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Email : editorijhess@gmail.com

Workload-Based Pharmacy Staffing Needs Analysis Using WISN At Kimia Farma South Sumatra Pharmacy

Teguh utama[1)*], Seftika sari[2)], Satibi[3)]
[1,2)] Master of Pharmacy Program, Riau College of Pharmacy
[3)] Faculty of Pharmacy, Gadjah Mada University

*Corresponding Author
E-mail: idhu.bae@gmail.com

Abstract

The availability of pharmaceutical personnel aligned with workload is essential for maintaining service quality, operational efficiency, and patient safety in retail pharmacies. This study aimed to analyze pharmaceutical staffing needs based on workload using the Workload Indicator of Staffing Needs (WISN) method in four Kimia Farma pharmacies in South Sumatra. A mixed-methods design was employed. Data were collected through focus group discussions, work sampling observations using a stopwatch, structured interviews, and secondary data, including patient visit reports and attendance records. Staffing requirements were calculated based on available working time, workload components, and allowance factors. The WISN ratios were 1.07458 at Sudirman Pharmacy, 1.16508 at Rosarum Pharmacy, 0.99705 at Symphoni Pharmacy, and 1.00414 at Rama Pharmacy. These findings indicate that staffing levels were generally adequate, although workload pressure varied across pharmacies. Support activities, particularly stock-taking, accounted for the largest proportion of working time and substantially influenced workload distribution. The findings demonstrate that staffing adequacy should be evaluated not only by workforce numbers or prescription volume but also by actual workload distribution. The WISN method provides an objective basis for pharmaceutical workforce planning and supports task redistribution, workflow simplification, enhanced administrative support, and improved information system utilization to optimize staffing efficiency in retail pharmacies.

Keywords: ***Workload Indicator of Staffing Needs (WISN); Pharmaceutical Personnel; Retail Pharmacy***

INTRODUCTION

Pharmaceutical services are an essential component of healthcare systems because they contribute directly to patient safety, treatment effectiveness, and the quality of health services (WHO, 2023). The quality of pharmaceutical services depends not only on the availability of medicines but also on the adequacy and competency of pharmaceutical personnel (Indrayanti *et al*., 2020; WHO, 2023). In Indonesia, pharmaceutical personnel consist of pharmacists and pharmacy technicians, who are responsible for pharmaceutical practice, including drug procurement, storage, dispensing, compounding, drug information services, and pharmaceutical administration in accordance with Government Regulation No. 51 of 2009 concerning Pharmaceutical Practice and the Regulation of the Minister of Health No. 73 of 2016 concerning Standards of Pharmaceutical Services in Community Pharmacies (Menteri Kesehatan Republik Indonesia, 2016).

The expanding scope of pharmaceutical services has substantially increased the workload of pharmaceutical personnel. Besides prescription dispensing, pharmacy staff are responsible for inventory management, stock control, documentation, patient counseling, and various administrative activities (Fahlevi *et al*., 2023). Consequently, the availability of an adequate number of pharmaceutical personnel has become a critical factor in ensuring service quality, operational efficiency, and patient safety. Inadequate staffing may increase workload pressure, reduce service efficiency, and potentially compromise the quality of pharmaceutical care (Masruri & Ekhsan, 2022; Harini *et al*., 2018)

Human resources are recognized as one of the key components supporting pharmaceutical services. Therefore, workforce planning should be based on actual workload rather than solely on prescription volume or organizational staffing standards (WHO, 2023). An objective workload-based staffing assessment enables managers to allocate personnel more efficiently while maintaining service

quality. However, many community pharmacies continue to determine staffing levels based on managerial judgment rather than standardized workload measurements (Agustini *et al*., 2023).

Kimia Farma, the largest retail pharmacy network in Indonesia, operates an extensive network of pharmacies across the country, including 17 pharmacies in South Sumatra Province (PT Kimia Farma Apotek, 2025). The increasing demand for pharmaceutical services, driven by population growth and urbanization, has created challenges in balancing workforce availability with service demand. Differences in prescription volume, patient visits, inventory activities, and administrative responsibilities among pharmacies often result in unequal workload distribution. These conditions highlight the need for an objective approach to determine the appropriate number of pharmaceutical personnel required at each pharmacy (Sari & Saputra, 2023)..

The Workload Indicator of Staffing Needs (WISN), developed by the World Health Organization (WHO), is a workload-based human resource planning method that calculates staffing requirements using available working time and actual workload components. Unlike conventional staffing methods, WISN considers the time required to perform core, support, and additional activities, thereby providing a more objective estimate of staffing needs. Previous studies have demonstrated the usefulness of WISN in health workforce planning across hospitals and other healthcare facilities. However, most published studies have focused on hospital settings, while evidence regarding its application in community or retail pharmacies remains limited (McQuide *et al*., 2013; Mabunda *et al.*, 2021; Nguyen *et al*., 2022).

This limited evidence represents an important research gap because retail pharmacies have distinctive workflow characteristics, including continuous patient services, inventory management, commercial operations, and administrative responsibilities that differ from hospital pharmacy practice. Consequently, staffing requirements in retail pharmacies cannot be accurately estimated using assumptions derived from hospital settings. Applying the WISN method in retail pharmacies may provide a more comprehensive understanding of workload distribution and support evidence-based workforce planning (Agustini *et al*., 2023; Oktarini *et al*., 2021)

Therefore, this study aimed to analyze the staffing requirements of pharmaceutical personnel based on workload using the WISN method in four Kimia Farma pharmacies in South Sumatra. Specifically, the study evaluated workload components, estimated staffing requirements, and compared workload distribution among the participating pharmacies. The findings are expected to provide evidence-based recommendations for workforce planning and contribute to improving operational efficiency and the quality of pharmaceutical services in retail pharmacies.

RESEARCH METHODS

This study employed a mixed-methods design combining quantitative and qualitative approaches. Quantitative data were obtained from activity recording sheets developed based on the results of focus group discussions (FGDs) involving pharmaceutical personnel working at Kimia Farma pharmacies. The study was conducted from January 1 to January 31, 2026, in four Kimia Farma pharmacies in South Sumatra, namely Rama Pharmacy, Symphoni Pharmacy, Rosarum Pharmacy, and Sudirman Pharmacy.

The study population comprised all pharmaceutical personnel, including pharmacists and pharmacy technicians, employed at the selected Kimia Farma pharmacies in South Sumatra. A total sampling technique was applied, whereby all eligible pharmaceutical personnel were included in the study. The independent variables were patient service activities, administrative activities, and allowance standards, while the dependent variable was the staffing requirement for pharmaceutical personnel.

Staffing requirements were analyzed using the Workload Indicator of Staffing Needs (WISN) method developed by the World Health Organization (WHO). The staffing requirement was calculated

using the following formula: Staffing Requirement =(Total Workload Components × Category Allowance Factor) + Individual Allowance Factor

where the Category Allowance Factor (CAF) represents the time allocated for support activities performed by all staff members, and the Individual Allowance Factor (IAF) represents additional activities performed only by designated personnel. The WISN ratio was interpreted as follows: (1) a ratio of 1.00 indicates that the available number of pharmaceutical personnel is adequate to meet the workload according to professional standards; (2) a ratio of < 1.00 indicates a shortage of personnel, meaning that the available workforce is insufficient to meet workload demands; and (3) a ratio of > 1.00 indicates a surplus of personnel, suggesting that the available workforce exceeds the staffing requirements based on workload.

RESULTS AND DISCUSSION

This study involved 22 pharmaceutical personnel who met the inclusion criteria of having worked for more than six months. The study was conducted in January 2026 at four Kimia Farma pharmacies in South Sumatra, namely Sudirman, Rosarum, Symphoni, and Rama Pharmacies. Staffing requirements were analyzed using the Workload Indicator of Staffing Needs (WISN) method. Data collection began with a Focus Group Discussion (FGD) to identify workload components, followed by direct observation using a stopwatch, structured interviews, and secondary data collection, including patient visit records and staff attendance reports. The use of multiple data sources increased the validity of workload measurement by capturing the actual work performed by pharmaceutical personnel.

The WISN method was implemented through the determination of available working time, identification of workload components, establishment of activity standards, calculation of workload standards, and estimation of staffing requirements. This approach is recommended by the World Health Organization (WHO) because it estimates staffing requirements based on actual workload rather than on fixed staffing norms or population ratios (WHO, 2023). Similarly, McQuide *et al.*, (2013) reported that the WISN method provides a more objective basis for workforce planning by incorporating working time, service standards, and workload variations into staffing calculations.

The FGD revealed that pharmaceutical personnel worked six days per week, with seven working hours per day. After deducting national holidays, annual leave, sick leave, training, and other absences, the effective available working time was calculated at 276 working days or 1,932 hours per year. Available working time represents a fundamental parameter in the WISN method because it determines the actual capacity of health personnel to perform service activities (WHO, 2023). Similar procedures have been adopted in workforce planning studies conducted in Bangladesh, Vietnam, and South Africa using the WISN method (Joarder *et al*., 2020; Nguyen *et al*., 2022; Mabunda *et al*., 2021).

The workload components consisted of main activities, support activities, and additional activities. Main activities included dispensing non-compounded prescriptions, compounded prescriptions, Chronic Disease Referral Program (PRB) prescriptions, insurance prescriptions, over-the-counter medication services, invoice entry, credit prescription entry, merchandising, and bank deposit transactions. Support activities included stock taking, routine meetings, institutional visits, and out-store services, whereas additional activities consisted of seminars and professional training. The identification of these workload components was based on the Standard Operating Procedures of PT Kimia Farma Apotek and the Pharmaceutical Service Standards for Community Pharmacies established by the Indonesian Ministry of Health (Minister of Health Regulation No. 73 of 2016). Including all professional and non-clinical activities is essential because pharmaceutical personnel perform a wide range of responsibilities beyond dispensing medications.

The WISN analysis demonstrated that staffing requirements differed slightly among the four pharmacies. The WISN values were 1.07458 for Sudirman Pharmacy, 1.16508 for Rosarum

Pharmacy, 0.99705 for Symphoni Pharmacy, and 1.00414 for Rama Pharmacy. Since all values were close to 1.0, the available workforce generally matched the estimated staffing requirements based on actual workload. According to WHO (2023), a WISN ratio close to one indicates that staffing levels are appropriate, whereas higher or lower ratios suggest an imbalance between workforce availability and workload demand.

Table 1. Pharmaceutical Staffing Requirements Based on the WISN Method

Pharmacy	WISN Value	Interpretation
Sudirman	1.07458	Relatively balanced workload
Rosarum	1.16508	Highest workload pressure
Symphoni	0.99705	Staffing closely matched workload requirements
Rama	1.00414	Balanced workload

Among the four pharmacies, Rosarum Pharmacy showed the highest staffing requirement, reflecting a greater workload generated by higher service volume and more complex pharmaceutical services. Conversely, Symphoni Pharmacy demonstrated the best balance between staffing availability and workload demand. Similar findings were reported by Agustini *et al*., (2023) and Fahlevi *et al*., (2023), who observed that staffing requirements varied considerably among pharmacy units because workload was influenced not only by prescription volume but also by the diversity and complexity of pharmaceutical activities. This study also demonstrated that pharmaceutical personnel's workload was substantially influenced by administrative and support activities. Stock taking represented the most time-consuming support activity across all pharmacies. The allowance factor attributed to support activities reached 93% at Sudirman Pharmacy, 97% at Rosarum Pharmacy, 93% at Symphoni Pharmacy, and 96% at Rama Pharmacy. These findings indicate that pharmaceutical personnel devoted a considerable proportion of their working time to indirect activities rather than direct patient care. Similar observations have been reported by Silva and Dal Poz (2022) and Nuruzzaman et al., (2022), who emphasized that administrative and support activities significantly contribute to total workload and should therefore be incorporated into workforce planning.

The predominance of support activities explains why staffing requirements cannot be determined solely by the number of prescriptions dispensed. Activities such as stock taking, institutional visits, routine meetings, out-store services, seminars, and professional development consume substantial working time and consequently influence staffing needs. Ignoring these activities may result in an underestimation of workforce requirements. This finding supports the recommendations of WHO (2023) and McQuide *et al*., (2013), which emphasize that all workload components must be included to produce valid staffing estimates.

The variation in staffing requirements among pharmacies further indicates that uniform staff allocation across all service units may not achieve optimal workforce distribution. Pharmacies with higher patient volumes and more complex service processes require greater staffing support than those with relatively stable workloads. Therefore, workforce redistribution based on WISN analysis represents a more evidence-based strategy than applying equal staffing policies across all facilities. Similar conclusions have been reported by Jamaluddin and Rifani (2021), Agustini *et al*., (2023), and Sari and Saputra (2023), who found that WISN-based staffing allocation improves workforce efficiency in pharmacy services.

These findings reinforce the concept that the WISN method provides a comprehensive and objective approach to workforce planning. Unlike conventional methods that rely only on staff-to-population ratios or prescription numbers, WISN integrates available working time, activity standards, allowance factors, and workload variations into staffing calculations. Previous studies conducted in Namibia (McQuide *et al*., 2013), Bangladesh (Joarder *et al*., 2020; Nuruzzaman *et al*., 2022), Vietnam (Nguyen *et al*., 2022), Brazil (Silva & Dal Poz, 2022), and South Africa (Mabunda *et al*., 2021) consistently concluded that WISN is an effective tool for evidence-based workforce planning across different healthcare settings.

From a practical perspective, the findings suggest that task distribution should be reviewed, particularly at Rosarum and Sudirman Pharmacies, where workload pressure was relatively higher than at the other study sites. Administrative activities should be scheduled more systematically to minimize disruption to direct patient care. The implementation of integrated pharmacy information systems, simplification of administrative procedures, and strengthened administrative support may improve service efficiency without requiring substantial increases in staffing levels. Furthermore, excessive workload has been shown to negatively affect employee performance, increase occupational stress, and reduce service quality (Achmad Masruri & Ekhsan, 2022; Johari *et al*., 2018; Shabbir *et al*., 2017; Hastutiningsih, 2019).

Overall, the findings indicate that the number of pharmaceutical personnel across the four Kimia Farma pharmacies in South Sumatra was quantitatively close to the ideal staffing requirement. Nevertheless, differences in service intensity and the high proportion of support activities resulted in varying levels of workload pressure among the pharmacies. Therefore, periodic workforce evaluation using the WISN method is recommended to maintain balanced workloads, improve workforce productivity, and ensure the quality and sustainability of pharmaceutical services, in accordance with WHO recommendations for evidence-based human resource planning (WHO, 2023).

CONCLUSIONS

The WISN analysis indicated that the number of pharmaceutical personnel at the four Kimia Farma pharmacies in South Sumatra was generally close to the ideal staffing requirement, with WISN values ranging from 0.997 to 1.165. Variations in workload were influenced by differences in service volume and support activities among pharmacies. These findings suggest that the WISN method provides an objective basis for workforce planning and supports more efficient allocation of pharmaceutical personnel according to actual workload.

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