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Review Article

Nurse Practitioner Programs in India: Balancing Patient Care Quality and Healthcare Costs

Rajesh Kumar Sharma[1]*, Ranjana Kaintura[1], Sushant Khanduri[2], Chandan Kumar[3]

[1]Department of Critical Care Nursing, Himalayan College of Nursing, Swami Rama Himalayan University
[2]Department of Pulmonary Medicine, Himalayan Institute of Medical Sciences, Swami Rama Himalayan University
[3]Department of Community Health Nursing, Himalayan College of Nursing, Swami Rama Himalayan University

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***Corresponding author:** Rajesh Kumar Sharma
Department of Critical Care Nursing, Himalayan College of Nursing, Swami Rama Himalayan University

Abstract

India has established postgraduate nurse practitioner (NP) training pathways, but the effects of deploying graduates on quality of care and healthcare costs remain incompletely measured. This narrative review examines Indian policy and implementation reports, a recent Indian randomized trial, and international clinical and economic evidence identified through targeted searches. International studies generally report similar clinical outcomes and favorable patient experience when appropriately trained nurses manage selected primary care presentations. Some ambulatory and transitional models report lower costs, although findings vary by role, comparator and costing method. In Indian critical care, a single-center trial of an NP-led postoperative bundle reported less delirium and a shorter median hospital stay after elective cardiac surgery. The trial evaluated a defined care bundle and did not directly estimate costs. Indian implementation studies identify role ambiguity and limited use of graduates' competencies as barriers to realizing clinical benefit. We propose an evaluation framework linking competency-based training, authorized clinical privileges, team integration and referral support to patient outcomes, utilization, equity and costs. Multicenter evaluations should compare clearly specified NP models with usual care, measure safety alongside effectiveness, and collect provider and household costs directly. Current evidence supports evaluating defined NP services in India and leaves the magnitude and distribution of potential savings uncertain.

Keywords: Nurse practitioners, quality of care, healthcare costs, health services accessibility, India.

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INTRODUCTION

A patient with stable hypertension who can obtain follow-up close to home and a postoperative patient who receives consistent delirium-prevention care face different gaps in service. Both gaps may be addressed through a nurse practitioner (NP) role, provided that the care model specifies whom the practitioner can manage, which decisions require consultation, and how patients receive referral care. The International Council of Nurses (2020) describes advanced practice nursing in terms of expert knowledge, complex decision-making and expanded clinical competencies shaped by the context of practice. In this review, NP refers to an advanced clinical nursing role supported by postgraduate preparation. Studies of broader nurse-led or advanced practice models are included where they help interpret a specific pathway and are identified as such.

India's Health Dynamics report documents substantial variation in facility infrastructure and rural staffing (Ministry of Health and Family Welfare [MoHFW], 2024). In 2022–23, household out-of-pocket spending represented 43.4% of total health expenditure, according to the National Health Accounts (MoHFW, 2026). This national estimate provides context for studying household expenditure. It offers no estimate of the financial effect of an NP service. A change in the site or provider of care could affect consultation charges, medicines, tests, transport and time away from work differently. Those costs require separate measurement.

The Indian literature describes a gap between postgraduate preparation and the clinical roles that graduates are able to take up (Kodi & Sharma, 2021). This review asks what the available evidence indicates about clinical outcomes, patient experience, access and cost, and how Indian health services could evaluate specific NP deployment models. Its central proposition

is that patient outcomes depend on the clinical work a graduate is authorized and supported to perform.

Review Approach

This concept article uses a targeted narrative review. The starting sources were studies and reports identified in the first author's presentation, including citations embedded in slide images. Targeted searches of web-indexed PubMed records, journal websites and official Indian sources were conducted in November 2026. Search terms combined "nurse practitioner" or "advanced practice nursing" with "India," "critical care," "family health," "patient outcomes," "satisfaction," "cost-effectiveness," and "midwifery." The review prioritized systematic reviews, controlled comparisons, Indian implementation studies and official program documents. Sources describing patient experience or implementation were used to interpret those domains. Synthesis was thematic, with emphasis on study design, whether the NP added to or assumed defined duties within an existing team, and whether costs were measured directly. The search was selective and the review did not undertake a formal risk-of-bias assessment or meta-analysis.

Nurse Practitioner Pathways in India

The Indian Nursing Council lists the 2016 postgraduate residency syllabus and regulation for Nurse Practitioners in Critical Care (NPCC), a 2021 corrigendum, 2022 emergency and trauma care regulations, and 2024 family health and pediatric residency regulations (Indian Nursing Council, New Delhi). These educational pathways define distinct training contexts. The National Nursing and Midwifery Commission Act (2023) provides a statutory framework for regulating education and services. Clinical deployment requires explicit job descriptions and locally verified arrangements for credentialing, permitted duties, documentation, supervision and escalation. Before introducing diagnostic ordering or medication-related duties, institutions should verify the applicable requirements for the specific role and site. The National Health Mission's nurse practitioner midwife initiative has separate competency and referral provisions for maternity care (MoHFW, 2018, 2021).

The workforce case for an NP differs across facilities. An intensive care unit (ICU) may need continuity in protocol delivery, communication and transfer planning. A rural primary care network may need reliable chronic disease follow-up and timely referral. A midwifery-led care unit may need continuity during uncomplicated pregnancy and birth, with rapid access to obstetric and neonatal teams. Each model requires a defined patient population, referral capacity and a clear account of the clinical work already performed by medical officers, staff nurses, midwives and community health officers.

Evidence on Quality of Patient Care

Primary Care and Chronic Disease

The Cochrane review by Laurant *et al.,* (2018) found that appropriately trained nurses undertaking selected primary care activities probably achieved similar or somewhat better health outcomes and higher patient satisfaction. The review included several nursing roles and reported uncertainty about costs. Htay and Whitehead (2021) identified 13 randomized trials of advanced NP care in high-income countries and found favorable results in some measures of patient satisfaction, waiting time and chronic disease control. Intervention and outcome differences prevented pooling. Stanik-Hutt *et al.,* (2013) similarly found broadly comparable outcomes in their synthesis, including several measures of utilization and chronic disease control. Taken together, these studies support testing defined follow-up roles in India, particularly where continuity is currently poor. They provide limited guidance on how those services will perform where diagnostic capacity, access to medicines and referral turnaround vary.

Patient satisfaction is one dimension of quality. Kippenbrock *et al.,* (2019) analyzed a US patient-experience survey and found high ratings among respondents who identified an NP as their provider. Fewer than 1% of respondents identified an NP, which limits provider comparisons. Thotam and Buhse (2020) examined satisfaction in multiple sclerosis centers, while DiAnna-Kinder *et al.,* (2019) examined satisfaction and patients' intention to follow the care plan. Intention is a self-reported outcome. An Indian evaluation could combine communication and trust measures with objective follow-up indicators, such as completed referrals or observed disease control. Satisfaction scores should be interpreted alongside waiting time, clinical safety and continuity.

Critical Care and Emergency Services

In a randomized trial in one Indian tertiary cardiac hospital, Paul *et al.,* (2026) assigned 100 adults undergoing elective cardiac surgery to an NP-led postoperative recovery bundle or routine care. Delirium on postoperative day 2 occurred in 6% versus 32% of patients, and median total hospital stay was 8 versus 10 days. Pain and sleep outcomes also favored the intervention. The trial estimates the effect of introducing the bundle with NP leadership in that setting. It does not isolate the contribution of professional title from the bundle itself or establish an effect in other ICUs.

The critical care review featured in the presentation describes favorable signals for patient flow and resource use (Jubilson & Ponchitra, 2024). A broader meta-analysis by Kreeftenberg *et al.,* (2019) found no significant differences in ICU or hospital length of stay or mortality between advanced practice providers and resident/fellow comparators. That analysis grouped provider types and largely relied on nonrandomized

comparisons. Woo *et al.,* (2017) reported favorable findings in some emergency and critical care models, with heterogeneity across settings. The findings address different questions. An NP who adds a recovery bundle to an ICU team changes the care process, whereas a study comparing differently staffed teams asks whether service outcomes are maintained under a new staffing model. Indian evaluations should state which change is being tested.

Midwifery and Access

India's midwifery initiative provides a distinct example of advanced practice with a defined population, a clinical training pathway and escalation arrangements (MoHFW, 2018, 2021). Program accounts describe efforts to strengthen respectful maternity care and establish midwifery-led care units (United Nations Population Fund, 2025). A Jhpiego account from Maharashtra illustrates how one unit incorporated birth companionship (Chhibber *et al.,* 2023). International trials of midwife continuity models report benefits for some birth outcomes (Sandall *et al.,* 2024). These trials assess continuity models and provide indirect evidence for the Indian nurse practitioner midwife pathway. Local comparisons should account for baseline obstetric risk, timely transfer and access to emergency services. Patient-reported experience and maternal and neonatal safety should be measured together.

A review of 25 studies, including 10 randomized trials, found that NPs may improve primary care access and chronic disease management in rural and underserved populations (Sacchetti *et al.,* 2026). A review of NP home-based visits provides a rationale for studying access among homebound patients (Sun *et al.,* 2022). An Indian home-visit evaluation should include clinician travel and caregiver time as well as subsequent use of emergency and inpatient care. For underserved communities, access gains depend on where NPs are posted, appointment availability, and whether patients can complete referrals. In a Northern Indian pilot, Kodi *et al.,* (2023) examined perceived scope and barriers among providers and beneficiaries. The study surveyed 205 participants at AIIMS Rishikesh and offers evidence about acceptability in one setting. Service evaluations need direct measures of waiting, travel, follow-up and outcomes among patients facing access barriers.

Evidence on Healthcare Costs

International economic studies provide a rationale for local evaluation. Martin-Misener *et al.,* (2015) reported favorable cost findings in some ambulatory NP comparisons. Evidence for specialized settings and complementary roles was more variable. Donald *et al.,* (2015) included five randomized trials of transitional care. Some complementary NP roles showed favorable utilization or cost outcomes, but all five trials had weak economic analyses. These estimates reflect local wage structures, referral patterns and comparators. The Cochrane primary care review found cost effects uncertain (Laurant *et al.,* 2018). The Indian cardiac surgery trial offers a measurable reduction in length of stay. The value of that reduction depends on changes in variable costs and whether the released beds can serve other patients. Hospital charges, costs incurred by hospitals and payments made by households measure different quantities.

For an Indian service, provider costs should include salaries and benefits, training, backfill, supervision, diagnostics, medicines, equipment and downstream utilization. Household measurement should capture medical payments and travel, with lost work time and caregiver time reported separately. A cost-consequence analysis can present these alongside clinical and experience outcomes. A full economic evaluation could estimate incremental cost per additional patient with controlled blood pressure or per quality-adjusted life year where appropriate data exist. An annual budget impact analysis should estimate the funding required for realistic adoption scenarios. The Indian Reference Case can guide perspective and costing choices, and CHEERS 2022 can guide reporting (Husereau *et al.,* 2022; Sharma *et al.,* 2023).

A shorter stay can free capacity even when the hospital's annual expenditure remains similar because many staffing and infrastructure costs are fixed in the short term. An accessible service may also increase appropriate utilization among patients who previously deferred care. An evaluation should report changes in cost per episode, total annual budget and patient access, so that an increase in expenditure can be interpreted in light of the additional care delivered. The literature reviewed here did not establish an India-wide net savings estimate.

Conceptual Framework and Implementation

An NP program can be evaluated at two levels. The education program produces clinical competencies and readiness for practice. The deployment model determines which competencies patients receive through authorized roles and reliable team workflows. At the education level, record completion, supervised clinical experience and performance in competency assessments. At the deployment level, document whether graduates hold designated posts, what duties they perform, how often they need consultation, whether referrals are completed, and the extent to which the service reaches its intended population.

Studies on Indian implementation describe professional acceptance, role clarity and institutional support as recurring issues (Kodi *et al.,* 2022; Mangalabarathi, 2026; Nanda & Anilkumar, 2021). A 2025 online survey of 126 NPs, students and allied professionals also documented educational and workplace challenges (Mangalabarathi *et al.,* 2025). Its mixed respondent group and self-report design limit inference about the prevalence of these barriers across

employers. Hospitals and health departments could define roles jointly with nursing, medical, administrative and patient representatives. Job descriptions should set out patient eligibility, clinical privileges, consultation criteria, handover, and professional accountability. A named clinical mentor, protected orientation and periodic review of cases would help identify where the role is constrained by absent referrals, duplicated visits or gaps in competencies. Workload monitoring should include the ward or clinic from which nurses are recruited, because vacancies left there may affect safety and costs.

Table 1 translates this framework into measurable outcomes for three service models. The proposed pathway is postgraduate preparation and credentialing, followed by defined duties and referral support, followed by more consistent delivery of care. Changes in clinical outcomes, access and costs are the final outcomes to test. The framework assumes that a service has adequate diagnostics, medication supply and physician backup for cases outside its scope. Without those resources, an increase in assessment capacity can identify unmet needs while leaving definitive treatment delayed.

Table 1: Proposed Outcomes for Evaluating Nurse Practitioner Services in India

Care model and comparator	Quality and safety	Access and utilization	Costs
Family health NP with medical officer and community health officer support versus the existing pathway	Blood pressure or HbA1c control, missed deterioration, patient experience	Time to visit, completed referrals, emergency visits	Provider cost per patient followed, household medical and travel costs
NP-led postoperative bundle plus usual care versus usual care	Delirium, complications, risk-adjusted readmissions	ICU and ward days, follow-up after discharge	Implementation cost, variable cost per stay, household spending through follow-up
Midwife-led care for eligible pregnancies versus the existing maternity pathway	Respectful care, maternal and neonatal complications, transfer safety	Continuity of care, time to escalation, transfer completion	Cost per birth episode including transfers, household payments

Note. HbA1c = glycated hemoglobin; ICU = Intensive Care Unit; NP = Nurse Practitioner.

Priorities for Evaluation in India

Multicenter pilots should define the intervention and comparator before enrollment. In family health, compare an NP-supported chronic care pathway with existing medical officer and community health officer arrangements. A cluster-randomized or staggered rollout design may be practical when entire clinics change their workflow. For critical care, evaluate a specified service such as postoperative recovery or discharge transition with a concurrent comparison, accounting for patient acuity, staffing, case mix and hospital-level changes. Where randomization is impractical, controlled interrupted time-series or matched comparison designs can help address secular trends and selection bias. If a study aims to demonstrate that safety is maintained, it should prespecify an acceptable margin and have sufficient power.

Evaluation should follow patients beyond the immediate episode to capture possible shifts in utilization. A 90-day follow-up may suit postoperative readmission and household costs, while chronic disease pathways may require 6 to 12 months. Collect standardized data on delivered activities and referral completion, and specify an outcome that reflects the principal purpose of each model. For instance, report blood pressure control with missed deterioration and patient time costs for chronic care, or delirium and readmissions with cost per admission for postoperative care. Report confidence intervals and test sensitivity to patient volume, pay scales, supervision time and the value assigned to released capacity. Compare access and out-of-pocket spending across rurality, socioeconomic position and other locally relevant equity measures.

Qualitative interviews with patients, NPs, physicians and staff nurses can explain variation in implementation. Outcomes may differ between sites because the same job title covers different clinical activities. Reporting the actual work performed and the resources required helps other institutions judge whether an observed effect is transferable.

Limitations

The selective search and narrative synthesis limit completeness. Several international reviews overlap in primary studies and should not be interpreted as independent replications. Differences in training, professional authority, patient case mix and payment arrangements restrict direct transfer of results to India. Indian implementation research provides information about feasibility and acceptability, while controlled evidence on patient outcomes remains concentrated in specific settings. The conceptual framework and indicators proposed here require validation in Indian service evaluations.

CONCLUSION

Nurse practitioner services can maintain or improve selected quality outcomes when practitioners have defined competencies, clear clinical responsibilities and access to referral support. An Indian cardiac surgery

trial demonstrates improved postoperative recovery for a specific NP-led bundle. Evidence on the economic effect of NP deployment in India remains limited. Evaluating defined family health, critical care and midwifery services with concurrent comparison groups and direct provider and household costing would show where expansion improves care, how it affects budgets, and who benefits.

Declarations

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REFERENCES

- Chhibber, G., Das, N., & Reeve-Jones, C. (2023, July 24). *Nurse practitioner midwives make maternity care a positive experience for India's women*. Jhpiego. https://jhpiego.org/our-stories/p/nurse-practitioner-midwives-make-maternity-care-a-positive-experience-for-indias-women/
- DiAnna-Kinder, F., Sherry, D., & McCormick, M. (2019). Satisfaction with nurse practitioners and intent to adhere to plan. *The Journal for Nurse Practitioners, 15*(3), 245–248.e1. https://doi.org/10.1016/j.nurpra.2018.10.008
- Donald, F., Kilpatrick, K., Reid, K., Carter, N., Bryant-Lukosius, D., Martin-Misener, R., Kaasalainen, S., Harbman, P., Marshall, D., & DiCenso, A. (2015). Hospital to community transitional care by nurse practitioners: A systematic review of cost-effectiveness. *International Journal of Nursing Studies, 52*(1), 436–451. https://doi.org/10.1016/j.ijnurstu.2014.07.011
- Htay, M., & Whitehead, D. (2021). The effectiveness of the role of advanced nurse practitioners compared to physician-led or usual care: A systematic review. *International Journal of Nursing Studies Advances, 3*, Article 100034. https://doi.org/10.1016/j.ijnsa.2021.100034
- Husereau, D., Drummond, M., Augustovski, F., de Bekker-Grob, E., Briggs, A. H., Carswell, C., Caulley, L., Chaiyakunapruk, N., Greenberg, D., Loder, E., Mauskopf, J., Mullins, C. D., Petrou, S., Pwu, R.-F., & Staniszewska, S. (2022). Consolidated Health Economic Evaluation Reporting Standards 2022 (CHEERS 2022) statement: Updated reporting guidance for health economic evaluations. *BMJ, 376*, Article e067975. https://doi.org/10.1136/bmj-2021-067975
- Indian Nursing Council. (n.d.). *Gazette notifications*. Retrieved November 12, 2026, from https://indiannursingcouncil.org/gazette-notification
- International Council of Nurses. (2020). *Guidelines on advanced practice nursing 2020*. https://icn.ch/resources/publications-and-reports/guidelines-advanced-practice-nursing-2020
- Jubilson, F., & Ponchitra. (2024). Nurse practitioner in critical care: A systematic review. *African Journal of Biological Sciences, 6*(Si3), 3166–3175. https://doi.org/10.33472/AFJBS.6.Si3.2024.3166-3175
- Kippenbrock, T., Emory, J., Lee, P., Odell, E., Buron, B., & Morrison, B. (2019). A national survey of nurse practitioners' patient satisfaction outcomes. *Nursing Outlook, 67*(6), 707–712. https://doi.org/10.1016/j.outlook.2019.04.010
- Kodi, M. S., & Sharma, S. K. (2021). Realities, scope, challenges, and facilitators for implementation of nurse practitioner's role in India: A review. *International Journal of Nursing Sciences, 8*(2), 237–242. https://doi.org/10.1016/j.ijnss.2021.03.003
- Kodi, M. S., Sharma, S. K., & Basu, S. (2022). Perceptions of implementing nurse practitioner role in India. *The Journal for Nurse Practitioners, 18*(10), 1071–1077. https://doi.org/10.1016/j.nurpra.2022.09.003
- Kodi, S. M., Sharma, S. K., & Basu, S. (2023). Perception, perceived scope, and potential barriers towards developing nurse practitioners cadre among health care providers and beneficiaries: A pilot study from Northern India. *Journal of Education and Health Promotion, 12*, Article 92. https://doi.org/10.4103/jehp.jehp_1200_22
- Kreeftenberg, H. G., Pouwels, S., Bindels, A. J. G. H., de Bie, A., & van der Voort, P. H. J. (2019). Impact of the advanced practice provider in adult critical care: A systematic review and meta-analysis. *Critical Care Medicine, 47*(5), 722–730. https://doi.org/10.1097/CCM.0000000000003667
- Laurant, M., van der Biezen, M., Wijers, N., Watananirun, K., Kontopantelis, E., & van Vught, A. J. A. H. (2018). Nurses as substitutes for doctors in primary care. *Cochrane Database of Systematic Reviews*, (7), Article CD001271. https://doi.org/10.1002/14651858.CD001271.pub3
- Mangalabarathi, N. (2026). From staff nurse to nurse practitioner in India: A reflective account of clinical growth, identity development, and system barriers. *Journal of the American Association of Nurse Practitioners, 38*(6), 387–392. https://doi.org/10.1097/JXX.0000000000001282
- Mangalabarathi, N., Raikhan, Y., Subatthra, R., & Bharathi, C. (2025). Educational and workplace challenges of nurse practitioners in India: Findings from a nationwide cross-sectional survey. *Asian Journal of Research in Nursing and Health, 8*(1), 527–537. https://doi.org/10.9734/ajrnh/2025/v8i1225
- Martin-Misener, R., Harbman, P., Donald, F., Reid, K., Kilpatrick, K., Carter, N., Bryant-Lukosius, D., Kaasalainen, S., Marshall, D. A., Charbonneau-

Smith, R., & DiCenso, A. (2015). Cost-effectiveness of nurse practitioners in primary and specialised ambulatory care: Systematic review. *BMJ Open, 5*(6), Article e007167. https://doi.org/10.1136/bmjopen-2014-007167

- Ministry of Health and Family Welfare. (2018). *Guidelines on midwifery services in India*. Government of India. https://nhm.gov.in/New_Updates_2018/NHM_Components/RMNCHA/MH/Guidelines/Guidelines_on_Midwifery_Services_in_India.pdf
- Ministry of Health and Family Welfare. (2021). *Scope of practice for midwifery educator and nurse practitioner midwife*. Government of India. https://nhm.gov.in/New_Updates_2018/Scope%20of%20Practice%20Document%20.pdf
- Ministry of Health and Family Welfare. (2024). *Health dynamics of India (infrastructure and human resources) 2022–23*. Government of India. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2053070
- Ministry of Health and Family Welfare. (2026). *National health accounts estimates for India 2022–23*. Government of India. https://nhsrcindia.org/sites/default/files/2026-05/NHA%202022-23%20Report.pdf
- Nanda, L., & Anilkumar, A. (2021). Role of nurse practitioners within health system in India: A case of untapped potential. *Journal of Family Medicine and Primary Care, 10*(8), 2751–2756. https://doi.org/10.4103/jfmpc.jfmpc_2283_20
- National Nursing and Midwifery Commission Act, No. 26 of 2023, India Code (2023). https://www.indiacode.nic.in/bitstream/123456789/19796/1/a2023-26.pdf
- Paul, D., Kanagaraj, P., & Pappaiya, P. (2026). Effect of a nurse practitioner–led bundled care on postoperative recovery in cardiac surgery patients: A randomized controlled trial. *Research in Nursing & Health*. Advance online publication. https://doi.org/10.1002/nur.70117
- Sacchetti, A., Berube, M., Pison, C., Gagnon, M.-A., & Bellier, A. (2026). Impact of nurse practitioners in primary care on patients with chronic diseases in rural and underserved areas: A systematic review. *European Journal of General Practice*. Advance online publication. https://doi.org/10.1080/13814788.2026.2613495
- Sandall, J., Fernandez Turienzo, C., Devane, D., Soltani, H., Gillespie, P., Gates, S., Jones, L. V., Shennan, A. H., & Rayment-Jones, H. (2024). Midwife continuity of care models versus other models of care for childbearing women. *Cochrane Database of Systematic Reviews*, (4), Article CD004667. https://doi.org/10.1002/14651858.CD004667.pub6
- Sharma, D., Prinja, S., Aggarwal, A. K., Rajsekar, K., & Bahuguna, P. (2023). Development of the Indian Reference Case for undertaking economic evaluation for health technology assessment. *The Lancet Regional Health – Southeast Asia, 16*, Article 100241. https://doi.org/10.1016/j.lansea.2023.100241
- Stanik-Hutt, J., Newhouse, R. P., White, K. M., Johantgen, M., Bass, E. B., Zangaro, G., Wilson, R., Fountain, L., Steinwachs, D. M., Heindel, L., & Weiner, J. P. (2013). The quality and effectiveness of care provided by nurse practitioners. *The Journal for Nurse Practitioners, 9*(8), 492–500.e13. https://doi.org/10.1016/j.nurpra.2013.07.004
- Sun, C.-A., Parslow, C., Gray, J., Koyfman, I., Hladek, M. D., & Han, H.-R. (2022). Home-based primary care visits by nurse practitioners. *Journal of the American Association of Nurse Practitioners, 34*(6), 802–812. https://doi.org/10.1097/JXX.0000000000000706
- Thotam, S. M., & Buhse, M. (2020). Patient satisfaction with physicians and nurse practitioners in multiple sclerosis centers. *International Journal of MS Care, 22*(3), 129–135. https://doi.org/10.7224/1537-2073.2018-042
- United Nations Population Fund. (2025). *Realising the promise of midwifery in India: Dignity, care and safer births*. https://india.unfpa.org/sites/default/files/pub-pdf/2025-12/Realising%20the%20Promise%20of%20Midwifery%20in%20India%20%20Dignity%2C%20Care%20and%20Safer%20Births.pdf
- Woo, B. F. Y., Lee, J. X. Y., & Tam, W. W. S. (2017). The impact of the advanced practice nursing role on quality of care, clinical outcomes, patient satisfaction, and cost in the emergency and critical care settings: A systematic review. *Human Resources for Health, 15*, Article 63. https://doi.org/10.1186/s12960-017-0237-9