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Ebin V Abraham

ebinva@ahs.aims.amrita.edu

Amrita Vishwa Vidyapeetham

Jaideep Menon

Amrita Institute of Medical Sciences and Research Centre

Leyanna Susan George

National Institute of Epidemiology

Subramaniya Iyer

Amrita Institute of Medical Sciences and Research Centre

Research Article

Keywords: Physician associate, Physician assistant, Primary healthcare, Workforce planning, Qualitative research, Reflexive thematic analysis, India

Posted Date: November 17th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-11759296/v1

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Additional Declarations: No competing interests reported.

Prospective integration of Physician Associates into primary care in India: a multistakeholder qualitative study

Ebin V Abraham[1]; Jaideep Menon[2]; Leyanna Susan George[3]; Subramaniya Iyer[4]

[1] Amrita Centre for Allied Health Sciences, Amrita School of Medicine, Amrita Vishwa Vidyapeetham, Kochi, India.

[2] Department of Cardiology, Amrita School of Medicine, Amrita Vishwa Vidyapeetham, Kochi, India.

[3] ICMR–National Institute of Epidemiology, Chennai, India.

[4] Department of Head and Neck and Plastic Surgery, Amrita School of Medicine, Amrita Vishwa Vidyapeetham, Kochi, India.

Correspondence: Ebin V Abraham; ebinva@ahs.aims.amrita.edu

Abstract

Background: Physician Associates (PAs) in India have worked mainly in specialty hospitals. The 2025 national competency-based PA curriculum gives greater weight to community and primary care, but little is known about how the people who would supervise, employ or fund PAs decide where a PA post is justified. We aimed to explore how stakeholders view the integration of PAs into primary care in India.

Methods: We conducted 23 semi-structured interviews between July and August 2026 with purposively recruited stakeholders in policy and regulation, PA education and practice, clinical and health-system leadership, and public health and workforce organisation. We used reflexive thematic analysis, followed by cross-stakeholder interpretation and a secondary reading informed by the updated Consolidated Framework for Implementation Research.

Results: Participants described how PAs could contribute to initial assessment, communication, referral and follow-up. They judged a specific post by six conditions: (1) an improvement to the patient pathway, not only redistributed tasks; (2) workable clinical accountability; (3) acceptance negotiated with colleagues and patients; (4) fit with local staffing and need; (5) readiness shown in placements and assessment; and (6) funded posts with career progression. Views differed by service setting and by the decision being considered, and we did not

identify a consistent split by occupation. Only one participant had direct experience of a PA in primary care; most accounts were prospective.

Conclusions: Stakeholders saw a PA's possible clinical usefulness as separate from the case for creating a particular post. Before a post is created, planners, educators and employers can check six things: whether it would improve a defined patient pathway, how it compares with other staffing options, whether delegated care is accountable, whether the role is understood, whether graduates are ready, and whether the post can be funded and sustained. These findings can guide service evaluation. They do not show whether PAs are effective.

Keywords: Physician associate; Physician assistant; Primary healthcare; Workforce planning; Qualitative research; Reflexive thematic analysis; India

Background

Primary care in India has to provide first-contact care, prevention, follow-up of chronic disease and referral, but staffing and resources vary widely between places. Workforce planning therefore has to consider not only how many clinicians are needed, but also how tasks are shared and whether one staffing model works better than another [1–3]. Primary health centres, sub-centres and referral services already rely on medical officers, Community Health Officers (CHOs), nurses, auxiliary nurse midwives and community workers with different preparation and responsibilities [4–6].

Physician Associates (PAs), also known as Physician Assistants in some jurisdictions, have been trained in India since the early 1990s, mainly for specialist and tertiary hospital services [7, 8]. PA education in India therefore started in hospital specialties, not in primary care. In a purposive survey of 536 Indian PAs, 424 of 478 respondents reporting workplace type worked in private hospitals and 12 in public hospitals [9]. Indian literature has described varied training, recognition and employment conditions and proposed a transition towards primary care [8, 10]. What this transition might add to existing services remains unresolved.

A policy transition makes that question timely. The National Commission for Allied and Healthcare Professions (NCAHP) Act 2021 established a statutory basis for educational and professional regulation [11]. In 2025, the national competency-based PA curriculum was issued, including community-oriented learning within six teaching semesters and a one-year clinical internship; adoption of the released curricula was directed for

academic year 2026–27 [12, 13]. The subsequent 2026 professional registration and institutional regulatory measures were announced after the July–August interviews [14]. These reforms set standards for PA education and regulation. By themselves, they do not show that graduates can work competently in the community, allow PAs to prescribe without restriction, or create funded PA posts.

These questions fall to stakeholders. Curriculum developers must turn the national competencies into supervised placements and assessments. Service managers have to judge whether a PA would improve care for patients or repeat work that other staff already do. Workforce planners have to deal with accountability, funding and career paths. Stakeholder discussions in India have already pointed to difficulties in standardising PA education [15]. Studies of CHOs and other non-physician clinicians show that authority, context and competence in specific tasks all matter, although none of these studies measured how PAs perform [4, 5, 16].

Studies from other countries show that PA integration depends on how the role is defined, how PAs relate to other professionals, how physicians supervise them, what the organisation prioritises and whether funding continues [17–21]. Reviews of the quality and effectiveness of PA care do not all reach the same conclusions, and they are limited by differences in case mix, setting and study design [22–26]. Pre-implementation studies from the Netherlands and Liberia describe how decision-makers weighed new PA tasks against other staffing options and investments [27, 28]. Surveys from Germany and Ireland found that interest in PAs did not always lead to posts that were affordable or authorised [29, 30]. We used these findings to shape our interview questions, without assuming that the same conditions would apply in India.

Other clinical cadres offer useful comparisons, but they are not the same as PAs. Indian research on rural medical assistants and non-physician clinicians looked at particular competencies and settings [16, 31]. A narrative review of 56 reports found that training, protocols, supervision, referral and financing were important for task sharing [32]. A policy paper discussed different types of mid-level workers, opposition from other professions and sustainability [33]. None of this literature examined the PA role or tells us where a PA would be a better choice than the staff already in place.

To our knowledge, no study has asked the people who would supervise, employ and fund PAs how they decide whether a PA post is justified in Indian primary care. This study addresses that gap, so that curriculum

developers, service managers and policymakers can ask the question before posts are created. We asked two questions. First, how do stakeholders in different roles in Indian healthcare see the contribution that PAs could make to primary care? Second, in their view, what educational, clinical, organisational and workforce conditions would make integration appropriate and sustainable? We were interested in six matters: patient pathways, other local staffing options, clinical responsibility, acceptance by other professionals, practical readiness and employment.

Additional file 1 provides a contextual international timeline (Figure S1) with source-specific qualifications.

Methods

Study design and interpretive orientation

This was an exploratory qualitative study. We interviewed stakeholders about how they judged the possible integration of PAs into Indian primary care. We treated what participants told us as their own interpretations, based on their professional experience and on what they expected of services. Their institutional position and the interview itself shaped what they said. Braun and Clarke's reflexive thematic analysis (RTA) guided the development of patterns of shared meaning while recognising the researcher's active interpretive role [34, 35].

Some topics were raised by our interview questions rather than by participants. We coded inductively, but we interpreted the data, looking at what participants described and at the assumptions behind what they said about accountability, boundaries, capability and employment.

Participants and recruitment

We used expertise-oriented purposive recruitment to bring different forms of experience in PA education and practice, clinical service organisation, public health, workforce policy and regulation into dialogue. Participants were approached directly or through professional and academic introductions. Of 24 individuals approached, 23 completed an interview; one could not participate without organisational authorisation. Participants were assigned one primary reporting domain: policy and regulation (n=5), PA education and professional practice (n=7), clinical and health-system leadership (n=5), or public health and workforce organisation (n=6). These domains overlapped in experience. Eleven participants held current or former PA-profession roles. One participant had worked directly with a PA in primary care, through the supervised rural deployment that is

studied separately in the wider doctoral programme. We did not treat that account as independent evidence that the deployment was effective. Professional/geographical affiliations covered Kerala (9), Maharashtra (3), Tamil Nadu (2), Delhi NCT (2), Gujarat (2), and Andhra Pradesh, Haryana, Karnataka, Telangana and West Bengal (1 each). We did not set quotas for the ten jurisdictions, and they are not representative samples of each state. We did not aim for statistical representativeness or a saturation threshold (Table 1).

Interview-guide development and interview conduct

The lead researcher developed four interview guides, one adapted for each stakeholder group. The guides covered service demand, existing staffing, possible PA tasks, responsibility and supervision, education, interprofessional understanding and employment. Three individuals with relevant expertise reviewed the questions and probes; no formal pilot interview was conducted [36]. Each guide included a standard description of the PA role, to be read after participants had described how familiar they were with PAs. The guides also included probes asking whether strengthening existing cadres might be better than adding PAs. Follow-up questions were flexible, so wording varied between interviews. Guides are presented in Additional file 2.

The lead researcher (EVA), a male Physician Associate clinician, educator, programme coordinator and doctoral researcher holding an M.Sc. Physician Assistant, conducted 23 English-language interviews between 7 July and 18 August 2026. Nineteen interviews were remote (Google Meet, n=11; Zoom, n=6; FaceTime, n=2) and four were face-to-face. Two face-to-face interviews took place in EVA's office and two in the interviewees' offices. Only the interviewer and participant were present during interviews. Each participant took part once; median duration was 45 minutes (range 35–92 minutes). Written informed consent was obtained from participants interviewed face-to-face, and audio-recorded verbal consent from those interviewed remotely, as approved by the ethics committee. The interviewer wrote contextual field notes and reflexive memos. Transcripts were sent to all 23 participants for review and correction. One participant, whose recording had been interrupted, requested a minor correction; no other participant requested corrections. Participant endorsement was not used as a test of validity for the six interpretive themes.

Preparation and management of interview accounts

The recordings were first transcribed with MacWhisper. EVA then checked and edited each transcript to produce a pseudonymised clean-verbatim account. Fillers, non-semantic pauses and procedural exchanges were omitted where this did not alter substantive meaning; these are not strict-verbatim records. Accounts were managed in ATLAS.ti version 26, with participant identifiers held separately. EVA checked each of the 18 quotations used in this manuscript against its recording.

Reflexive thematic analysis

The lead researcher revisited and recoded all 23 interviews, treating earlier codes and provisional headings as revisable rather than as a fixed coding frame. Repeated reading, engagement with extracts and analytic writing supported interpretation of how perceived clinical value was qualified by responsibility, acceptance, alternatives, readiness and employment. We developed six themes, each built around its own central organising concept [34, 35]. In developing them we paid attention to extracts that contrasted with one another and to points where participants qualified their own views. In line with RTA, we did not use how often a theme appeared, or agreement between coders, as a measure of quality.

An important refinement separated clinical accountability from professional acceptance. Early on we grouped oversight, prescribing restrictions and resistance together. Later we separated who may authorise and answer for a decision from how colleagues and patients come to understand a role, and these became two related themes.

Interpretive comparison across stakeholder positions

Following theme development, we examined how participants drew on different professional and institutional experiences when judging possible PA activities and workforce arrangements. An analytic ledger linked selected extracts to their broader participant contexts and reporting domains, with attention to contrasting judgements within as well as between accounts. We used the ledger to trace each interpretation back to its source.

The coauthors did not code the data. During theme refinement and cross-stakeholder interpretation they questioned the lead researcher's analysis instead of seeking consensus. LSG challenged thematic boundaries and the distinction between interpretive concepts and interview topics; JM and SI examined clinical accountability, supervisory demands and alternative readings of Indian primary-care service organisation.

Secondary interpretation informed by updated CFIR

After developing the six themes and conducting cross-stakeholder interpretation, we used the updated Consolidated Framework for Implementation Research (CFIR) as a secondary lens [37]. We chose CFIR because its constructs for relative advantage, compatibility and available resources correspond to the comparisons that service planners make when considering a new clinical role. We considered relative advantage in relation to existing staffing options, compatibility in relation to patient pathways and supervisory routines, and available resources in relation to staff time, supervisory capacity and funding. This reading provided a vocabulary for comparing possible service arrangements; the interviews were not deductively recoded into CFIR constructs.

Researcher reflexivity and interpretive accountability

The lead researcher's PA clinical, educational and professional leadership roles supported access and contextual understanding and also helped shape recruitment, questioning and interpretation. Existing relationships, the study introduction and the supplied PA-role description could have encouraged favourable responses or foregrounded supervision. Reflexive memos and analytic challenge focused on contrary accounts about workforce alternatives, physician accountability, unequal service needs, training capacity and publicly funded posts. This makes the researcher's standpoint visible rather than eliminating its influence. EVA's qualitative-research training included NIMHANS Bengaluru, doctoral methodology courses, workshops and mentoring, and he supervised two undergraduate qualitative studies. Within the doctoral programme he had also conducted two other qualitative studies: a qualitative descriptive study of final-year PA students' perceived preparedness (Study 1) and a longitudinal embedded single-case study of PA integration in primary care (Study 2). Before interviews, EVA introduced the PhD research and his professional PA roles; some participants already knew him through educational or professional relationships. EVA works at an institution that developed community-based PA education before the 2025 national curriculum.

Ethics and reporting

The Ethics Committee – Amrita School of Medicine approved the study (ECASM-AIMS-2025-443; 23 September 2025). It followed the Declaration of Helsinki. Reporting was informed by the Reflexive Thematic Analysis Reporting Guidelines (RTARG) and accompanied by a descriptive COREQ reporting matrix, without

treating saturation, coding consensus or participant validation as required RTA quality tests [35]. The descriptive COREQ reporting matrix is supplied as Additional file 3 [38].

Results

Twenty-three stakeholders contributed accounts (Table 1). We developed six themes (Table 2). Together they show that participants judged a specific PA post by conditions beyond whether PAs could be clinically useful.

Theme 1. Redistributing work matters when it changes the patient pathway

Participants commonly saw the PA's possible contribution as a change in how a consultation is organised. They did not usually describe an entirely new clinical activity. They spoke of busy outpatient clinics, little time to listen and explain, and clinical tasks that could be done before or after the doctor sees the patient. These accounts suggest that history-taking, routine assessment, escalation and follow-up might happen sooner if someone were clearly made responsible for them.

CL04 was the only interviewee with direct experience of a PA in primary care. CL04 gave a hypothetical example of a patient with chest pain to show how a PA might recognise a problem early and escalate it. The example described what a PA could do; CL04 was not reporting an incident that had happened. Most other interviewees spoke from experience in tertiary hospitals or described how they expected primary care to work.

> "For example, a patient with chest pain who is waiting in a queue might collapse while waiting. A PA can identify the problem, refer the patient immediately and, if needed, arrange an ECG before the patient comes to us." (CL04)

Other participants highlighted the time available for explanation and the possibility that patients might ask PAs questions they hesitate to put to doctors. PH04 added documentation and reporting as a burden on doctors that a PA could take on. Some proposed functions might already be performed by nurses or other staff, however, and the effect of an additional clinician would depend on which tasks were actually reassigned.

> "Not all the physicians are very well equipped with electronic databases like HMIS … that caused an overload also on them because of the patient overload. So that also is curbing if the physician associate is available for documentation and reporting purposes." (PH04)

PH06 did not accept that workload was high everywhere and described facilities where the existing doctors could manage the number of patients. CL05 also questioned whether some PHCs in Kerala needed PA posts.

For these participants, an extra staff member was worth having only where the patient pathway was already under strain and the new post would improve it.

> "But this is not the situation in every centre. There are other facilities with two or three doctors where the patient load is manageable. So I would say workforce pressure exists in particular areas and centres; it is not uniform across the primary healthcare system." (PH06)

Theme 2. Useful delegation requires clear clinical responsibility

Participants saw the PA as a clinician working within a physician-led system, whose usefulness would depend on the responsibilities agreed for the role. The recurring concern went beyond whether supervision was desirable. Participants asked how oversight would work at the point of care, who could authorise treatment decisions, and who would be accountable for tasks delegated to the PA. Some doctors expected to keep responsibility for the patients they examined. Other participants thought that a carefully defined list of activities was needed if PAs were to be useful in places where doctors were often unavailable.

CL02 was especially cautious and said that final responsibility for a patient could not be handed to another professional. PE05, speaking from PA experience, described the opposite problem. Where there are already too few physicians, the need for supervision and the limits on prescribing could leave the PA unable to do much that is useful. We do not read these two views as simple support for, and opposition to, the PA role. Both point to the same practical difficulty: care has to remain accountable, yet the role also has to be worth employing.

> "If I have a Physician Assistant, the patient I see is basically my responsibility, right? I cannot entrust responsibility for my patient to a second person." (CL02)

> "The first challenge is our limitations in prescribing medicines and the boundaries of our clinical role. We cannot work independently under the current arrangements. We would need a supervising consultant or licensed physician to review and countersign where necessary. But there is already a shortage of doctors available to supervise. Either we need an appropriate legal provision allowing PAs to prescribe a limited range of basic medicines, or the system must provide a physician who can supervise us." (PE05)

Participants suggested defined task lists, restricted medicine arrangements, doctor-led referral, escalation protocols and remote physician support. PR03 emphasised the need to decide who is answerable for each clinical decision. PR05 described a PA at a subcentre contacting the PHC medical officer or a telemedicine doctor when a case needed medical review. These are participants' proposals, not statements of what the law allows.

> "A PA at a subcentre could contact the PHC medical officer or an available telemedicine doctor when a case requires medical review, rather than attempting to manage everything independently. Cases that cannot be managed there would need referral." (PR05)

Theme 2 concerns accountable delegation, which is not the same as acceptance (Theme 3). Someone can know what a PA is without knowing whether the PA may prescribe, manage an emergency or refer a patient, and clear clinical rules will not by themselves win colleagues' acceptance.

Theme 3. Acceptance is negotiated through everyday professional encounters

Several participants said that acceptance grows as people work with PAs, and that a title alone does not bring it. They described doctors, nurses, allied health staff, patients and some administrators as unfamiliar with the role. Participants expected some resistance to a new cadre. They also expected uncertainty about which tasks a PA could perform and whether those tasks would overlap with the work of established professions.

PE01 described explaining the PA role to clinicians when PAs were first introduced in their institution and reported that some departments later asked for PA support. PE03 thought patients in larger hospitals would be more likely than rural patients to ask who the PA was and why the doctor was not seeing them. PH05 expected that communities would become familiar with PAs as PAs worked alongside established local teams. In these accounts, recognition came from working relationships more than from the professional title.

> "Questions about the identity and role of the PA may arise, especially in larger hospitals, where patients might ask who the person is and why the doctor is not seeing them. I feel that patients in rural areas may be less likely to raise those questions." (PE03)'We do not want residents; we want PAs.'" (PE01)

> "And one more important thing is that Physician Associates should work closely with doctors and our existing rural healthcare team. Because people are already familiar with the healthcare team. So, when the Physician Associate works together with doctors and the existing healthcare staff, people will slowly start understanding their role." (PH05)

Participants also raised the ethical importance of role identification. PE04 argued that patients should understand that a PA is not a physician and should know the boundaries of the PA's work and access to medical review. This is different from promoting the profession. Its purpose is that patients know who is caring for them.

> "It is equally important, ethically, that patients know who the PA is. Patients have a right to know that the person treating them is not a doctor, but a medically trained professional with specified skills. They should also know that the PA can refer to a physician, and that the PA's work is subject to the required supervision and review." (PE04)

Participants did not agree on which occupations might see the PA as taking over their work. What the title means, which tasks a PA is expected to do and how PAs relate to established teams would all have to be worked

out in each setting. Acceptance was therefore uncertain and depended on the setting. Exposure to PAs would not produce it automatically.

Theme 4. The case for a PA depends on local staffing and needs

Participants disagreed about where PAs should be deployed. Some pictured PAs supporting outreach and PHC-level services. Others thought larger public hospitals or medical colleges would be a better place to start, because the scope of work, infrastructure and physician support would be easier to set up there.

PR03 suggested first asking whether patients would be better served by strengthening an existing staff category than by creating a new role. PR05 similarly warned against copying models from other countries without looking at India's present workforce. For both, deploying PAs was one staffing option among several.

> "We should not decide only because the profession exists or because the idea sounds useful. We need to know whether a PA is the appropriate addition in that setting, or whether strengthening an existing category of staff would be more useful. It should be based on the needs of the service, not on a general assumption that the same arrangement will work everywhere." (PR03)

Participants also talked about place in terms of geography and equity. PR02 compared services across Indian states and within Kerala. Others doubted that a profession seen mainly in private specialist hospitals would convince policymakers responsible for publicly funded care. These are participants' views on values and service planning, not evidence about equity.

> "The situation in Kerala is different from Uttar Pradesh or Assam, and even within Kerala, a place such as Kasaragod may be different from urban areas such as Kochi or Thiruvananthapuram." (PR02)

CL05 doubted demand in Kerala PHCs while accepting possible value in medical colleges or larger hospitals. The question was therefore more than urban versus rural. Participants were comparing tasks, staffing options, institutional capacity and likely demand. The central idea of this theme is that the fit of the role has to be assessed locally. A national qualification or a general shortage of clinicians does not show that a PA is needed in a given place.

> "I am doubtful that there would be much demand for introducing PAs into PHCs in Kerala under the current circumstances, particularly when there are qualified doctors seeking government employment and existing cadres already performing much of the work." (CL05)

Theme 5. Practical readiness depends on how the curriculum is delivered

Participants distinguished the promise of a nationally specified PA curriculum from the evidence that graduates would be prepared to practise in particular primary-care environments. Accounts described the historical concentration of PA education in tertiary specialties, differences between training institutions and the operational work required to arrange community learning opportunities. A curriculum could specify primary-care competencies while students' actual exposure and assessment remained dependent on placement capacity, supervisors and the tasks available in those settings.

PE07 located the problem in different institutions' ability to deliver a published curriculum, whereas PH03 asked that each course be developed around the work graduates need to perform and PE04 emphasised task-specific demonstration of competence during placements. The distinction is between specifying community-oriented competencies and showing that students have had the supervision, learning opportunities and assessment required to use them.

> "On paper, everything looks good. In practice, however, it depends on the institution's infrastructure, faculty and several other factors at the university or college level. I do not have a very favourable impression of the system as a whole, even with the new curriculum. Ultimately, the question is how well each teaching institution chooses to implement it." (PE07)

> "First, we should show what is actually taught in the curriculum and how it compares with the competencies required for community care. It does not have to duplicate MBBS or nursing education exactly. Each course should be developed around the work that graduates need to perform." (PH03)

Scepticism was not universal. CL03 thought PA programmes could start in government medical colleges using existing facilities, without waiting for much new evidence about the educational model. CL03 also separated this from the evidence needed for government employment posts. Other participants expected the new curriculum to improve training while worrying about whether graduates would actually choose community positions.

> "For starting PA education in a government medical college, I don't think we need to wait for much more evidence. We already know that PAs are working in private hospitals. We have the teaching facilities in medical colleges. So, provided the necessary academic and clinical requirements are met, I feel we can start these programmes." (CL03)

A published curriculum states what is expected; whether graduates are ready for the workplace depends on how teaching and assessment are delivered.

Theme 6. A sustainable PA workforce needs funded posts and career progression

A recurrent distinction was made between educating PAs and establishing positions in which they could sustainably practise. Participants described statutory or administrative recognition, the existence of curricula and the availability of graduates as insufficient to produce funded posts. Government services would need recruitment routes, clear job descriptions, a rationale for the post and institutional willingness to finance the new staffing category.

PR02 described the sequence of post sanction and public recruitment in the government sector. CL05 argued that requests for a new role might need to arise from hospital leaders who identify a service need. From the profession's perspective, PE05 highlighted career stagnation and the need for progression if community employment was to attract and retain experienced PAs. PE06 expected graduates to compare PHC salary and career growth with those of classmates entering surgical specialties.

> "For an existing sanctioned post, or a newly created permanent post, recruitment generally goes through the Public Service Commission (PSC). Vacancies are reported to the PSC, which follows its own recruitment mechanisms, such as examinations or interviews. When a completely new post is required, the government must first be convinced of the need for it. Hospitals or colleges need to submit adequate requests and justification for creating that post. Only after the post is sanctioned can the PSC process be initiated." (PR02)

> "Otherwise, a student may think, 'If I enter a PHC, my salary and career growth will be limited, whereas my classmate who enters cardiac surgery or orthopaedic surgery will progress further.'" (PE06)

Participants also disagreed about how much evidence was needed, and for which decisions. Some wanted a pilot deployment to see how PAs would function clinically or to justify funded posts. PR06 doubted that a separate pilot was needed. CL03 separated two questions: whether educational programmes could start, and whether there was enough evidence to create government posts. They did not share a view that a pilot must come before any PA role is introduced.

> "I do not think a separate pilot is necessary. Based on the curriculum comparison, I feel PA training is similar in some respects to the nursing curriculum, and I do not think a separate pilot is required before deployment." (PR06)

Theme 6 concerns whether a recognised profession can become lasting jobs, which is a different question from local fit (Theme 4). A service might benefit from a PA and still have no funded or attractive post to offer; equally, an approved recruitment route says nothing about whether a service needs another cadre.

Cross-stakeholder contrasts

When participants differed, they were often talking about different decisions and were not simply for or against the profession. CL02 stressed the physician's responsibility. PE05 explained that a shortage of physicians could make supervision and the review of prescriptions difficult in the very places where extra clinical capacity was wanted. CL02 was concerned with accountability and PE05 with whether supervision could work in practice. Each, from a different professional position, placed a limit on the value of delegation.

CL03 thought PA education was feasible in government medical colleges with adequate resources. PR02 described the separate process by which public posts are justified and sanctioned. PE01 described hospitals becoming more familiar with PAs, while CL05 questioned whether some Kerala PHCs needed another cadre. These contrasts are about four different decisions: education, recognition, service need and employment. None of them shows a common position within one occupation.

Cross-theme interpretation

Participants kept two judgements apart: whether a PA would be useful, and whether a particular appointment was justified. The same person could value what a PA might contribute and still doubt who would authorise decisions, whether other staff would do the job better, whether colleagues would understand the role, whether graduates were ready, or whether the post would last. The answer shifted with the setting and the decision under discussion.

Figure 1 brings together the six interpretive distinctions. It summarises the themes without implying a causal sequence or consensus among participants.

Discussion

Principal findings and contribution

Stakeholders could envisage useful PA contributions while questioning the justification for a particular primary-care appointment. Their judgements turned on six matters: whether patient pathways would improve, who would be accountable for delegated work, how the role would come to be understood, what other local staffing options existed, whether graduates had shown they were prepared, and whether employment would last. We did not find a consistent split between occupations for and against PAs.

Indian publications have advocated PA movement towards primary care and described educational variation, recognition and limited public employment [8–10, 15]; international studies have examined boundaries, integration and funding [17–21, 27, 28]. To our knowledge, this is the first multistakeholder study of prospective PA integration into Indian primary care. The study shows that stakeholders treated a PA's perceived usefulness and the justification for a specific post as separate judgements. It also identifies the conditions on which that justification rested, as national educational standards shift towards community-oriented practice.

Cross-stakeholder and implementation-oriented interpretation

The secondary updated-CFIR reading gave three comparisons [37]. Relative advantage asks whether adding a PA would improve a specified service compared with realistic alternatives, not merely whether PA tasks are conceivable. Compatibility asks whether review, escalation and the allocation of tasks can fit into the clinic's daily routine. Available resources distinguishes a desired role from the supervisory capacity and financing needed to sustain it. We used these links only to organise the implications; they are not a tested implementation model.

Clinical contribution should be compared with the current patient pathway

Participants most often expected PAs to contribute to first-contact assessment, communication, monitoring and referral. Their value would depend on whether these activities improved a patient pathway already under strain or added another contact before physician review. Future comparative evaluation would need to specify task mix, current staffing, escalation arrangements, waiting time, quality, safety and resource use.

Reviews of PA effectiveness [22–26] vary in the strength of their evidence, and findings from other systems should not simply be transferred to Indian PHCs.

Delegation needs clear clinical responsibility

When tasks are delegated, it must be clear who holds clinical responsibility and how that works day to day. Some stakeholders pictured PAs taking histories, doing basic assessments and following patients up within physician-led services. Others worried that medical officers, who are already scarce, could not authorise decisions or respond to escalation in time. A PA's contribution may therefore be limited unless supervision,

decision-making authority, referral and the handling of medicines are both lawful and workable. What needs to be planned and evaluated is the whole care-team arrangement, of which the PA title is only one part.

Studies of community health assistants in Zambia and clinical associates in South Africa also show that relationships, organisational arrangements and material conditions affect integration [39–42]. These cadres are useful comparisons, but they are not equivalent to Indian PAs.

Local staffing and the option of investing elsewhere

Deciding whether a PA fits a service means choosing between different uses of the same resources. Participants questioned the idea that staff shortages are the same everywhere. They also considered investing in medical officers, CHOs, nurses, facilities or existing posts. In some settings a PA might improve coordination and follow-up. In others it might be better to invest in the existing team. Participants made these comparisons with different types of facility and different expected needs in mind.

Similar tensions have been reported in recruitment to Dutch primary care and in proposals to extend PA responsibilities in Liberia [27, 28]. They do not amount to an argument against introducing PAs. They show that opportunity cost and the needs of each local service are questions to be answered with evidence.

Acceptance, clear identification and practical readiness

Acceptance and readiness both have to be judged in everyday practice. Familiarity with PAs in hospitals may help the role to be recognised, but it does not tell us how patients or colleagues in public primary care would respond. Participants also saw a duty to identify the PA accurately to patients. They treated this as an ethical obligation, separate from any effort to promote acceptance. An Indian study of patients' views of non-physician clinicians illustrates how acceptance can be studied directly [43].

The 2025 NCAHP PA curriculum creates a nationally specified educational direction that includes community-oriented preparation [12, 13]. Institutions still have to arrange suitable placements, assess task-specific competence and identify supervisors. Curriculum approval, internship completion, professional registration and authority to make clinical decisions are distinct achievements. These accounts suggest that how the curriculum is implemented needs to be evaluated. Readiness cannot be assumed because a curriculum has been published [5, 15].

From educational recognition to sustainable employment

A recognised educational pathway does not itself create a sustainable workforce. Interviewees distinguished starting PA programmes from the public-service processes that sanction a post, determine its scope and finance recruitment. Other participants emphasised remuneration and career progression, and disagreed on whether a separate pilot was necessary. The 2026 registration and regulatory measures [14] came after these interviews; they change governance but do not create PA posts.

Related concerns about financing, employer decisions and career stability appear in Canadian, UK, Irish and Liberian evidence [18, 21, 28, 30, 44]. In India, CHO research likewise identifies tension between clinical responsibilities and authority or employment security [4, 45]. This evidence supports treating sustainable deployment as a decision about services and funding. It should not be assumed to follow from recognition.

Indian reviews of mid-level providers emphasise integration with training, protocols, supervision and financing [32] and consider differentiated workforces and alternative occupations [33]. Our interviews add an account of how a prospective PA appointment is judged alongside existing services.

Strengths and limitations

Purposive recruitment brought education, clinical practice, public-health and workforce perspectives into dialogue, including sceptical accounts. But these 23 interviews do not represent national or professional opinion. We judged 23 interviews adequate for a narrow aim and information-rich accounts, following information-power reasoning [46]. Eleven interviewees held current or former PA-profession roles and nine had affiliations in Kerala. Recruitment through professional networks, the interviewer's PA leadership and the written role-description prompts may have shaped accounts. Reporting domains overlapped; patients, and frontline staff who would work alongside PAs (PHC medical officers, CHOs and nurses), were not directly represented.

Because PA roles in Indian primary care remain largely prospective, the judgements of those who would educate, supervise, employ and fund PAs are relevant evidence for pre-implementation appraisal. However, only one interviewee had direct experience of a PA in primary care, and that came from a linked deployment. Most participants were anticipating how the role might work or drawing on experience in specialty practice. We did not measure competence, clinical outcomes, costs or hiring decisions. What participants proposed about

prescribing, supervision and recruitment does not show that these arrangements are legal or workable. All interviews were in English, which may have limited how fully some participants could express their views.

Implications for planning and evaluation

The findings suggest that a PA post should not be justified by clinician shortage or curricular recognition alone. A proposal can be tested against the six conditions: which patient pathway would improve, compared with which staffing alternative; who would be accountable for delegated tasks; how colleagues and patients would come to understand the role; whether placements and assessment have prepared graduates for those tasks; and whether a funded post and career path exist. Pilots, if used, should be built around a named patient pathway and compared with these alternatives. Our findings raise practical questions for three groups (Table 3). Curriculum developers can check whether primary-care competencies are actually taught and assessed during placements. Health-service managers who are considering a PA post can set out the problem in the patient pathway, the tasks existing staff already do, how a physician would oversee the PA, how cases would be escalated and what other staffing options are realistic. Policymakers and employers can look at clinical authority, funding, recruitment, pay and career progression. Future evaluations should compare PAs with these alternatives for effectiveness and cost, and should include patients and existing cadres.

Conclusions

India's new PA curriculum and regulatory arrangements make this a good time to ask how PAs might be integrated into primary care. In these 23 stakeholder accounts, a PA post was judged by whether it would improve a defined patient pathway compared with other staffing options, whether delegated care was accountable, whether the role would be accepted, whether graduates were ready, and whether employment could be sustained. Proposals for PA integration should therefore state the patient pathway to be improved, the alternatives considered, how delegated care would be supported and how the post would be funded and sustained. This gives planners, educators and employers a way to appraise proposals, and to design evaluation, before PAs are deployed.

List of abbreviations

PA — Physician Associate (or Physician Assistant, where used by the cited jurisdiction or participant)

PHC — primary health centre

CHO — Community Health Officer

RTA — reflexive thematic analysis

CFIR — Consolidated Framework for Implementation Research

COREQ — Consolidated Criteria for Reporting Qualitative Research

RTARG — Reflexive Thematic Analysis Reporting Guidelines

NCAHP — National Commission for Allied and Healthcare Professions

NCT — National Capital Territory

PSC — Public Service Commission

ECG — electrocardiogram

Declarations

Ethics approval and consent to participate

Approval was obtained from the Ethics Committee – Amrita School of Medicine (ECASM-AIMS-2025-443; 23 September 2025). Written informed consent was obtained from participants interviewed face-to-face, and audio-recorded verbal consent from those interviewed remotely, as approved by the ethics committee. All methods were carried out in accordance with the Declaration of Helsinki and relevant guidelines and regulations.

Consent for publication

Informed consent for publication of de-identified interview quotations was obtained from all participants as part of the approved study consent process. Quotations are attributed using pseudonymised participant codes, with potentially identifying details limited to protect confidentiality.

Clinical trial number

Not applicable.

Availability of data and materials

Interview accounts are not publicly available because the professional roles and institutional context could permit indirect identification. Requests for limited de-identified extracts may be considered by the corresponding author subject to ethics, participant consent and institutional requirements.

Competing interests

EVA is a Physician Associate educator and programme coordinator at an institution providing PA education and holds professional leadership roles within the PA field. These are declared as relevant non-financial interests. The other authors declare that they have no competing interests.

Funding

This research received no external or internal project-specific funding.

Authors' contributions

EVA conceptualised the study, developed the interview guides, conducted the interviews, managed the research data, performed the qualitative analysis and drafted the manuscript. JM contributed clinical and health-system perspectives, critically reviewed the interpretation of the findings and reviewed the manuscript. LSG provided qualitative methodological guidance, contributed to the critical interpretation of the findings and critically revised the manuscript. SI supervised the research and contributed to methodological and interpretive review of the manuscript. All authors read and approved the final manuscript and agree to be accountable for all aspects of the work.

Acknowledgements

We thank the interview participants for sharing their perspectives and the three colleagues who reviewed the draft interview guides.

Additional files

Additional file 1. International PA milestones (Figure S1) and documentary source register. DOCX. Contextual timeline of 25 selected milestones across eight countries with source links and legal/historical qualifications; not interview evidence.

Additional file 2. Semi-structured stakeholder interview guides. DOCX. The four stakeholder-specific guides, combined into one file. The wording of the questions is unchanged.

Additional file 3. COREQ reporting checklist. DOCX. The 32-item COREQ reporting matrix completed for this interview study.

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Table 1. Participant characteristics (n = 23)

Characteristic	Participants, n
Primary reporting domain	
Policy and regulation	5
PA education and professional practice	7
Clinical and health-system leadership	5
Public health and workforce organisation	6
Cross-cutting participant characteristic	
Current or former PA-profession role	11
No current or former PA-profession role	12
Reported direct PA experience in primary care	1
No reported direct PA experience in primary care	22
Interview mode: remote	19
Interview mode: face-to-face	4
Recorded geographical affiliations	10 jurisdictions (9 states + Delhi NCT)
Kerala / all other affiliations	9 / 14

Note. Each participant was placed in one domain for this table, although many had experience in more than one. PA-profession roles are cross-cutting. The geographic data show where participants were affiliated and are not a representative sample of states. We do not report each participant's profession together with their state, so that individuals cannot be identified indirectly. Codes were assigned at recruitment. Code PR04 does not appear because that person was invited but did not take part.

663 **Table 2. Six interpretive themes and key qualifying accounts**

Theme	Central organising interpretation	Contrasting view or limit
Redistributing work matters when it changes the patient pathway	A PA adds value if first contact, explanation and follow-up improve the patient pathway.	An extra assessment step could repeat work already done. We did not measure patient outcomes.
Useful delegation requires clear clinical responsibility	Delegated assessment has to be linked to someone with authority to decide, to medical review and to escalation.	A shortage of physicians may make supervision unworkable. Participants' proposals on prescribing are not legal authorisation.
Acceptance is negotiated through everyday professional encounters	Understanding of the role, and trust in it, develop through everyday clinical working relationships.	Familiarity in hospitals does not tell us whether patients or teams in public primary care will accept PAs.
The case for a PA depends on local staffing and needs	The role is judged against the tasks, cadres, resources and service needs of each place.	In some settings it may be better to strengthen medical officers, nurses or CHOs.
Practical readiness depends on how the curriculum is delivered	A national curriculum establishes educational intent, not individual workplace capability.	Attendance alone does not demonstrate task-specific competence; some participants were optimistic about programme implementation.
A sustainable PA workforce needs funded posts and career progression	A recognised profession requires sanctioned employment, resources and career prospects.	The necessity of a separate pilot was contested; recognition does not establish an available funded post.

664 **Note.** Rows are interpretive summaries of the six themes and their main qualifications, not participant counts or implementation stages.

Table 3. Stakeholder considerations and questions for future appraisal of PA integration

Area of appraisal	Stakeholder accounts, including differing perspectives	Questions for future appraisal (authors' synthesis)
Education and practical readiness	Interviewees questioned whether curriculum approval ensures teaching capacity, meaningful primary-care placements and demonstrated competence. One clinical leader considered appropriately resourced government colleges ready to begin PA education.	What preparation do programmes actually deliver, and which specific tasks can graduates show they are competent to do in the primary-care settings where they will work?
Clinical responsibility and supervision	A physician emphasised continuing medical responsibility. A PA practitioner questioned the workability of physician review where doctors are scarce. Participants raised task boundaries, escalation and differing medication-related proposals.	Which tasks, and which arrangements for physician review and escalation, are both legal and workable in practice? How much supervision time would they need?
Professional and patient understanding	An educator described colleagues becoming familiar with PAs through hospital practice. Others expected confusion or opposition and stressed that patients must be told clearly who the PA is.	How would colleagues and patients understand the role once PAs are working in primary care? How could identification, orientation and feedback be studied?
Local service need and workforce fit	Some participants expected PAs to improve first contact, explanation, follow-up and referral. Others questioned demand in particular services or favoured strengthening existing clinicians and community-based cadres.	Where, if anywhere, would a PA improve a specified patient pathway relative to existing staffing or alternative investments, and with what effects on access, safety and costs?
Professional recognition and employment	Participants distinguished professional recognition from sanctioned or contractual posts, funding, recruitment, pay and careers. They differed over who should initiate recruitment and whether further piloting was needed.	What locally applicable employment and financing arrangements could sustain a PA post, and what evidence would decision-makers require before particular recruitment decisions?

Note. The appraisal areas group points from across the six themes. They are not additional themes. The second column summarises interview accounts and differences; the third states questions formulated by the authors for prospective evaluation. The interviews did not test PA service outcomes or establish an authorised scope of practice.

Figures



Figure 1. Six interpretive distinctions in stakeholder judgements concerning prospective PA integration into Indian primary care.

Legend. Each row represents one of the six interpretive themes. The left column summarises considerations that could make a Physician Associate (PA) role appear plausible, including anticipated tasks, workforce pressures and formal recognition. The right column summarises additional considerations that stakeholders regarded as relevant to justifying a specific PA post. Arrows indicate that the former does not by itself establish the latter. Rows are not an implementation sequence, and the figure summarises the authors' interpretation, not stakeholder consensus.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- 04AdditionalFile2InterviewGuides.docx
- 05AdditionalFile3COREQ.docx
- 03AdditionalFile1Timeline.docx