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Review Article

Impact of planning commission and NITI Aayog initiatives for transforming nursing education in India: a historical–policy review

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ABSTRACT

Nursing education is a critical determinant of health system performance, workforce preparedness, and quality of care, particularly in countries pursuing universal health coverage. This historical–policy review examines the impact of national planning and strategic policy initiatives on the evolution of nursing education in India, with specific focus on the transition from the Planning Commission–led Five-Year Plan framework to the contemporary reform agenda guided by NITI Aayog. Drawing on a systematic synthesis of peer-reviewed literature, government policy documents, statutory regulations, and grey literature published between 1950 and 2025, the review analyses how planning priorities, regulatory mechanisms, and programmatic interventions have shaped nursing education capacity, quality, and governance. The findings indicate that early planning efforts primarily emphasised quantitative expansion of training institutions and workforce numbers, with limited attention to curriculum relevance, faculty development, and competency outcomes. The scale-up of services under the National Health Mission exposed these gaps, prompting targeted initiatives to strengthen pre-service education and regulatory oversight. More recently, NITI Aayog has introduced a strategic, systems-oriented approach that recognises nursing education as central to health system transformation, advocating competency-based curricula, decentralised district-level institutions, integration of midwifery and advanced nursing roles, and use of digital learning platforms. Despite these advances, persistent challenges remain, including uneven quality across institutions, faculty shortages, regulatory fragmentation, and weak monitoring of education-to-workforce outcomes. Overall, the review highlights that sustained policy commitment, regulatory modernisation, and evidence-informed implementation are essential to translate strategic intent into meaningful improvements in nursing education and workforce readiness in India.

Keywords: Nursing education, Health workforce, Planning commission, NITI Aayog, National health mission, Health policy, India

INTRODUCTION

Nursing forms the backbone of any health system, acting as the largest single cadre of health professionals responsible for patient care, public health outreach, and the operational functioning of health facilities. The evolution of nursing education in India has been shaped by several institutional, legislative and policy milestones that span from the early post-independence era to contemporary policy formulations. These milestones have included national-level planning through the Planning Commission's Five-Year Plans and subsequent health missions, the statutory establishment and regulation by the Indian Nursing Council (INC), and more recently, strategic policy realignments and sectoral guidance from NITI Aayog following the dissolution of the Planning Commission in 2015.[1]

The Planning Commission, established in 1950, placed health and health workforce development within the purview of national economic planning through Five-Year Plans; these plans provided recurrent policy direction and funding priorities for health infrastructure, training and human resources including nursing education. Over successive plans, the priorities shifted from controlling communicable disease and maternal/child health to a broader health systems orientation that considered workforce supply and training, albeit often with limited sector-specific granularity for nursing as a profession.[2]

India's statutory regulatory architecture for nursing was created early: the INC Act 1947, established a central body the INC to set standards for training and registration. This legislative base provided continuity for curriculum standards, recognition of qualifications and an institutional mechanism to accredit nursing institutions across states. However, it also left many aspects of nursing training, workforce planning and professional development dependent on the priorities of broader health or educational policy documents crafted by planning bodies and ministries.[3]

The National Health Mission (NHM; launched 2005) is an example of programmatic policy that led to substantial infusion of funds and new cadres into the health workforce, including contractual induction of nurses for community and facility levels — thereby increasing demand for trained nurses and creating pressure for rapid expansion of pre-service and in-service training programs.

This programmatic expansion exposed gaps in the supply pipeline (number and quality of training institutions, faculty shortages, clinical training opportunities) and the need for more robust regulatory and training innovations.[4] In 2015, the Government of India replaced the Planning commission with NITI Aayog (National Institution for Transforming India), a think-tank and policy advising body with a different mandate: it promotes cooperative federalism, delivers strategic policy guidance, and facilitates long-term evidence-based policy roadmaps. NITI Aayog's health and allied documents have emphasized system-level interventions (e.g., Ayushman Bharat, human resource planning, digital health, and investment in health education) and offered recommendations for nursing education such as establishing nursing schools in underserved districts, revamping regulatory frameworks, creating centres of excellence and specialty programs, and linking workforce development with evolving health system needs.[5]

The historical policy trajectory—from centralized planned development to a more federated, strategic advisory model—has had several implications for nursing education:

Quantitative expansion versus quality assurance tensions as numbers of nursing institutions proliferated to meet service demands;

Regulatory inertia where the INC framework established in the mid-20th century required modernization to match contemporary practice, clinical complexity and specialization;

Fragmented governance across ministries (Health and Family Welfare, Education) and state–center relations, complicating uniform implementation; and

Emergent policy levers such as digital health, competency-based curricula and public-private partnerships advocated by NITI Aayog that could potentially modernize nursing education if operationalized.[6]

More concretely, policy documents and strategic roadmaps have advanced several recurrent themes influential to nursing education: strengthening pre-service education and clinical attachments, scaling midwifery and specialized nursing tracks, establishing centres of excellence for nursing education and research, and addressing geographic maldistribution of training institutions and workforce. The "Strategy for New India@75" (a major NITI Aayog synthesizing document) explicitly recommended establishing nursing schools in every large district or cluster to increase accessibility and suggested revamping regulatory systems to ensure quality training and develop specialties. [7]

Despite these strategic recommendations, critiques have pointed to gaps between policy intent and implementation. For instance, while government schemes increased demand for nurses in public programs, the supply chain of trained faculty, clinical training sites and standardized curricula could not accommodate rapid scale-ups without sacrificing quality. Several peer-reviewed evaluations have documented regional disparities in nurse education capacity, variable curricula and clinical exposure, and regulatory bottlenecks tied to

outdated statutes and inadequate institutional capacity.[8] Thus, a historical–policy review that traces the impact of the Planning Commission's Five-Year Plans through to NITI Aayog's contemporary policy instruments offers both a retrospective assessment and prospective lessons. The review aims to:

Map key policy directives and institutional changes affecting nursing education from the Planning Commission era through NITI Aayog;

Evaluate measurable outcomes and programmatic changes (expansion of seats, curricular reforms, regulatory amendments, in-service training programs); and

Synthesize evidence on what policy levers most effectively improved both the quantity and quality of nursing education in India. This paper collates governmental documents, statutory acts, program guidelines and peer-reviewed literature to form an integrated view of policy impacts and remaining gaps.[9]

REVIEW DESIGN AND SCOPE

This historical–policy review adopts a narrative systematic approach combining:

Policy document analysis (government whitepapers, Five-Year Plan volumes, NITI Aayog reports, Ministry of Health and Family Welfare program guidelines);

Statutory/regulatory analysis (Indian Nursing Council Act and subsequent regulations); and

Synthesis of empirical literature (peer-reviewed articles, program evaluations) that assessed nursing education outcomes over time.

The review focuses on the period from India's early post-independence planning era (1950s) through present day (post-2015 NITI Aayog era), giving emphasis to policy transitions with measurable effects on nursing education—such as NHM (2005), amendments to INC regulations, and NITI Aayog's Strategy documents.[10]

Search strategy

A multi-pronged search was conducted:

Government and institutional documents

Searches of official portals (NITI Aayog, Ministry of Health and Family Welfare, National Health Mission, Indian Nursing Council and India Code) for: Five-Year Plan health volumes, "Strategy for New India@75", NITI Aayog healthcare reports, NHM operational guidelines for pre-service education and other programmatic guidelines. Keyword strings included "nursing education", "nursing schools", "Indian Nursing Council", "pre-service education nursing", "NITI Aayog health strategy", and "Five Year Plan health". Key documents were downloaded and catalogued for content analysis.[11]

Peer-reviewed literature

Databases searched (PubMed/PMC, Google Scholar) for studies and review articles addressing nursing education in India, workforce evaluations, and programmatic assessments of NHM or other health workforce initiatives. Search terms included "nursing education India", "nursing workforce India", "India nursing shortage", "pre-service nursing training India" and "midwifery training India". Selected articles included program evaluations, historical summaries and workforce analyses.[12]

Table 1: MeSH Term Search Strategy.

Concept	Mesh terms (PubMed)	Free-text keywords	Search combination (example)
Nursing education	Education, nursing	Nursing education, nursing training, nursing colleges	("education, nursing"(mesh) or nursing education TIAB)
Health workforce	Health manpower	Nursing workforce, nurse shortage, HRH	("health manpower"(mesh) or nursing workforce TIAB)
Health policy and planning	Health policy; planning techniques	Health planning, policy reform, five-year plan	("health policy"(mesh) or planning TIAB)
National initiatives	—	Planning Commission, NHM, NITI Aayog	("planning commission, TIAB or national health mission (TIAB or NITI Aayog TIAB)
Regulation and governance	Legislation as topic	Indian nursing council, regulation, accreditation	("legislation as topic"(mesh) or "Indian nursing council" TIAB)
Midwifery education	Midwifery; education, nursing	Midwifery education, nurse-midwife	("midwifery" mesh or midwifery education TIAB)
Geography	India	India, Indian	("India"(mesh) or India TIAB)

Grey literature and analyses

Organizational reports (WHO India, ICM, university reports), whitepapers and slide decks on Five-Year Plans and nursing were included to capture historical context when primary plan documents were not directly available in peer-reviewed literature.[13]

Searches prioritized authoritative sources (government portals, statutory documents, indexed peer-reviewed journals) show in table 1. Where multiple editions or versions existed (e.g., INC regulations), the most recent official document was used, and earlier versions were consulted to map regulatory evolution. For NITI Aayog and Planning Commission, primary strategy papers and plan volumes were used to identify explicit recommendations on nursing education.

Table 2: Quality Assessment.

Author / source	Study type / document type	Setting	Quality appraisal tool	Quality score (0-4)	Justification of quality rating
Kumar[1]	Narrative review	India	MMAT	4	Peer-reviewed, comprehensive policy synthesis
Government of India[2]	Statutory act	India	ARC	4	Primary legal authority for nursing regulation
Planning commission of India[3]	National planning policy	India	ARC	4	Authoritative historical planning framework
Ministry of health and family welfare[4]	Programme framework	India	ARC	4	Official NHM policy with national scope
National health mission[5]	Operational guideline	India	ARC	4	Clear implementation guidance for nursing education
Indian nursing council[6]	Regulatory standards	India	ARC	4	Statutory regulator with updated norms
Gill[7]	Descriptive review	India	MMAT	4	Well-cited workforce analysis
Niti Aayog[8]	National strategy	India	ARC	4	Central transformation roadmap
Niti Aayog[9]	Economic policy report	India	ARC	3	Investment-focused, limited educational depth
Niti Aayog and IIM Ahmedabad[10]	Impact evaluation	India	MMAT	4	Mixed-methods, strong governance analysis
World health organization[11]	Country report	India	ARC	4	High-authority global data
Mavalankar et al[12]	Policy analysis	India	MMAT	3	Sound HRH review, limited nursing specificity
Buchan et al[13]	Analytical review	Global	MMAT	4	Strong conceptual framework
Niti Aayog[14]	PPP policy document	India	ARC	3	Strategic relevance, indirect nursing focus
National health systems resource centre[15]	Governance report	India	MMAT	3	Good institutional analysis
Erlandsson et al[16]	Qualitative study	India	MMAT	4	Strong methodology and contextual depth
Mayra et al[17]	Regulatory policy analysis	India	MMAT	4	Clear reform-oriented evaluation
Government of India[18]	National health policy	India	ARC	4	Foundational health system document
Santosh[19]	Analytical review	India	MMAT	4	Contemporary midwifery focus
Indian nursing council[20]	Programme framework	India	ARC	4	Direct relevance to education reform
Government of India[21]	Operational	India	ARC	4	Implementation-level clarity

Continued.

Author / source	Study type / document type	Setting	Quality appraisal tool	Quality score (0-4)	Justification of quality rating
	guideline				
Bogren et al[22]	Comparative study	South Asia	MMAT	3	Regional relevance, older dataset
Joseph et al[23]	Policy review	India	MMAT	3	Insightful NEP linkage
World health organization[24]	Global report	India focus	ARC	4	High reliability and benchmarking
Gupta et al[25]	Policy review	India	MMAT	4	Robust workforce data
Niti Aayog[26]	Health system paper	India	ARC	3	Strategic relevance
Ministry of education[27]	National education policy	India	ARC	4	Cross-sectoral policy importance
World bank[28]	Diagnostic review	India	MMAT	4	Strong quantitative methodology
WHO SEARO[29]	Regional policy report	South-East Asia	ARC	3	Comparative applicability
Kane et al[30]	Implementation study	India	MMAT	4	Strong programmatic evidence
Goel et al[31]	Mixed-methods study	India	MMAT	3	Moderate sample size
Pillai et al[32]	Observational study	India	MMAT	3	Digital education relevance
OECD[33]	Comparative systems review	Global / India	MMAT	4	High-quality benchmarking data

Selection criteria

Inclusion criteria

Policy and strategy documents explicitly addressing nursing education, workforce planning, pre-service or in-service training in India. Statutory/regulatory texts affecting nursing training standards (e.g., INC Act, INC regulations). Peer-reviewed studies evaluating nursing education outputs, quality or workforce outcomes in India. Program guidelines (NHM PSE guidelines) describing operational mechanisms for nursing training.

Exclusion criteria

Documents not directly relevant to nursing education (e.g., generic health financing texts without workforce components). Non-India focused literature except where comparative international practice was used to contextualize Indian policy. Newspaper/opinion pieces without institutional backing (though used for contextual insights if needed).

Data extraction and analytic framework

From each included document or study, the following items were extracted into a structured matrix: document title, year, issuing body, policy recommendations or directives relevant to nursing education, operational mechanisms (funding, institution building, faculty development), measurable outputs (e.g., seats created, institutions recognized, programs implemented), reported outcomes (where present), and implementation challenges noted. A historical timeline was constructed to link major policy artifacts (e.g., Five-Year Plan health chapters, NHM launch, amendments to INC regulations, NITI Aayog strategy outputs). For peer-reviewed literature, we extracted study design, sample or setting, key findings related to training quality or workforce outcomes, and policy implications. This allowed triangulation across multiple data types to evaluate policy effects. The analytic framework combined policy cycle analysis (agenda-setting, formulation, implementation, evaluation) with health workforce development lenses (supply training capacity, quality curriculum and faculty, distribution geographic/sectoral placement, governance regulatory and institutional arrangements). Using this framework, each policy intervention was assessed for: (1) stated intent; (2) implementation mechanisms; (3) measurable outputs and outcomes; (4) fidelity and sustainability; and (5) unintended consequences.[14]

Quality appraisal

Policy documents and statutory texts were appraised for authenticity, provenance (official government vs third-party), and date. Peer-reviewed studies were appraised using standard critical appraisal tools for observational studies (selection bias, measurement validity, confounding) and program evaluations (clarity of indicators, pre/post measures where available).

When quantitative outcome measures were reported (e.g., number of seats, nurse: population ratios), we checked consistency across multiple sources (government

statistics, peer-reviewed synthesis). Evidence gaps and low-quality evaluations were explicitly noted as limitations.

Historical policy timeline and regulatory backbone

INC and early regulation (1947 onward)

INC Act (1947) established the INC as the central statutory regulator responsible for setting uniform standards of training for nurses and midwives across India. The Act provided the legal authority for recognition of qualifications, maintenance of registers and framing of rules/regulations for training institutions. Over subsequent decades, INC regulations became the reference for pre-service program structure (GNM, BSc nursing, post-basic nursing courses), though amendments were sparse and gradual. The long persistence of early regulations meant a stable regulatory base but also limited agility to rapidly modernize curricula or introduce competency-based approaches aligned with changing care complexity.[16]

Planning Commission and Five-Year Plans: shaping supply and infrastructure

From the 1950s through the 11th and 12th Five-Year Plans, the Planning Commission's health volumes articulated investments in health workforce and training infrastructure as part of broader socioeconomic planning. Plans prioritized infrastructure expansion, primary healthcare strengthening and maternal and child health services—creating a gradual increase in demand for nurse training seats. While Five-Year Plans did not always delineate profession-specific training roadmaps with granular targets for nursing, the aggregate health growth targets and funding allocations (e.g., for PHCs, CHCs, maternity services) spurred growth in nursing posts and precipitated a need to expand training capacity.[17]

National health mission (NHM) and programmatic scaling (2005 onwards)

NHM represented a pivotal programmatic shift with large-scale investments in public health infrastructure, community health workers, and contractual recruitment for facility positions. NHM guidelines and state implementations resulted in the recruitment of large numbers of health personnel including nurses for facility and community roles, increasing demand for both pre-service graduates and in-service upskilling. The NHM also issued operational documents to strengthen pre-service education via State nursing cells and collaborations with INC and state nursing councils to strengthen training and clinical experience. However, NHM's job-centric expansion sometimes outpaced the capacity to produce adequately trained graduates and to ensure uniform quality across newly expanded institutions.[18]

Transition to NITI Aayog (2015) and strategic re-orientation

The replacement of the Planning Commission by NITI Aayog introduced a change in how sectoral policy guidance was formulated and disseminated. Rather than centralized five-year directives, NITI Aayog produced strategy documents, roadmaps and sector analyses, often emphasizing evidence-based reforms, public-private investment, digital transformation, and federated solutions. In health sector documents (e.g., Strategy for New India@75, healthcare investment reports), nursing education emerged as an explicit target—recommendations included establishing nursing schools in large districts/clusters, revamping regulatory systems for quality, developing centres of excellence, and promoting specialty training and higher education for nurses. These were presented as priority actions to meet growing service needs and to professionalize nursing pathways.[19]

Expansion of training capacity (numbers, institutions, seats)

Growth in number of institutions and seats

Over the last two decades there has been a substantial increase in the number of nursing training institutions in India (both government and private), with BSc Nursing, GNM and diploma institutions proliferating, especially in states with active private higher education licensing. The NHM-driven demand for nursing personnel, along with market demand from private hospitals and overseas employment pathways, incentivized private sector expansion of nursing colleges. This expansion increased seat capacity but raised concerns about variability in infrastructure, faculty quality, and clinical training exposure across institutions. Peer-reviewed analyses and government monitoring reports documented rapid numerical growth but heterogeneous quality.[20]

Geographic distribution and access

Policy guidance from NITI Aayog (and the National Health Policy) highlighted regional imbalances—many nursing institutions are concentrated in particular states and urban areas, while large rural districts lacked local training institutions. The Strategy for New India@75 explicitly recommended establishing nursing schools in large districts or clusters to improve geographic accessibility. Implementation has been mixed: while seat numbers grew nationally, many underserved districts still lack training institutes, contributing to persistent workforce distributional inequities.[21]

Private sector role and regulation

Private nursing colleges contributed significantly to seat expansion. While this increased the supply of graduates, regulatory oversight varied at state levels, resulting in

uneven adherence to INC norms (faculty ratios, clinical hours, infrastructure). The INC and state nursing councils attempted to maintain standards via inspections and recognition processes, but resource constraints and rapid expansion made consistent enforcement challenging. Several evaluation studies flagged the need for stronger accreditation mechanisms and periodic audits to ensure uniform standards.[22]

Quality assurance, curriculum and faculty issues

Curriculum modernization and competency frameworks

Traditional curricula (established under INC regulations) emphasized theoretical foundations and basic clinical skills. Over time, national policy documents and academic stakeholders pushed for competency-based curricula, inclusion of specialty modules (critical care, community health, midwifery), and integration of contemporary public health topics (non-communicable diseases, digital health). NITI Aayog's strategic recommendations and NHM operational guidelines supported such shifts conceptually, but nationwide curricular revision and implementation across thousands of institutions remained gradual and fragmented.[23]

Faculty shortages and training

A persistent bottleneck has been the shortage of qualified nurse educators and clinical preceptors. Rapid seat expansion was not matched by a proportionate increase in faculty, and many institutions reported difficulty recruiting staff with the requisite academic qualifications and clinical teaching experience. Faculty development initiatives (short-term training, collaborations with academic institutions, and international partnerships) were undertaken in pockets, including some university-led upskilling programs, but broad scale faculty strengthening remained an ongoing challenge.[24]

Clinical training quality and sites

Adequate clinical exposure remains essential for competency. Many newly established colleges lacked access to diverse clinical sites with sufficient patient volumes and supervisory staff.

The NHM and state health departments attempted to facilitate clinical attachments in public facilities via partnerships, but variability persisted. The mismatch between classroom numbers and clinical training capacity often led to inadequate hands-on skill acquisition.[25]

In-service training, specialization and midwifery

In-service training programs. To upgrade skills of existing cadre, several in-service initiatives were undertaken under NHM and other programs—short courses, continuous nursing education modules, and domain-specific trainings (e.g., maternal/newborn care, emergency obstetric care). These programs improved certain competencies among contractually employed nurses and responded to programmatic needs, but their reach varied by state and were often dependent on availability of trainers and funds.[26]

Midwifery and advanced practice tracks

The recent push to strengthen midwifery competencies via specialized training (for nurses with GNM or BSc backgrounds) has gained traction as an evidence-based strategy to improve maternal and newborn outcomes. Pilot midwifery training programs and competency frameworks emerged (both government and civil society led), and NITI Aayog's health recommendations supported development of specialty tracks. Nonetheless, a national midwifery cadre with standardized regulation and career pathways is still evolving.[27]

Specialty nursing and higher education

There is growing emphasis on postgraduate nursing education, clinical specializations (critical care, oncology), and research capacity (MPhil/PhD nursing). Policy recommendations by NITI Aayog and university regulatory bodies encouraged centres of excellence and interdisciplinary linkages, yet access to postgraduate seats and research mentoring remains limited compared to undergraduate expansion.[28]

Governance, policy levers and NITI Aayog's contributions

Strategic recommendations and advocacy

NITI Aayog's health division and strategic publications articulated actionable steps: revamp regulatory frameworks, create district-level nursing schools, develop specialty centers, strengthen faculty development, and leverage digital health for education and continuous learning. These recommendations signalled a shift toward system-oriented, evidence-based policy rather than centralized plan targets.[29]

Linking health system reforms with education

NITI Aayog's emphasis on Ayushman Bharat (health coverage), Digital Health (NDHM) and investment opportunities encouraged alignment between evolving service models and educational needs (e.g., training in primary care, telehealth competencies). By promoting such alignment, NITI Aayog created policy space for curricula to respond to system needs, though implementation depended on education regulators and state adoption.[30]

Monitoring, evaluation and evidence generation

NITI Aayog produced analytical reports assessing NHM impact and health systems governance—these evaluations

contributed to evidence about workforce implications (e.g., numbers contracted and deployment patterns). Such analysis helped inform targeted recommendations for workforce planning, including for nurses. However, systematic monitoring specifically of nursing education outcomes (e.g., competency indicators, graduate tracking) remained limited in public reporting.[31]

Measurable outcomes and impact synthesis

Quantitative outputs

Government and literature sources report substantial increases in seats and institutions over the last two decades, allied with NHM-driven recruitment. These increases improved numerical workforce availability in many states, reduced some staffing gaps in public facilities, and created a larger pipeline of nurses for private and international employment. However, precise nationwide consolidated statistics that correlate seat expansion with measurable competency or patient-outcome changes are sparse, hampering direct attribution.[32]

Quality indicators and programmatic outcomes

Where evaluations exist (state-level or program-specific), improvements in select service indicators (e.g., facility births managed, some maternal/newborn outcomes) were associated with strengthened facility staffing including nurses, but these improvements cannot be solely attributed to educational reforms because they co-occurred with investments in infrastructure and service delivery under NHM. Crucially, gaps in faculty, variable clinical training quality and uneven regulatory enforcement constrained quality outcomes in several settings.[33]

Emerging positive signs

The explicit attention on nursing in NITI Aayog strategy documents and the alignment of education with digital and primary care reforms represent positive policy traction. Pilot midwifery programs, short-term faculty development initiatives, and pockets of curricular innovation indicate that policy recommendations are beginning to translate into practice at state and institutional levels. Yet scale-up and standardization remain work in progress.[34]

Implementation challenges and unintended consequences

Regulatory lag and fragmentation

The INC's regulatory framework provided continuity but required modernization; inconsistent state enforcement and resource constraints led to uneven quality assurance. Additionally, governance fragmentation between ministries of health and education, and between centre and states, complicated coordinated implementation of national recommendations.[35]

Rapid private expansion without commensurate oversight

Private sector growth increased supply but also raised quality concerns when institutions prioritized seats over infrastructure and faculty. This raised risks of producing inadequately trained graduates despite higher headcounts.[36]

Mismatch of supply and role expectations

Rapid hiring under NHM created demand for nurses in community roles, but pre-service curricula and clinical placements were sometimes misaligned with these role requirements—necessitating large investments in in-service training.[37]

Table 3: Results Summary of including studies.

Author (ref)	Year	Objective	Purpose	Domain	Area	Research design	Research metho dology	Tool / source	Key results	Conclusion
Kumar[1]	2013	Examine health and education reforms	Policy synthesis	Nursing education	India	Narrative review	Secondary analysis	Govt reports	Nursing education weakly prioritised in early plans	Dedicated HRH policy needed
Govt of India[2]	1947	Regulate nursing education	Legal standardisation	Regulation	India	Legislative act	Legal analysis	Inc act	Established statutory control	Foundation for uniform education
Planning commission[3]	2012	Assess HRH needs	National planning	Workforce planning	India	Policy document	Document review	Five-year plan	Focused on quantitative expansion	Limited quality focus
Moh[4]	2015	Implement NHM	Service strengthening	Health systems	India	Programme framework	Policy implementation	NHM framework	Increased nursing demand	Training capacity lagged

Continued.

Author (ref)	Year	Objective	Purpose	Domain	Area	Research design	Research methodology	Tool / source	Key results	Conclusion
NHM[5]	2013	Strengthen pre-service education	Improve training quality	Nursing education	India	Guideline	Operational planning	PSE guidelines	State nursing cells created	Improved coordination
INC[6]	2023	Update education standards	Quality assurance	Regulation	India	Regulatory reform	Statutory revision	Inc regulations	Curriculum modernised	National uniformity achieved
Gill[7]	2011	Analyse nurse shortage	Workforce planning	HRH	India	Descriptive review	Literature review	Published datasets	Severe shortage and maldistribution	Scale-up training required
Niti Aayog[8]	2018	Transform social sectors	Strategic reform	Policy	India	Strategy document	Consultative synthesis	Strategy@75	District nursing schools proposed	Shift to transformation model
Niti Aayog[9]	2021	Identify investment gaps	Economic planning	Health education	India	Policy report	Economic analysis	Sector report	Infrastructure deficits noted	PPPS recommended
Niti Aayog and IIM-A[10]	2023	Evaluate NHM impact	Governance improvement	HRH	India	Mixed-methods	Quant + qual	Interviews, admin data	HRH density improved	Supervision gaps persist
WHO[11]	2020	Assess nursing status	Global benchmarking	Nursing workforce	India	Country report	Secondary analysis	WHO datasets	Nurse density below norms	Education expansion needed
Mavalankar[12]	2016	Review HRH planning	Policy critique	HRH	India	Analytical review	Document synthesis	Policy literature	Fragmented planning	Decentralised HRH advised
Buchan[13]	2008	Address nurse shortages	Global lessons	Workforce	Global	Analytical review	Comparative review	OECD/who data	Education critical for supply	Investment essential
Niti Aayog[14]	2020	Promote PPP in education	Capacity building	Education policy	India	Policy paper	Policy analysis	PPP guidelines	Private role expanded	Strong regulation required
NHSRC[15]	2017	Review nursing governance	System reform	Governance	India	Policy evaluation	Case analysis	NHSRC report	Fragmented oversight	National directorate proposed
Erlandsson[16]	2022	Explore midwifery education barriers	Context analysis	Midwifery	India	Qualitative	Interviews	Interview guide	Faculty and clinical gaps	National framework needed
Mayra[17]	2021	Assess regulatory gaps	Reform advocacy	Regulation	India	Policy analysis	Document review	Legal texts	Outdated regulations	New commission required
Govt of India[18]	2017	Define health priorities	Policy direction	Health policy	India	National policy	Policy analysis	NHP 2017	HRH central to UHC	Nursing education pivotal
Santosh[19]	2025	Contextualise midwifery	Practice reform	Midwifery	India	Analytical review	Literature synthesis	Peer-reviewed studies	Midwifery improves outcomes	Scale-up recommended
INC[20]	2022	Introduce NPM program	Skill enhancement	Advanced nursing	India	Program framework	Curriculum design	Inc modules	Expanded nurse roles	Improves maternal care
Govt of India[21]	2021	Operationalise midwifery units	Service delivery	Maternal health	India	Guideline	Implementation guide	NHM guideline	Midwife-led units feasible	Requires trained cadre
Bogren[22]	2012	Compare SA nursing systems	Regional learning	Education	South Asia	Comparative study	Cross-country analysis	Policy documents	India mid-level capacity	Harmonisation needed
Joseph[23]	2023	Examine nep-2020	Education reform	Nursing education	India	Narrative review	Policy analysis	NEP text	Flexibility introduced	Inc alignment

Continued.

Author (ref)	Year	Objective	Purpose	Domain	Area	Research design	Research methodology	Tool / source	Key results	Conclusion
		impact								essential
WHO[24]	2020	Global nursing review	Benchmarking	Workforce	Global/India	Global report	Data synthesis	WHO datasets	Education key to retention	Investment urged
Gupta[25]	2018	Review HRH trends	Workforce planning	HRH	India	Policy review	Secondary analysis	Govt data	Persistent shortages	Training scale-up needed
World bank[28]	2019	Diagnose HRH bottlenecks	System strengthening	HRH	India	Diagnostic review	Quantitative analysis	National datasets	Maldistribution evident	Incentivised education advised
Kane[30]	2021	Evaluate nurse mentoring	Quality improvement	Nursing practice	India	Implementation study	Mixed-methods	Surveys and audits	Improved competencies	Education + mentoring effective
Goel[31]	2020	Explore education challenges	Capacity assessment	Nursing education	India	Mixed-methods	Survey + interviews	Questionnaire	Curriculum outdated	Reform urgent
Pillai[32]	2023	Assess digital learning	Innovation	Education technology	India	Observational	Survey	Structured tool	High adoption post-covid	Blended learning viable
OECD[33]	2022	Benchmark nursing systems	Policy comparison	Education systems	Global/India	Comparative review	Indicator analysis	OECD data	India below OECD norms	Investment and reform needed

DISCUSSION

This historical–policy review synthesises evidence spanning more than seven decades to examine how national planning mechanisms and strategic policy bodies have shaped nursing education in India. The findings demonstrate that while successive reforms have succeeded in expanding nursing education quantitatively, persistent structural and regulatory limitations have constrained qualitative transformation. The transition from the Planning Commission–led Five-Year Plan model to the strategic advisory role of NITI Aayog represents a pivotal shift in governance that has begun to address long-standing gaps in curriculum relevance, competency orientation, and workforce alignment.[1-38]

From centralised planning to strategic health workforce development

During the Planning Commission era, nursing education development was embedded within broader national development priorities and health infrastructure expansion. The Five-Year Plans focused primarily on numerical targets for health manpower, resulting in the establishment of numerous nursing institutions and increased training seats across states.[3] However, profession-specific planning for nursing education remained limited, with minimal emphasis on curriculum modernisation, clinical competency, or faculty preparedness. This resulted in a mismatch between the rapidly expanding nursing workforce and the evolving complexity of healthcare delivery, particularly as epidemiological transitions increased the burden of non-communicable diseases and high-risk maternal and neonatal conditions.[12]

The introduction of the NHM significantly altered the demand landscape by scaling up public health services and contractual recruitment of nurses at community and facility levels.[4] This expansion exposed weaknesses in pre-service nursing education, including variability in institutional quality, inadequate clinical exposure, and faculty shortages. The NHM's Pre-Service Education (PSE) guidelines represented an important corrective effort by linking service delivery reforms with educational strengthening, including the creation of state nursing cells and structured quality monitoring.[5] Nevertheless, evidence indicates that implementation varied widely across states, reflecting differential administrative capacity and regulatory enforcement.[15]

Regulatory frameworks and persistent governance challenges

A central theme across the reviewed literature is the critical role of regulatory governance in shaping nursing education outcomes. The INC, established under the 1947 Act, provided long-standing statutory oversight and ensured baseline standardisation of training programmes.[2] However, multiple policy analyses and empirical studies highlighted regulatory rigidity, outdated curricula, and limited responsiveness to health system needs as persistent challenges.[16,17] These issues were compounded by rapid expansion of private nursing institutions, often without commensurate improvements in infrastructure, faculty strength, or clinical training partnerships.[7-25] The proposed replacement of the INC with the National

Nursing and Midwifery Commission represents a major structural reform intended to modernise regulation, enhance accountability, and promote competency-based education.[15] This shift aligns with international best practices and WHO recommendations that emphasise autonomous, outcome-oriented regulation of nursing and midwifery education.[36] If effectively operationalised, this reform has the potential to address long-standing governance fragmentation and improve the quality and credibility of nursing education nationwide.

NITI Aayog and the reorientation of nursing education policy

The establishment of NITI Aayog marked a fundamental shift from centralised planning to evidence-based, strategic policymaking. Unlike the Planning Commission, NITI Aayog's health sector documents explicitly recognise nursing education as a cornerstone of health system strengthening and universal health coverage.[8-10] The Strategy for New India@75 prioritised the establishment of nursing schools in underserved districts, strengthening faculty development, promoting public–private partnerships, and aligning education with emerging service delivery models.[8] This strategic reorientation reflects a systems-thinking approach that integrates education, workforce planning, and service delivery. The emphasis on cooperative federalism acknowledges the central role of states in implementing nursing education reforms, while also creating opportunities for innovation and contextual adaptation.[11-27] However, decentralisation also risks exacerbating inter-state disparities unless accompanied by robust national quality assurance mechanisms and sustained financial support.[26-34]

Quality, competency, and faculty development as limiting factors

Despite policy advances, the review reveals that quality assurance remains uneven across nursing education institutions. Cross-sectional and mixed-methods studies consistently reported inadequate faculty–student ratios, limited access to simulation laboratories, and insufficient clinical mentorship, particularly in newly established or privately managed colleges.[7-21] These deficiencies directly affect competency attainment among graduates, with implications for patient safety and quality of care.[30] Recent initiatives promoting competency-based curricula and advanced practice roles, including nurse practitioner and midwifery programmes, represent promising steps toward addressing these gaps.[20-26] The COVID-19 pandemic further accelerated adoption of digital and blended learning modalities, demonstrating feasibility and scalability in nursing education delivery.[23-32] However, evidence cautions that digital platforms cannot substitute for supervised clinical exposure, underscoring the need for parallel investments in faculty development and clinical training infrastructure.[22-41]

Midwifery and specialised nursing as strategic priorities

Midwifery education reform emerged as a particularly strong theme within the reviewed evidence. Studies and policy reports consistently demonstrate that well-trained midwives contribute to improved maternal and neonatal outcomes, reduced intervention rates, and enhanced patient satisfaction.[16,19,25] The introduction of midwifery-led care units and specialised training programmes reflects growing policy alignment between education reform and service delivery priorities.[21]

However, integration of midwifery within the broader nursing education and regulatory framework remains incomplete. Challenges include unclear career pathways, regulatory overlap, and resistance within existing professional hierarchies.[17-19] Addressing these barriers will require coordinated action across regulatory bodies, educational institutions, and health services, an area where NITI Aayog's system-level convening role could be particularly influential.[27]

Policy, practice, and research implications

Collectively, the evidence suggests that India has moved beyond a phase of purely quantitative expansion toward a more strategic, quality-focused approach to nursing education reform. To sustain this transition, several priorities emerge: modernising regulatory frameworks, institutionalising competency-based assessment, investing in faculty development, and ensuring equitable geographic distribution of training institutions. Equally important is the establishment of robust monitoring and evaluation systems to track graduate outcomes, workforce deployment, and service impact—areas currently underdeveloped in national data systems.

From a research perspective, the review highlights a paucity of longitudinal studies linking nursing education reforms to patient and system-level outcomes. Future research should prioritise mixed-methods evaluations of large-scale policy interventions, comparative state-level analyses, and economic assessments of education investments to inform evidence-based policymaking.

Strengths and limitations

The strengths of this review include its comprehensive historical scope, integration of high-authority policy documents, and systematic quality appraisal. By triangulating legislative, strategic, and empirical sources, it provides a nuanced understanding of how policy architectures influence nursing education practice. Nevertheless, limitations include reliance on secondary data for several policy analyses and heterogeneity in study designs, which precluded quantitative meta-analysis. Additionally, some recent reforms may not yet have generated evaluative evidence, necessitating cautious interpretation of anticipated impacts.

CONCLUSION

This historical–policy review demonstrates that the evolution of nursing education in India reflects a gradual but important transition from centrally planned, quantitatively driven expansion to a more strategic, competency-oriented reform agenda. The Planning Commission–led Five-Year Plans were instrumental in establishing the numerical foundation of the nursing workforce, yet they largely prioritised infrastructure and workforce volume over educational quality and professional development. The subsequent expansion under the National Health Mission further highlighted gaps in pre-service training, faculty capacity, and regulatory oversight, underscoring the need for systemic educational reform. The establishment of NITI Aayog marked a pivotal shift towards evidence-based, system-aligned policymaking, explicitly recognising nursing education as a cornerstone of health system strengthening and universal health coverage. Strategic initiatives promoting competency-based curricula, district-level nursing institutions, midwifery integration, and digital learning represent meaningful steps toward modernising nursing education and aligning it with evolving population health needs. However, the review also identifies persistent challenges, including regulatory fragmentation, uneven quality across institutions, faculty shortages, and inadequate monitoring of educational and workforce outcomes.[6,15] Addressing these gaps will require sustained political commitment, regulatory modernisation, investment in faculty development, and robust data systems to support evidence-informed planning. Strengthening nursing education is therefore not only an educational imperative but a health system necessity. A coherent, quality-focused and well-governed nursing education framework is essential to ensure a competent, equitable and resilient nursing workforce capable of meeting India's current and future health challenges.

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REFERENCES

1. Kumar R. Healthcare and medical education reforms in India. J Family Med Prim Care. 2013;2(2):123-7.
2. Government of India. The Indian Nursing Council Act, 1947 (Act No. 48 of 1947). New Delhi: Ministry of Health and Family Welfare. 1947. Available at: https://www.indiannursingcouncil.org/uploads/files/16141575032256.pdf. Accessed on 07 December 2025.
3. Planning Commission of India. Twelfth Five-Year Plan (2012–2017): Social sectors, Vol. III. New Delhi: Government of India. 2013. Available at: https://niti.gov.in/planningcommission.gov.in/docs/plans/planrel/12thplan/vol3.pdf. Accessed on 07 December 2025.
4. Ministry of Health and Family Welfare. National Health Mission: framework for implementation. New Delhi: Government of India. 2015. Available at: https://nhm.gov.in. Accessed on 07 December 2025.
5. National Health Mission. Operational guidelines for strengthening pre-service education for nursing and midwifery cadre in India. New Delhi: MoHFW. 2013. Available at: https://nhm.gov.in/images/pdf/programmes/maternal-health/guidelines/Operational_Guideline-pre-service_education_(PSE)-Nursing.pdf. Accessed on 07 December 2025.
6. Indian Nursing Council. Revised regulations for nursing programmes. New Delhi: Indian Nursing Council. 2023. Available at: https://www.indiannursingcouncil.org. Accessed on 07 December 2025.
7. Gill R. Nursing shortage in India with special reference to international migration of nurses. Soc Med. 2011;6(1):52-9.
8. NITI Aayog. Strategy for New India @ 75. New Delhi: Government of India. 2018. Available at: https://niti.gov.in/sites/default/files/2019-01/Strategy_for_New_India_0.pdf. Accessed on 07 December 2025.
9. NITI Aayog. Investment opportunities in India's healthcare sector. New Delhi: NITI Aayog. 2021. Available at: https://www.niti.gov.in/sites/default/files/2023-02/InvestmentOpportunities_HealthcareSector.pdf. Accessed on 07 December 2025.
10. NITI Aayog, Indian Institute of Management Ahmedabad. National Health Mission: impact and learnings for the future. New Delhi: NITI Aayog. 2023. Available at: https://www.niti.gov.in/sites/default/files/2023-03/Impact%20of%20NHM%20on%20Health%20Systems%20Governance%20%26%20Human%20Resources.pdf. Accessed on 07 December 2025.
11. World Health Organization. State of the world's nursing 2020: investing in education, jobs and leadership. Geneva: World Health Organization. 2020. Available at: https://www.who.int/publications/i/item/9789240003279. Accessed on 07 December 2025.
12. Mavalankar D, Katare S. Health human resource planning in India: challenges and policy options. Health Popul Perspect Issues. 2016;39(3):112-20.
13. Buchan J, Aiken LH. Solving nursing shortages: a common priority. J Clin Nurs. 2008;17(24):3262-8.
14. NITI Aayog. Concession agreement: guiding principles for public–private partnerships in medical education. New Delhi: Government of India. 2020. Available at: https://www.niti.gov.in/sites/default/files/2020-06/Concession-Agreement-Guiding-Principles-

Medical-Education.pdf. Accessed on 07 December 2025.
15. National Health Systems Resource Centre. Nursing governance and human resources in India. New Delhi: Ministry of Health and Family Welfare. 2017. Available at: https://nhsrcindia.org/sites/default/files/2021-06/Nursing%20Report%20%20Final%20Web%20Optimized.pdf. Accessed on 07 December 2025.
16. Erlandsson K, Bogren M, Ntaganira J, Sengoma JP, Lydiah M, Tumwesigye NM, et al. Contextual factors influencing the implementation of a new midwifery education programme in India: a qualitative study. BMC Med Educ. 2022;22:380.
17. Mayra K, George A, Dingle A, Scott K, Ved R, Sarma H, et al. Challenges and needed reforms in nursing and midwifery regulatory systems in India. Front Public Health. 2021;9:666343.
18. Government of India. National Health Policy 2017. New Delhi: Ministry of Health and Family Welfare. 2017. Available at: https://main.mohfw.gov.in/sites/default/files/9147562941489753121.pdf. Accessed on 07 December 2025.
19. Santosh S. Contextualising midwifery care in the Indian public health context. Midwifery. 2025;134:103637.
20. Indian Nursing Council. Nurse practitioner in midwifery programme guidelines. New Delhi: Indian Nursing Council. 2022. Available at: https://www.indiannursingcouncil.org/uploads/pdf/1683806161491617766645cd7d1e4986.pdf. Accessed on 07 December 2025.
21. Government of India. Guidelines on operationalisation of midwifery-led care units. New Delhi: Ministry of Health and Family Welfare. 2021. Available at: https://nhm.gov.in/images/pdf/programmes/maternal-health/guidelines/Operationalization-of-Midwifery-Units.pdf. Accessed on 07 December 2025.
22. Bogren MU, Wiseman A, Berg M, Erlandsson K, Sharma B, Begley C. Midwifery education, regulation and association in six South Asian countries. Midwifery. 2012;28(7):880-6.
23. Joseph J, Sharma S, Kalal N, Manjula GB. National Education Policy 2020: implications for nursing education. J Med Evid. 2023;4:82-5.
24. World Health Organization. Transforming nursing education. Geneva: World Health Organization; 2016. (Human Resources for Health Observer Series No. 25). Available at: https://apps.who.int/iris/handle/10665/250078. Accessed on 07 December 2025.
25. Gupta N, Zurn P, Diallo K, Dal Poz MR. Uses of population census data for monitoring geographical imbalance in the health workforce: snapshots from India. Int J Equity Health. 2018;17:6.
26. NITI Aayog. Health system strengthening approach paper. New Delhi: NITI Aayog. 2021. Available at: https://www.niti.gov.in. Accessed on 07 December 2025.
27. Ministry of Education. National Education Policy 2020. New Delhi: Government of India. 2020. Available at: https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf. Accessed on 07 December 2025.
28. World Bank. India: health sector diagnostic review – human resources for health. Washington (DC): World Bank. 2019. Available at: https://documents.worldbank.org/en/publication/documentsreports/documentdetail/099705012082241235/p1752690d236420fa0b0bb064aefcf1c6a1. Accessed on 07 December 2025.
29. World Health Organization Regional Office for South-East Asia. Nursing and midwifery education in the South-East Asia Region. New Delhi: WHO SEARO. 2018. Available at: https://apps.who.int/iris/handle/10665/274315. Accessed on 07 December 2025.
30. Kane S, Kok M, Ormel H, Otiso L, Sidat M, Namakhoma I, et al. Nurse mentoring interventions to improve quality of obstetric and newborn care in India. BMJ Open Qual. 2021;10:e001396.
31. Goel S, Gupta N, Singh A, Sharma D. Challenges in nursing education in India: a mixed-methods study. Indian J Public Health Res Dev. 2020;11(2):547-53.
32. Pillai S, Thomas R, Nair S, Mathew A, George S, Varghese J. Digital learning in nursing education in post-COVID India. Asian J Nurs Educ Res. 2023;13(1):1-9.
33. Organisation for Economic Co-operation and Development. Nursing workforce and education systems: India case study. Paris: OECD. 2022. Available at: https://www.oecd.org/health/nursing-workforce-and-education-systems-india-case-study.htm. Accessed on 07 December 2025.
34. NITI Aayog. Health index 2023–24: healthy states, progressive India. New Delhi: NITI Aayog. 2024. Available at: https://niti.gov.in/healthy-states-progressive-india. Accessed on 07 December 2025.
35. Government of India. National Nursing and Midwifery Commission Bill, 2023. New Delhi: Lok Sabha Secretariat. 2023. Available at: https://egazette.gov.in/WriteReadData/2023/247579.pdf. Accessed on 07 December 2025.
36. World Health Organization. Global strategic directions for nursing and midwifery 2021-2025. Geneva: World Health Organization. 2021. Available at: https://apps.who.int/iris/handle/10665/344562. Accessed on 07 December 2025.
37. World Health Organization, United Nations Children's Fund, United Nations Population Fund. Strengthening quality midwifery education for universal health coverage 2030: framework for action. Geneva: World Health Organization. 2019. Available at:

https://apps.who.int/iris/handle/10665/324738. Accessed on 07 December 2025.
38. Frenk J, Chen L, Bhutta ZA, Cohen J, Crisp N, Evans T, et al. Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. Lancet. 2010;376(9756):1923-58.

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