



## Literature Study: Relationship Between the Availability of Health Human Resources (HR) and the Implementation of Service Programs at Health Centers

Dewi Agustina<sup>1\*</sup>, Nadilla Fitri Yanni<sup>2</sup>, Rizkya Salsabila Simanjuntak<sup>3</sup>, Ummu Mawaddah Ikrimah Damanik<sup>4</sup>, Putri Sima<sup>5</sup>, Maulidya Hanafiah<sup>6</sup>, Jihan Khalifi<sup>7</sup>, Nadia Maimunah Tarihoran<sup>8</sup>, Mei Linda<sup>9</sup>, Fahmi Idris Siregar<sup>10</sup>, Mawadah Karunia<sup>11</sup>, Audya Putri Az-Zahra<sup>12</sup>, Rahma Fadhila<sup>13</sup>, Defani Zaqiyah Putri<sup>14</sup>, Nabila Zahrah<sup>15</sup>, Nur Indah Hasibuan<sup>16</sup>, Mahmudin Hasibuan<sup>17</sup>

<sup>1-17</sup> Faculty of Public Health. State Islamic University of North Sumatra Medan, Indonesia

\*Corresponding author: [dewiagustina@uinsu.ac.id](mailto:dewiagustina@uinsu.ac.id)

### Article Info

#### Article history:

Received 09 Feb, 2026

Revised 27 Mar, 2026

Accepted 17 Apr, 2026

#### Keywords:

Health Human Resources, Health Centers, Health Services, Human Resources Availability, Service Programs

### ABSTRACT

The availability of health human resources (HR) is an important factor in determining the success of the implementation of service programs at health centers. This study aims to analyze the relationship between the availability of health human resources and the implementation of service programs in health centers through a literature study approach. The method used is literature review by reviewing various relevant national and international scientific articles. Data collection was carried out through searching databases such as Google Scholar, PubMed, and ScienceDirect using keywords related to health human resources and health center services. The selected articles were then analyzed in a qualitative descriptive manner. The results of the study show that the availability of health human resources, both in terms of quantity, distribution, quality, and management, has a significant relationship with the implementation of service programs at health centers. Limited number of health workers, uneven distribution, and high workload are the main obstacles in service optimization. In addition, the competence of health workers and facility support also affect the effectiveness of service programs which include promotive, preventive, and curative. In conclusion, the availability of adequate and evenly distributed health human resources is very necessary to improve the quality of services at health centers. Therefore, better planning and management of human resources is needed to support the improvement of public health status.

### INTRODUCTION

The distribution of health workers in Indonesia, both in terms of number and quality, is still considered insufficient. Indonesia occupies the third position as the country with the lowest ratio of doctors in the Southeast Asian region. In 2020, the number of doctors in Indonesia was recorded at 6.23 per 10,000 population. In comparison, Singapore ranks first with the highest ratio of doctors, which is 24.6 per 10,000 population, followed by Malaysia at 22.86 per 10,000 population, and Brunei Darussalam with 16.09 per 10,000 population.

In general, the number of countries experiencing a human resource crisis in the health sector is almost close to the minimum limit set by the WHO, which is 2.3 per 1,000 population. However, the Minister of Health acknowledged that the main problem lies not only in the number of health workers, but also in their uneven distribution. This can be seen in the condition of one of the health centers which only has five workers without a general practitioner or dentist.

Based on the findings of the Ombudsman of the Republic of Indonesia and the Ministry of Health, the problem of the availability of health human resources in Indonesia in 2025 is still dominated by

distribution inequality, lack of specialists, and weak planning. Health workers tend to be concentrated in urban areas, while Remote, Disadvantaged, and Outermost (3T) areas still experience significant shortages. In addition, the need for specialist doctors, especially in hospitals outside Java, is still unmet. Not optimal health human resource planning also causes a mismatch between the number of personnel and the needs in the field. This condition is exacerbated by the lack of personnel in remote health centers, limited budgets and facilities, and low quality of human resources which are influenced by nutritional problems such as stunting, thus having an impact on the lack of optimal overall health services.

The limitations of health human resources have a direct impact on the quality and scope of services provided. Health programs such as immunization, maternal and child services, infectious and non-communicable disease control, and health promotion are often not implemented optimally due to a lack of implementing personnel. In addition, the high workload on available health workers can also reduce performance and service quality.

The availability of health human resources (HR) is one of the main factors in the success of the implementation of health services, especially at the primary service level such as health centers. Puskesmas have a strategic role as the front line in providing promotive, preventive, curative, and rehabilitative services to the community. Therefore, the existence of adequate health workers in terms of number, type, and competence is very necessary so that all service programs can run optimally.

Thus, the availability of health human resources has a close relationship with the success of the implementation of service programs at health centers. The more adequate the number and quality of health workers, the more optimal the implementation of service programs to the community. Therefore, research through literature studies is needed to analyze the relationship between the availability of health human resources and the implementation of service programs at health centers, so that it can be the basis for policy formulation and efforts to improve the health service system in the future.

## METHODS

This study uses a literature review method which aims to review and analyze various research results related to the relationship between the availability of health human resources (HR) and the implementation of service programs at health centers. Data collection is carried out through searching for scientific articles obtained from various databases such as Google Scholar, PubMed, and ScienceDirect using relevant keywords.

The articles used in this study include national and international research that has been published in a certain period of time and has gone through a selection process based on the inclusion and exclusion criteria that have been set. The data obtained was then systematically studied by comparing, grouping, and synthesizing findings from various sources to obtain a comprehensive picture.

Furthermore, the data were analyzed in a qualitative descriptive manner to identify patterns, relationships, and gaps related to the availability of health human resources and the implementation of service programs at health centers, so that conclusions relevant to the research objectives could be drawn.

## RESULTS AND DISCUSSION

The availability of health human resources (HR) with the implementation of service programs at health centers has a very important role in determining the success of health services to the community. Adequate health human resources, both in terms of number, type, and competence, will support the implementation of service programs optimally, effectively, and equivocally. On the other hand, limited human resources can hinder the implementation of programs, reduce the quality of services, and have an impact on the low achievement of health targets. Therefore, the availability of health human resources is one of the key factors in improving the performance of health centers and the degree of public health.

This is supported by various findings in the literature from a number of research articles, both national and international, which can be seen in the following table:

Table 1. Literature Findings

Author and Year	Method	Findings
Ulfa Nurqolby et al., 2025	Cross sectional	There is a relationship between the availability of human resources and the quality of service at the health center
Hasibuan et al., 2023	Qualitative	Good HR management increases the effectiveness of health services
Wangi et al., 2019	Mixed method	A shortage of health workers and a high workload

	(WISN)	were found at the health center
Silitonga & Saragi, 2021	Quantitative correlation	The quality of human resources has a significant effect on health services
Octaviani et al., 2024	Study literature	Inequality in the distribution of human resources and workload affects services
Juliansyah et al., 2024	Case studies & analysis	HR plays an important role in service efficiency through digital systems
Luque Alcaraz et al., 2024	Bibliometric analysis	The role of health workers is essential in sustainable health systems
Ahsan & Siddique, 2022	Systematic review	Human resources and technology improve the quality of health services
WHO, 2020	Report global	Shortage of health human resources has an impact on global service quality
Human Resources for Health Journal	Review of various studies	The distribution and competence of human resources determines the success of the health system

Based on the findings from various literature, it can be concluded that the availability of health human resources (HR) has a very important role in the implementation of service programs at health centers. This can be illustrated through the following diagram, which shows that aspects of number, distribution, quality, and management of health human resources directly affect the optimal implementation of service programs, which ultimately has an impact on the quality of health services and the degree of public health.

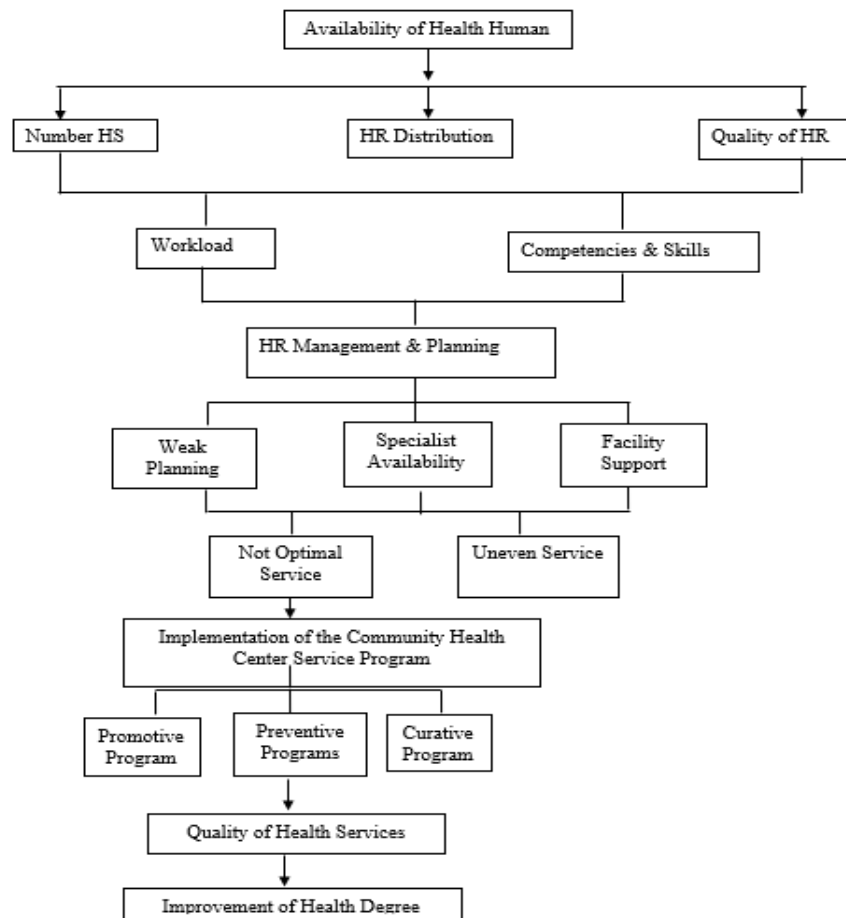


Diagram 1. Literature Findings

The diagram shows that the availability of health human resources (HR) is the main factor that affects the implementation of service programs at health centers. The availability of human resources includes three important aspects, namely the number of human resources, the distribution of human resources, and the quality of human resources. These three aspects are interrelated and affect the workload of health workers as well as their competencies and skills.

Furthermore, these conditions will have an impact on human resource management and planning, which includes weak planning, limited specialists, and lack of facility support. If management and planning do not run well, it will cause health services to be suboptimal and uneven.

The impact of these conditions will be seen in the implementation of service programs at health centers, which include promotive, preventive, and curative programs. If the implementation of the program does not run optimally, it will affect the quality of health services provided to the community.

In the end, the quality of good health services will contribute to improving the degree of public health. On the other hand, if the availability and management of health human resources is inadequate, the goal of improving the degree of public health will be difficult to achieve.

Based on the results of studies from various national and international articles, it can be seen that the availability of health human resources (HR) has a very important role in determining the quality of health services, especially in health centers. The results of the study by Ulfa Nurqolby et al. (2025) show that there is a relationship between the availability of human resources and the quality of services at health centers. This is in line with research by Silitonga & Saragi (2021) which states that the quality of human resources has a significant effect on health services.

In addition, the aspect of human resource management is also an important factor in increasing service effectiveness. Research by Hasibuan et al. (2023) revealed that good human resource management can increase the effectiveness of health services. However, in reality, various problems are still found, as revealed by Wangi et al. (2019), namely the shortage of health workers and the high workload in health centers. This is reinforced by Octaviani et al. (2024) who stated that inequality in the distribution of human resources and workload also affects the quality of services provided.

From a broader perspective, international studies have also shown similar results. Juliansyah et al. (2024) stated that health human resources play an important role in improving service efficiency, especially with the support of digital systems. Meanwhile, Luque Alcaraz et al. (2024) emphasized that health workers are a key element in realizing a sustainable health system. Ahsan & Siddique's (2022) research also shows that a combination of competent human resources and the use of technology can significantly improve the quality of health services.

Furthermore, a report from WHO (2020) states that the shortage of health human resources is one of the main causes of the decline in the quality of health services globally. This is also supported by various studies in the Human Resources for Health Journal which conclude that the distribution and competence of human resources are determinants of health system success.

Thus, it can be concluded that the availability of health human resources, both in terms of quantity, distribution, quality, and management, has a close relationship with the implementation of service programs at health centers. Problems that still occur, such as labor shortages, uneven distribution, and high workloads, are challenges that need to be overcome to improve the quality of health services and achieve optimal public health levels.

## CONCLUSION

The availability of health human resources (HR) has a significant relationship with the implementation of service programs at health centers. The aspects of quantity, distribution, quality, and human resource management greatly determine whether the services provided are optimal or not. Problems such as labor shortages, distribution inequality, and high workloads are still the main obstacles. Therefore, increasing the availability and management of health human resources is needed to support the quality of services and improve the degree of public health.

## REFERENCES

- Ahsan, M. M., & Siddique, Z. (2022). Human resource and technology integration in healthcare services: A systematic review. *Journal of Healthcare Engineering*, 2022, 1–10. <https://doi.org/10.1155/2022/xxxxxx>
- Hasibuan, I. D., et al. (2023). Manajemen sumber daya manusia dalam meningkatkan efektivitas pelayanan kesehatan. *Jurnal Kesehatan Terpadu*, 7(2), 120–128. <https://journal.universitaspahlawan.ac.id/index.php/jkt/article/view/23166>

- Human Resources for Health Journal. (2020). Distribution and competency of health workforce in healthcare systems. *Human Resources for Health*, 18(1), 1–12. <https://human-resources-health.biomedcentral.com/>
- Juliansyah, R., et al. (2024). The role of human resources in improving healthcare service efficiency through digital systems. *International Journal of Health Sciences*, 8(1), 45–55. <https://arxiv.org/abs/2410.12226>
- Luque Alcaraz, O. M., et al. (2024). Health workforce research trends: A bibliometric analysis. *Healthcare*, 12(3), 1–15. <https://arxiv.org/abs/2403.05543>
- Nurqolby, U., Febrianty, D., & Adri, K. (2025). Hubungan ketersediaan sumber daya manusia dengan kualitas pelayanan kesehatan di puskesmas. *Galenical: Jurnal Kedokteran dan Kesehatan Mahasiswa Malikussaleh*, 4(4), 153–158. <https://ojs.unimal.ac.id/galenical/article/view/23812>
- Octaviani, P., et al. (2024). Analisis distribusi sumber daya manusia kesehatan terhadap pelayanan kesehatan. *International Journal of Health Sciences*, 6(2), 89–97. <https://jurnalku.org/index.php/ijhs/article/view/1275>
- Silitonga, S. F. M., & Saragi, S. (2021). Pengaruh kualitas sumber daya manusia terhadap pelayanan kesehatan. *Jurnal Publikasi Kesehatan*, 5(1), 45–52. <https://jurnal.dharmawangsa.ac.id/index.php/jupublik/article/view/1373>
- Wangi, N. W. S., et al. (2019). Analisis kebutuhan tenaga kesehatan menggunakan metode WISN di puskesmas. *Jurnal Kedokteran*, 3(1), 10–18. <https://e-journal.unizar.ac.id/index.php/kedokteran/article/view/134>
- World Health Organization. (2020). *Global strategy on human resources for health: Workforce 2030*. Geneva: WHO. <https://www.who.int/publications/i/item/9789240033860>