

THE GLOBAL NURSING SHORTAGE AND ITS IMPACT ON PATIENT CARE (A Narrative Review of Workforce Challenges and Patient Safety)

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Abstract

The nursing workforce in the world has increased over the last few years, but significant disparities between the distribution of nurses persist in creating large gaps in the workforce in health systems. The review re-evaluates the magnitude of the nursing shortage on the global level and reflects on how understaffing can impact patient safety, continuity, health of care, workload, and outcomes. According to estimates provided by the World Health Organization (WHO), the total nursing shortage experienced worldwide in 2020 was reduced to 5.8 million in 2023 and, possibly, it will only be about 4.1 million by 2030, should the current trends persist. However, the rest of the shortfall is expected to be mainly in the African and Eastern Mediterranean Regions (WHO, 2025a; WHO, 2025a). Longitudinal research also shows that higher staffing of registered nurses corresponds to improved patient outcomes, such as reduced mortality (Dall'Ora et al., 2022). This narrative review integrates global data on the workforce with peer-reviewed findings, the available tables and figures, as well as transparent descriptive calculations. The most important priorities are the growth of high-quality nursing training, enhancement of the recruitment process and retention, enhancement of working conditions, funding the underserved segments, enhancing workforce planning, and ethical regulation of the migration of nurses internationally.

Keywords: *global nursing shortage; nursing workforce; patient care; nurse staffing; patient safety; workforce distribution; nurse migration; healthcare quality.*

1. Introduction

The majority of the health workforce is nurses, who are the caregivers 24-hours-a-day in hospitals, primary health care, community programmes, emergency services, and long-term care facilities. Adequate nursing capacity is indeed directly related to health systems' capability of providing safe, timely, coordinated and equitable services. The WHO estimates that, in 2023, there are approximately 29.8 million nurses in the world, and, in 2018, there were 27.9 million nurses in the world. Despite this trend, in 2023, there were approximately 5.8 million at an estimated global shortage, and by 2030, the research estimated that there would still be a shortage of approximately 4.1 million, assuming current trends will be maintained (WHO, 2025a; WHO, 2025a).

It is a very skewed distribution of this workforce. In countries with less than 49% of the total population, the number of nurses is approximately 78%. The proportion of the global population that is represented by high-income countries is approximated to be 17 percent, yet they represent

approximately 46 percent of all the nurses (WHO, 2025a). This unequal factor impacts the availability of skilled nursing services, and it may pose an international human flow of nurses in health systems with lowered capacity to countries that provide more employment opportunities. Staffing of nurses directly reflects on the care of the patient as nurses face the responsibility to continuously assess, monitor clinical conditions, administer medication, prevent infection, educate patients, communicate, coordinate, as well as identify worsening at its onset. The systematic review of 27 longitudinal studies identified an overall pattern of a positive impact of increased registered-nurse staffing on preventing patient death, but the differences between studies and the risk of bias did not allow generating pooled estimates (Dall'Ora et al., 2022).

2. Objectives

- To detail the present size and location trends of the worldwide nursing shortage.
- To describe key factors of the workforce that perpetuate nursing shortages.
- To look into avenues where poor staffing of nurses may compromise patient care and safety.
- To wrap up viable policies to keep the workforce shortage at the lowest level and ensure quality of care.

3. Methodology

The current information regarding the size, distribution, causes, and consequences of the global nursing shortage was synthesized using a narrative review design. The estimates of the workforce and policy data were mostly compared with the report WHO State of the World Nursing 2025 and with the existing WHO nursing and midwifery fact sheet (WHO, 2025a; WHO, 2025a). Included peer-reviewed findings of the staffing and patient outcomes factors were a longitudinal systematic review as well as a 2025 health-economics study on the nurse shortages and inpatient mortality (Dall'Ora et al., 2022; Kelly et al., 2025). The systematic review offered by Tamata and Mohammadnezhad (2023) was also used to gather some evidence related to factors causing workforce shortages. The synthesis was arranged around the magnitude of the workforce, the geographical distribution and ageing and replacement, contributing factors, patient-care effects and policy responses. The available tables and figures were reused, and the numbers were compared to the reported numbers in the sources.

4. Results

4.1 Global nursing workforce and shortage

The WHO statistics show that there has been an increase in the absolute global nursing gap; still, the gap is quite significant. The reported shortage decreased in 2020 and is currently at 5.8 million as compared to 6.2 million in 2020, although the current-trend projection indicated that there will be approximately a 4.1 million shortage in 2030. Simultaneously, the number of nurses worldwide is anticipated to keep growing, which indicates that the increment of workforce does not necessarily reduce inequalities on a geographical and service-based level (WHO, 2025a; WHO, 2025a).

Indicator	2020	2023	2030 projection
Global nursing shortage (million)	6.2	5.8	4.1
Estimated nursing stock (million)	—	29.8	≈36.0
Change in shortage from previous point	—	−0.4 m	−1.7 m

Table 1. Global nursing workforce indicators. Source: WHO State of the World's Nursing 2025 (WHO, 2025a).

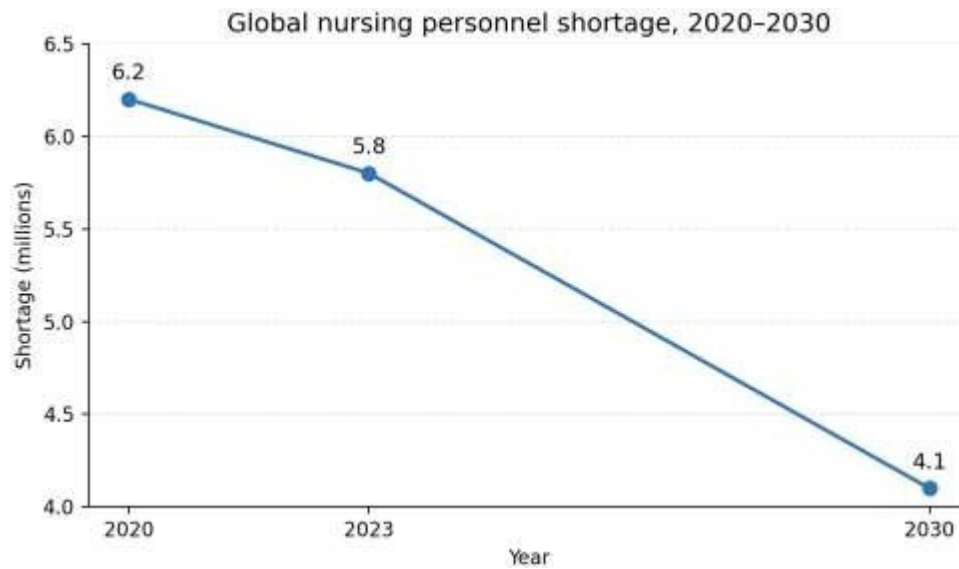


Figure 1. Global nursing personnel shortage, 2020–2030. The 2020 and 2023 values are reported estimates, whereas the 2030 value represents a projection based on continuing trends. Source: WHO (2025a; 2025).

4.2 Regional distribution

The world average has a high degree of regional differentiation. The projections made by WHO show a shortage in 2030 as 1.8 million in the African Region, a shortage of 1.0 million in the Eastern Mediterranean Region, a shortage of 0.8 million in the South Asian Region, and a shortage of 0.2 million in the Western Pacific Region. Based on these projected regional estimates, the combined total of Africa and the Eastern Mediterranean makes up approximately 68.3% of the estimated worldwide gap, which is aligned with WHO overall estimates that approximately 70% of the deficit will be located in these two regions (WHO, 2025a; WHO, 2025a).

WHO region	2020 shortage (m)	2023 shortage (m)	2030 projection (m)	Approx. share of 2030 global gap
African	2.4	1.9	1.8	43.9%
South-East Asia	2.1	2.2	0.8	19.5%
Eastern Mediterranean	1.2	1.2	1.0	24.4%
Americas	0.2	0.2	0.2	4.9%
Western Pacific	0.2	0.2	0.2	4.9%

Table 2. Regional nursing shortage estimates and 2030 shares calculated from WHO regional values. Minor differences may occur because published regional values are rounded. Source: WHO (2025a).

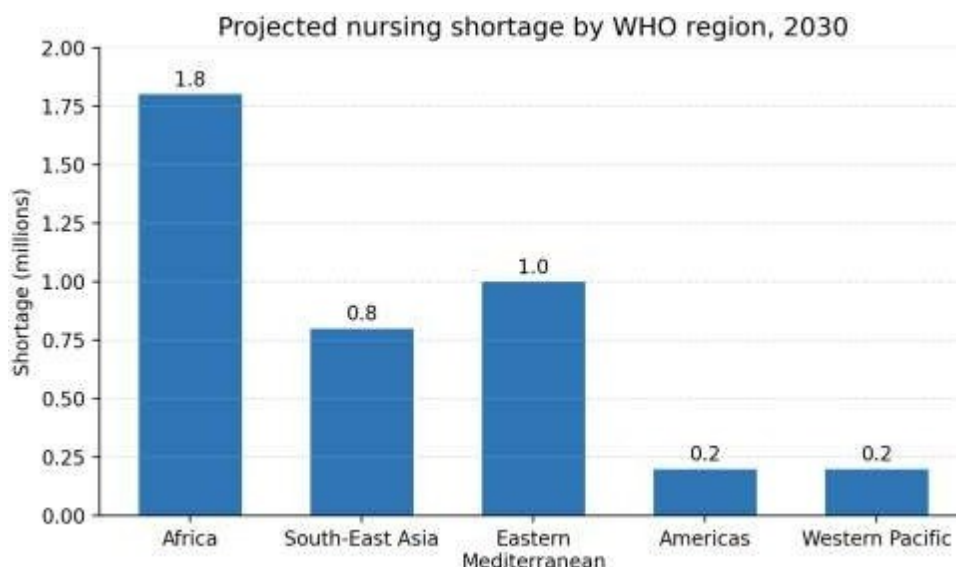


Figure 2. Projected nursing shortage by WHO region in 2030. Source: WHO State of the World's Nursing 2025 (WHO, 2025a).

4.3 Workforce ageing and replacement needs

An ageing nursing workforce is a strain even when there is an increase in the workforce in general. According to WHO, one out of three nurses will be below the age of 35 years, and another one out of five will be above 55 years. Over 3.1 million more nurses will be required in the next 3-5 years, from 2023 to 2030, just to fill gaps caused by nurses who start to retire due to old age. This replacement demand does not depend on the extra workforce in response to population growth or to alleviate current shortages (WHO, 2025a).

Workforce indicator	Reported value
Nurses aged <35 years	33%
Nurses aged ≥55 years	19%
Estimated nurses needed for replacement, 2023–2030	3.1 million
Estimated 2023 global nursing stock	29.8 million

Table 3. Nursing workforce age profile and replacement requirement. Source: WHO State of the World's Nursing 2025 (WHO, 2025a).

4.4 Calculations and interpretation

Calculation 1 — reduction in the global shortage from 2020 to 2023: $(6.2 - 5.8) \div 6.2 \times 100 = 6.45\%$. Thus, the global shortage, amounting to the reported cases, went down about 6.5% within this period (WHO, 2025a).

Calculation 2 — projected reduction from 2023 to 2030: $(5.8 - 4.1) \div 5.8 \times 100 = 29.31\%$. This percentage indicates the disparity between the estimated and forecasted value; it is important not to assume it as a certain reduction in the future (WHO, 2025a).

Calculation 3 — projected share of the 2030 global gap: African Region = $1.8 \div 4.1 \times 100 = 43.9\%$; Eastern Mediterranean Region = $1.0 \div 4.1 \times 100 = 24.4\%$; combined share $\approx 68.3\%$ (WHO, 2025a).

Calculation 4 - replacement pressure: 3.1 million replacement nurses/ 29.8 million nurses in 2023/ 100 104.0% approximation. This is merely a descriptive comparison. It is not a turnover rate since

the denominator is the total number of 2023 nursing stock and does not include the number of nurses to retire or leave.

5. Factors Contributing to the Nursing Shortage

The international workforce shortage is a resultant effect of a number of interrelated workforce and system-level pressures and not caused by one factor. The systematic review evidence categorises the key factors into the barriers of policy and workforce-planning, education and enrolment barriers, staff-turnover factors, or stress and burnout in nurses (Tamata & Mohammadnezhad, 2023).

5.1 Education and training capacity

Inadequate faculty, opportunities for clinical placement, funding, and limited capacity to reduce admissions can limit the number of nurses that education systems can prepare. A mere increase in the number of students as compared to the number of qualified faculty members and experimental clinical learning facilities could result in an extra strain on the quality of education. Therefore, WHO focuses on investing in nursing education and employment opportunities and service-delivery capacity simultaneously (WHO, 2025a).

5.2 Retention, workload and working conditions

Too much work, shortage of staff, insufficient professional help, ineffective leadership, and inadequate working conditions may add to the dissatisfaction and decrease in staff. As the vacancies build up, the left-behind nurses can be tasked to do more work, which will further lead to the strain cycle and turnover. One of the key themes identified by Tamata and Mohammad Nezhad (2023) was staff turnover and nurse stress and burnout, which also appeared to be the crucial issues related to nursing workforce shortages.

5.3 Migration and maldistribution

International migration has the potential to give nurses opportunities to work in different countries and can assist the receiving health systems to address the gaps. But high reliance on internationally educated nurses can worsen the deficit of the countries, which already lack the capacity to teach and retain their workforce. WHO thus encourages more domestic investment and ethical methods of recruiting internationally, such as international cooperation that takes into account the interest of the country of origin (WHO, 2025a; WHO, 2025b).

6. Impact of Nursing Shortage on Patient Care

6.1 Mortality and patient safety

With insufficient staffing of nurses, the time to conduct surveillance, assessment, response to timely interventions, medication safety, patient education, and escalation in case a patient becomes worse off might be insufficient. In a systematic review of 27 longitudinal studies, the total evidence pointing to the positive association between higher staffing of registered nurses and prevention of patient mortality was present, but there was too much heterogeneity between studies and limitations to the potential of pooled effect estimates (Dall'Ora et al., 2022).

Another study on health economics dates back to 2025 with more evidence based on hospitals. The lack of the presence of a degree-qualified nurse in the wards investigated was found to be linked to about 10 percent of additional chances of inpatient mortality, but this trend was not identified in the shortage of the less-qualified nursing assistants (Kelly et al., 2025). Since this finding is the product of an environmentally specific setting and study design, it should be seen as a setting-specific finding, and not necessarily applicable to all hospitals.

6.2 Delays and reduced continuity of care

The routine observation, documentation, preparation of discharge and teaching of patients, coordinating their care, and communication will be slower or less attended when lacking enough

staff. These kinds of pressures may disrupt continuity and diminish a chance to have an individual approach. Such implications might be of high significance in high-acuity settings in which patients need frequent evaluation and a speedy presentation of clinicians.

6.3 Medication and infection-safety risks

Nurses are at the forefront in administering medicines, monitoring, preventing infections and the identification of side effects. The fact that there is a shortage of staff does not imply that an adverse event is inevitable, but a lesser number of nurses available will elevate conflicting demands on points and minimise the opportunities for timely surveillance, communication, and checking. Safe staffing must not be regarded as an isolated remedy to a problem, but rather as a broader approach to patient safety.

6.4 Patient experience

Patients experience nursing care in terms of communication, reassurance, help with daily activities and pain management, as well as explaining the treatment. In cases of excessive workloads, the time that can be spent to carry out such interactions might be reduced. This has the ability to affect the perception of patients regarding instructions, satisfaction, trust, sense of dignity, and perception of care despite the technical interventions that must be done.

6.5 Consequences for nurses and the care system

Several impacts of a nursing shortage are also spilled over to the workforce. When staffing pressure does not end, nurses can feel fatigued, stressed, take fewer breaks, experience moral discomfort, and experience harm to their professional well-being. When such conditions lead to turnover, it may lead to more vacancies and an increased burden on those who remain as a result. Education, employment, leadership, service delivery, and improved working conditions are some of the main focus areas where WHO sees an opportunity to bolster the nursing workforce (WHO, 2025a; WHO, 2025b).

7. Recommendations

- Scale up nursing education: Enhanced funded placements, faculty capacity, improved supervised clinical placements, scholarships and mentorship, and safeguard educational quality (WHO, 2025a).
- Enhance retention: enhance staffing policies, healthy workplaces, equitable compensation, career growth, positive leadership as well as ongoing professional education to minimize preventable turnover (WHO, 2025a; Tamata and Mohammadnezhad, 2023).
- Use workforce information: establish trustworthy workforce data that are trustworthy (registries of nurses) and regularly monitor vacancies, turnover, retirement, immigration, workload, and distribution to bring workforce choices to evidence (WHO, 2025a).
- Focus on underserved regions: specifically, give relevant incentives (rural) or housing or transportation, career opportunities, and education in the community to enhance recruitment and long-term retention beyond the large cities (WHO, 2025a).
- Take care of patient safety: employ evidence-based staffing policies, acuity-specific allocation, and escalation policies as well as perform regular vigilance on existing missed care and adverse outcomes (Dall'Ora et al., 2022).
- Protect the well-being of support nurses: guarantee their sufficient rest, work safety, psychosocial assistance, and protective measures under which nurses would be able to communicate about staffing risks, without any retaliation (WHO, 2025b; WHO, 2025a).
- Ethically manage the migration process: enhance bilateral and international collaboration and augment domestic investment in this way, so that international recruitment does not

inherently contribute to the crippling workforce shortages in already desperate countries (WHO, 2025a; WHO, 2025b).

8. Conclusion

Nursing shortage is a global problem that is still affecting the provision of safe, equitable, and high-quality health care. Though the estimated difference has decreased and is likely to grow smaller, millions of nurses will remain in demand, with the highest demand likely to be in those areas that already have limited nurse capacity. Poor staffing may have an impact on the risk of mortality, continuity, timeliness, patient experience, and nurse well-being. An organized investment in nursing education, attraction and retention of nurses, nursing leadership, work conditions, information systems in the nursing workforce, distribution of workers, and ethical policies to migration processes is planned as long-term improvements. Investment in nursing capacity should thus be deemed as a patient-safety and health-system priority issue.

9. References

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