



SKILL MIX MANAGEMENT IN NURSING SERVICES; A MINI PROJECT IN A PUBLIC HOSPITAL IN JAKARTA

Yuni Azizah^{1*}, Rr. Tutik Sri Hariyati², Tuti Afriani², Nurdiana³, Wahyu Kusumadi Retnoningtyas³

¹Master of Nursing Science Programme, Specialisation in Nursing Leadership and Management, Faculty of Nursing, Universitas Indonesia, Jl. Prof. DR. Sudjono D. Pusponogoro, Pondok Cina, Beji, Depok, Jawa Barat 16424, Indonesia

²Department of Basic Nursing & Basic Nursing, Faculty of Nursing, Universitas Indonesia, Jl. Prof. DR. Sudjono D. Pusponogoro, Pondok Cina, Beji, Depok, Jawa Barat 16424, Indonesia

³RSUPN Dr. Cipto Mangunkusumo, Jl. Diponegoro No. 71, Kenari, Senen, Jakarta Pusat, Jakarta 10430, Indonesia

*yuniazazah69@gmail.com

ABSTRACT

Skill mix includes the nurse workforce size, education level, and clinical experience, nursing hours per patient day, the ratio of nurses to patients (qualified and unqualified), and the various skills and training required to fulfil patient care needs. The aim of this study was to optimally manage the skill mix management system in nursing by allocating various skills and roles within the nursing team to provide safe, effective, and efficient care. This study used a mini-project and analysed the results and implementation gaps through a literature review. Problems were assessed using fishbone diagrams, with alternative solutions developed in a Plan of Action (POA) framework consisting of implementation, Evaluation, and Follow-up phases. Participants were nursing staff, consisting of 2 head nurses and 63 nurses (Primary Nurses and Associate Nurse). The implementation of this study began with the preparation and workshop of technical guidelines on skill mix management in nursing. Data were collected through interviews, questionnaires, field observations, and document reviews conducted from April 22 to May 16, 2024, involving nursing managers and staff on the 3rd and 6th floors of Inpatient Building A. The data were then analyzed descriptively using the nursing management function framework, which includes planning, organizing, staffing, directing, and controlling. Evaluation, through observation and interviews, showed that 80% of the technical guidelines were well structured. There was a focus on care planning patterns, patient delegation models, and preparation of service schedules. Effective nursing skill mix management requires risk mitigation strategies, such as the FMEA approach, as well as close supervision and improved staff competence

Keywords: nursing care delivery model; nurse manager; primary nurse; skill mix

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INTRODUCTION

Effective and efficient health care is the main goal of the health system in Indonesia. National Referral Hospitals have a strategic role in providing high quality health services to the community, including managing complex disease cases. One important aspect in achieving this goal is the optimal management of nursing care and services where hospitals ensure that the health system is optimally staffed in terms of numbers and skills is key to optimising health outcomes for patients (Kushemererwa et al., 2020). Effective nursing management requires structuring the application of Skill Mix, which is the right combination of different skill levels and roles in the nursing team, to ensure comprehensive and holistic care for patients where human resource management in healthcare involves organising groups of workers with different professional backgrounds, skills, values, qualifications, expertise and experience to achieve optimal patient care (Dubois & Singh, 2009). However, the application of Skill Mix in the

management of nursing care and services in National Referral Hospitals often faces various challenges that can affect the quality of nursing services, patient satisfaction, quality, cost effectiveness (Amritzer et al., 2021).

Some of the main problems include a shortage of skilled nursing personnel, which means that there is a limited number of nurses with the appropriate skills and specialisations. This shortage often leads to excessive workload for existing nurses, potentially reducing the quality of nursing care. In addition, the distribution and utilisation of human resources is not optimal, with an uneven distribution of nurses between various units and departments. This can lead to an imbalance in services, where some units are understaffed while others may be overstretched. Support and harmonisation of regulations underlying nursing practice, professional standards, clinical authority and career paths greatly impact the implementation of the skill mix management system in nursing services. The relevant regulation is the Decree of the Minister of Health of the Republic of Indonesia Number HK.01.07/MENKES/425/2020 concerning Nurse Professional Standards. This regulation discusses the standards of the nursing profession which consist of competency standards and professional codes of ethics, which differentiate based on vocational graduates (D3 nursing) and the nursing profession, this is related to the structuring of the skill mix, namely where in the skill mix attribute education becomes a factor that influences its management, this is in line with other regulations, namely Regulation of the Minister of Health of the Republic of Indonesia Number 26 of 2019 concerning Regulations for the Implementation of Law Number 38 of 2014 concerning Nursing which discusses differences in the authority of vocational and professional nurses in nursing services in health care settings. Another attribute in managing the skill mix is the level of competence and career path of nurses, this is in line with the regulation of the Regulation of the Minister of Health of the Republic of Indonesia Number 40 of 201 concerning Development of Professional Career Paths for Clinical Nurses where each nurse's career development in hospitals and primary care has 5 (five) levels. Level I to level V consisting of Nurse Managers, Nurse Educators, or Research Nurses.

Another problem that can arise in effective Skill Mix nursing is the lack of good coordination and collaboration between nursing teams. Lack of communication and interprofessional cooperation can hinder workflow and reduce the effectiveness of care provided to patients. To support optimal implementation of the Skill Mix, nurses need to receive ongoing education and training that is relevant to the latest developments in nursing science and the specific needs of patients with various disease cases. Limited access to these training programmes may limit nurses' ability to develop the necessary skills. High workloads, due to staff shortages and uneven distribution, can negatively impact the quality of nursing care. Overworked nurses are likely to experience fatigue and stress, which can affect their performance and patient safety. Nursing managers must be able to perform interpersonal, informational, and decisional roles and functions, as well as plan, organize, staff, direct, and control. These roles and functions greatly influence the implementation of nursing care and services (Marquis & Hutson, 2017). The need for in-depth analysis of skill mix arrangements in the management of nursing care and services at the National Referral Hospital. Through this experience, it is hoped that effective and evidence-based solutions can be identified to optimise Skill Mix management, thereby improving the quality of nursing services and patient clinical outcomes. The purpose of this mini-project is to describe the current situation of Skill Mix implementation in nursing services, identify existing challenges, and provide recommendations that can be implemented for future improvements. Thus, this study is

expected to contribute to the improvement of the quality of nursing care in the National Referral Hospital and provide a basis for further studies in the field of nursing.

METHOD

This study used a mini-project and analysed the results and implementation gaps through a literature review. Problems were assessed using fishbone diagrams, with alternative solutions developed in a Plan of Action (POA) framework consisting of implementation, Evaluation, and Follow-up phases. Participants were nursing staff, consisting of 2 head nurses and 63 nurses (Primary Nurses and Associate Nurse). The ward used as the mini project area is a special inpatient ward consisting of VVIP, VIP, class I, class 2, and class 3 wards. The basis for selecting the inpatient room as a mini project site is that the inpatient room is a patient service room for 24 hours so that the nurse has more contact with the patient. Interviews were conducted with the nursing committee, nursing supervisor, and head of the room to obtain data on the role and function of nurse managers, in addition to interviews a survey using a questionnaire was also conducted to collect data on the role and function of nurse managers. Surveys through questionnaires with a total sampling target of the 3rd floor and 6th floor were conducted on 65 nurses consisting of 2 room heads, 10 primary nurses and 53 associate nurses. The questionnaire was sourced from several literatures, which consisted of components or categories, namely the role and function of nurse managers, attitudes towards change, management of patient mix and work environment, which for the role and function of nurse managers, and attitudes towards change were adopted from the text book Leadership roles and management functions in nursing theory and application (Marquis & Hutson, 2017) while for patient mix (skill mix) and work environment from the RN4cast Nurse Survey research instrument in England. (Ball, Pike, Griffiths, Rafferty, & Murrells, 2012). Determination of problems based on the results of the analysis was identified using a fishbone diagram which was then arranged for alternative problem solving by determining the Plan of Action (POA), implementation, evaluation, and follow-up involving the nursing elements involved, namely the nursing supervisor, and the head of the room

RESULT

The assessment was conducted through interviews, questionnaires, field observations, and document review. Interviews were conducted with the Chairperson of the Nursing Committee, Assistant Manager of Service Integration Efficiency and Nursing Quality of the Nursing Service Work Team, Nursing Supervisor of the Inpatient Installation of Building A, Head of Room 3 (three) and 6 (six) Floors of Inpatient Building A, and randomly selected room nurses. Interviews were conducted to find out the description of nursing management in the inpatient installation of Building A, especially on the 3rd floor and 6th floor. The document review found included the hospital's strategic plan, documents, nursing HR data, nursing care documentation format, and hospital SOPs. Questionnaires were given to the head of the room, primary nurses, and all executive nurses on duty at the inpatient installation building A, especially on the 3rd and 6th floors. The questionnaires given included the perceptions of primary nurses and executive nurses about the role and function of nurse managers, in this case the head of the room, as well as questionnaires containing a description of attitudes towards change, assignment methods, patient mix, and work environment.

Assessment activities were carried out from 22 April to 16 May at the Inpatient Installation Building A, especially on the 3rd and 6th floors. Assessment data was obtained through interviews with the nursing supervisor of inpatient building A and the heads of the 3rd floor and 6th floor of building A. Assessment was also carried out using direct observation techniques in the field, document studies, surveys using questionnaires for the Head of the Room, primary nurses, and implementing nurses. Interviews with the Head of the 3rd Floor

and 6th Floor were conducted on 22-24 April 2024, followed by direct observation in the nursing room. Interviews with the Nursing Supervisor of IPRIT Building A were conducted on 22, 25, and 26 April 2024. Nursing Committee interviews were conducted on 8–13 May 2024. The assessment used a nursing management function approach consisting of planning, organising, staffing, directing, and controlling functions. Survey through questionnaires was conducted with the Head of Ward and Nursing Staff, both Primary Nurses and Implementing Nurses, in the Inpatient Wards on the 3rd and 6th floors of Building A, regarding respondent characteristics, the roles and functions of nurse managers, in this case, the Head of ward, work environment, attitudes towards change, and patient mix with total sampling. The total number of samples is 65. (Head Nurses : 2 and Nursing Staff : 63).

Tabel 1.
Respondent characteristics

Variabels	3 rd Floor		6 th Floor		Total	
	(n=31)	%	(n=34)	%	(n=65)	%
Gender						
Male	2	6,5	4	11,8	6	9,2
Female	29	93,5	30	88,2	59	90,8
Age						
20 - 30 years old	15	48,4	12	35,3	27	41,5
31 - 40 years old	6	19,4	9	26,5	15	23,1
41 -50 years old	6	19,4	9	26,5	15	23,1
>50 years old	4	12,9	4	11,8	8	12,3
Education Level						
Nurses Specialist	0	0,0	0	0,0	0	0,0
Bachelor Nurse	15	48,4	12	35,3	27	41,5
Diploma	16	51,6	22	64,7	38	58,5
Work Period						
1 - 5 years	13	41,9	12	35,3	25	38,5
6 - 10 years	4	12,9	6	17,6	10	15,4
11 - 15 years	5	16,1	3	8,8	8	12,3
16 - 20 years	3	9,7	2	5,9	5	7,7
>20 years	6	19,4	11	32,4	17	26,2
Clinical Nurse Level						
PK 1	7	22,6	7	20,6	14	21,5
PK 2	10	32,3	7	20,6	17	26,2
PK 3	13	41,9	17	50,0	30	46,2
PK 4	1	3,2	3	8,8	4	6,2
PK 5	0	0,0	0	0,0	0	0,0
Clinical Area						
General	7	22,6	7	20,6	14	21,5
Medical Surgical	10	32,3	7	20,6	17	26,2
Medical	11	35,5	14	41,2	25	38,5
Surgical	0	0,0	4	11,8	4	6,2
Neuroscience	1	3,2	2	5,9	3	4,6
Geriatrics	1	3,2	0	0,0	1	1,5
Oncology	1	3,2	0	0,0	1	1,5
Position						
Head Nurse	1	3,2	1	2,9	2	3,1
Primary Nurses	4	12,9	6	17,6	10	15,4
Associate Nurse	26	83,9	27	79,4	53	81,5

Table 1 shows that the majority of nurses on the 3rd and 6th floors are in the age range of 20-30 years (3rd Floor: 48.4% and 6th Floor: 35.3%) with an average education level of D3 (3rd Floor: 51.6% and 6th Floor: 64.7%) and the most common work experience is in the range of 1-5 years (3rd Floor: 41.9% and 6th Floor: 35.3%). Meanwhile, the majority of clinical nurses are at PK 3, with 41.9% on the 3rd floor and 50% on the 6th floor. The distribution of

education levels based on PK levels below showing the presence of skill mix data at the education level and competency level, where most nurses are at PK 3 level with a D3 education level:

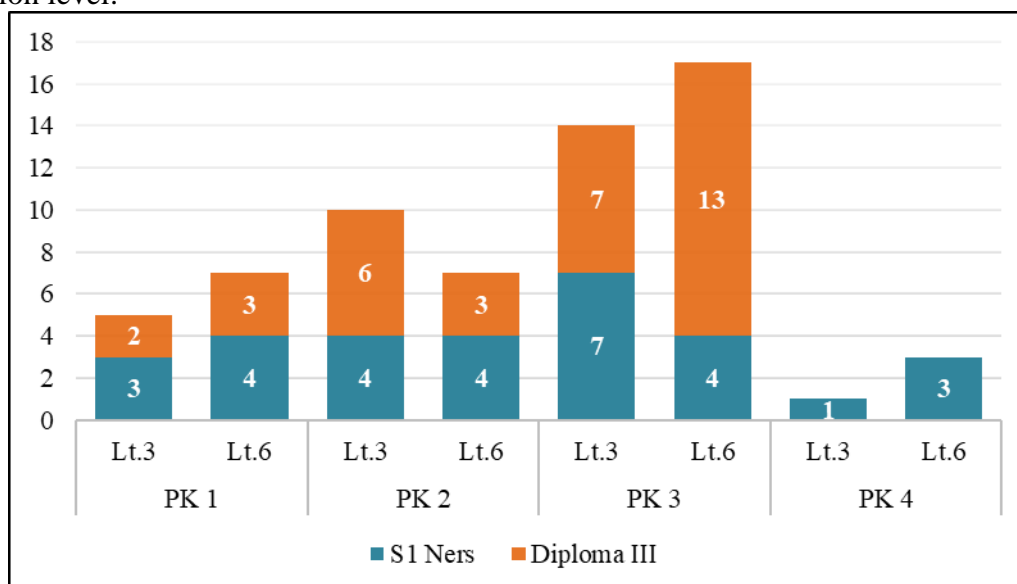


Figure 1. Distribution of Nurses based on Education Level & Competency Level

After data analysis, we analyze into fishbone analysis to find a main problem, the fishbone diagram (Figure 2) shows the cause-and-effect of the priority issue, which is the suboptimal function of planning the management of the nursing service system skill mix, caused by several 5M factors. (Man, Method, Material, Mechine). The absence of systematic guidelines or technical instructions for managing the nursing service system skill mix, suboptimal assignment methods, and the continued presence of D3 education serving as primary nurses. This is an integrated part of the nursing service management system, so it is necessary to create a technical guideline for the nursing service management system using the POSAC approach (Planning, Organizing, Staffing, Actuating, Controlling). This approach is expected to directly provide alternative solutions to the management issues of skill mix nursing care and services in inpatient settings. The implementation carried out at the planning stage is the preparation of a document in the form of Technical Guidelines for the Management of Nursing Care and Services in a Skill Mix. The guidelines were prepared by the Nursing Supervisor of Inpatient Ward A with the involvement of the Head of the Ward. The three main components discussed in this technical guideline are the planning of nursing personnel in the skill mix area, the pattern or model of nursing care assignment, and the plan for developing competency planning in the skill mix area.

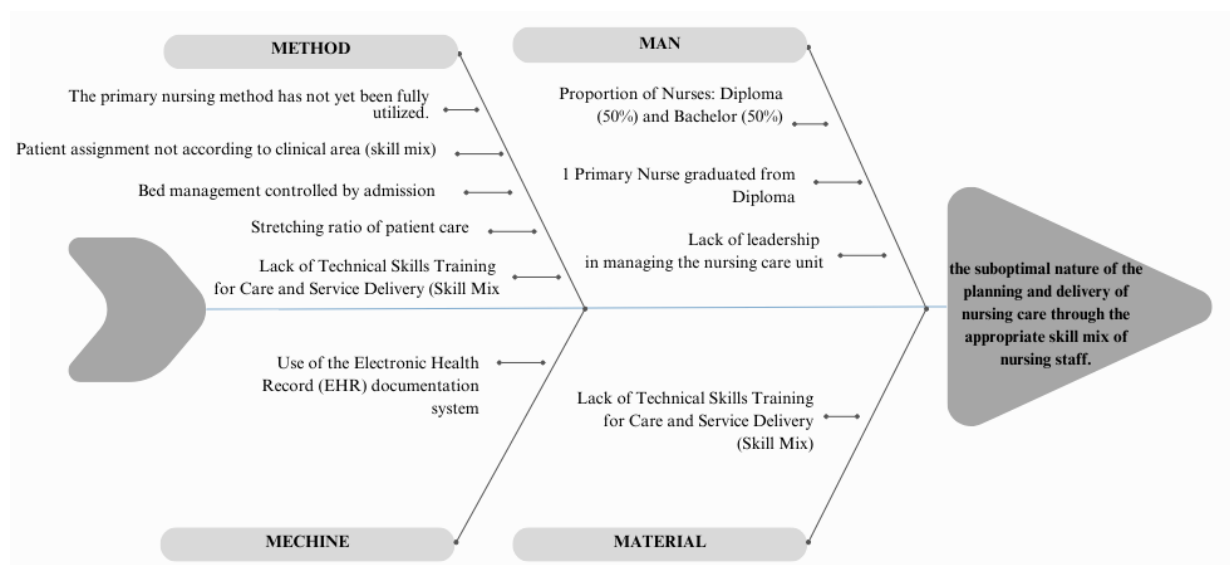


Figure 2. Fishbone Analysis

DISCUSSION

The implementation of this mini project is to map the workforce planning in the skill mix area which can be done by the head of the room by considering patient factors consisting of bed capacity, BOR, LOS, clinical area, and patient dependency level, the second factor is the workforce factor which includes education level, competency level, training that has been followed, and competency area owned by the nurse, while the third factor is the environmental factor, including the type of care class and the number of patient rooms (Cunningham et al., 2019). The second component in the implementation of this mini project is determining the type of appropriate assignment method that can be applied to the skill mix nursing area. The assignment method used in managing skill mix nursing care does not depend on one of the nursing care delivery models but varies according to the condition of the ward and staff level based on complex clinical decision-making skills (Duffield et al., 2005). However, in this case, the application of the primary nursing care delivery model with skill mix was carried out. Primary Nurse Assignment Model with Skill Mix, where the primary nurse or in this project is the PPJA is responsible for 24 hours to plan the care of one or more patients from the time of admission or the start of care until the patient goes home or the end of care. During working hours, the PPJA provides total direct care for the patient. When the PPJA is not on duty, an associate nurse or access nurse, who follows the care plan set by the PPJA, provides care (Marquis & Hutson, 2017).

The advantage of implementing the primary method is that it can guarantee the continuity of patient care (Hariyati, 2014). However, the disadvantage of the Primary Nursing approach lies in its improper implementation, primary nurses who are not well prepared or competent may not be able to coordinate a multidisciplinary team or identify complex patient needs and changing conditions. Many nurses feel uncomfortable with this role or initially do not have the experience and skills needed for the role (Marquis & Huston, 2017). Changes in the service system in the transformation era are a challenge for nurse managers in developing or refining the nursing service management system in order to achieve effective and efficient goals. In the implementation of a new system that will be developed, it is necessary to carry out risk mitigation with the FMEA (Failure Mode Effect Analysis) approach, which is a team-based, systematic, and proactive technique used to prevent problems from the process or service that will be developed related to the skill mix (Hariyati et al., 2019). This FMEA approach or design is useful for identifying and understanding possible failure modes and their causes, as

well as identifying the effects of failure in the system, besides that it can also help in assessing the risk of effects and causes and prioritizing problems for corrective actions that are useful for overcoming problems before the new system is implemented (Carlos 2016 in Hariyati et al., 2019).

The arrangement of the combination of skill mixes or skill mixes needs to be supported by an intensive program of tiered supervision and competency improvement in preparing competent resources ready to provide services in the skill mix area according to their authority. Supervision is an important method for health care organizations to ensure the quality and safety of services, as well as to facilitate continuing professional development (CPD) and support for health care practitioners (Driscoll, 2019). Multilevel supervision is needed to ensure that health workers can apply their skills competently and according to authority. Intensive and structured supervision programs can include direct mentoring and feedback from more senior supervisors, conducting regular training and development of skills, and conducting regular evaluations of performance and competence.

CONCLUSION

The National Referral Hospital in Jakarta has an important role in providing high-quality health services to the community, including for handling complex disease cases. Optimal management of nursing care and services in the hospital requires the implementation of Skill Mix, which is the right combination of various skill levels and roles in the nursing team. However, the implementation of Skill Mix in the hospital faces several challenges, such as a shortage of skilled nursing staff, suboptimal distribution and utilization of human resources, lack of good coordination and collaboration between nursing teams, limited access to ongoing training programs for nurses and high workloads for nurses.

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