Implementasi Patient safety di Ruang Rawat Inap. *Jurnal Keperawatan Soedirman*, 11(1), 44. <https://doi.org/10.20884/1.jks.2016.11.1.637>.

Risma A. M., Annisa Nur Erawan, I. K. (2021). Beban kerja perawat di ruang rawat inap rumah sakit. *Jurnal Sehat Masada*, XV, 212–221.

Rizky, W., Darmaningtyas, N., & Yulitasari, B. I. (2018). Hubungan Jumlah Tenaga Perawat dengan Beban Kerja Perawat Pelaksana di Ruang Rawat Inap Kelas III RSUD Wates. *Indonesian Journal of Hospital Administration*, 1(1), 38.

<https://doi.org/10.21927/ijhaa.v1i1.752>

Rubbiana, Ismi, N. (2017). Analisis Beban Kerja Dan Kebutuhan Tenaga Perawat Pelaksana Dengan Metode Workload Indicator Staff Need (WISN) Di Instalasi Rawat Inap Tulip RSUD Kota Bekasi (Vol. 5).

Russell, S., & Middleton, R. (2021). Learning from history: Frances Gillam Holden, a leadership perspective then and now. *Collegian*, 28(6), 616-621.

Safaat, H., & Husnaini. (2019). Analisis Beban Kerja Sebagai Dasar Penentuan Kebutuhan Tenaga Perawat Di Instalasi Rawat Inap Rsud Batara Guru Kabupaten Luwu. *Jurnal Fenomena Kesehatan*, 02(01), 165–187.

Sağlam, B. Ö., Eser, İ. S., Ayvaz, S., Çağı, N., Mert, H., & Küçükçüçlü, Ö. (2021). Intensive care experiences of intern nurse students: a qualitative study. *Nurse Education Today*, 107, 105098.

Sari, M. (2020). Bina husada. *Jurnal Kepetawatan*, 5p.

Setiyawan, A. E. (2020). Preventif: Jurnal Kesehatan Masyarakat Gambaran Beban Kerja Perawat Di Ruang Instalasi Gawat Darurat (Igd) Rsud Undata Provinsi Sulawesi Tengah. *Jurnal Kesehatan Masyarakat*, 11(340), 38–46. <http://jurnal.fkm.untad.ac.id/index.php/preventif>.

Soesanto, D., & Eryad, T. (2019). Penghitungan Kebutuhan Tenaga Keperawatan Berdasarkan Wisn Di Rs.Gotong Royong. *Journal of Health Sciences*, 12(02), 71–79. <https://doi.org/10.33086/jhs.v12i02.554>.

Sugiyono, (2020). Metodologi penelitian dan pengembangan, bandung: Alfabeta.

Tahir, R. (2020). Analisis Beban Kerja Perawat Pelaksana di Ruang Rawat Inap di RSU Bahteramas Sulawesi Tenggara. *Jurnal Kesehatan Manarang*, 6(1), 62. <https://doi.org/10.33490/jkm.v6i1.142>.

Tri Buana. (2019). Hubungan Beban Kerja Dengan Kinerja Perawat di Ruang Rawat Inap (Muzdalifah, Multazam Dan Arofah) Rumah Sakit Islam Siti Aisyah Kota Madiun. 1–19.

West, M., Sadler, S., Hawke, F., Munteanu, S. E., & Chuter, V. (2021). Effect of a culturally safe student placement on students' understanding of, and confidence with, providing culturally safe podiatry care. *Journal of foot and ankle research*, 14(1), 1-8.

Wicaksana. (2021). Analisis Kebutuhan Tenaga Perawat di Rsud Dr. Soedono Madiun. <https://Medium.Com/>, 4, 497–502. <https://medium.com/@arifwicaksanaa/pengertian-use-case-a7e576e1b6bf>

Yunita, R., & Fahmi, R. (2018). An Analysis of Workload Of Nurse Practitioner At Inpatient Care Facility. 33–42