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Determinants of Nurse Turnover in Rural Primary Health Centres and Policies Adopted in India- A Systematic Integrative Review Protocol

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Protocol

Determinants of Turnover of Nurses in Rural Primary Health Centres and Policies Adopted in India- A Systematic Integrative Review Protocol

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Abstract

Introduction: Nurses act as the major manpower of the primary healthcare setting by representing nearly half of all health professionals in India. Turnover among nurses in rural Primary Health Centres (PHCs) is receiving a great deal of attention around the world in both professional publications and the media. We have conducted a rapid literature review and from thereon, developed an analytical framework on the determinants of turnover of nurses in rural PHCs and policies adopted in India to overcome it. Literature reviews on studies addressing the turnover of registered nurses working in rural PHCs are scarce. The current review aims to develop an interpretive framework for future research and policymaking on nurse turnover of nurses in rural PHCs in India. **Methods:** The review includes policy documents, rural health statistics reports, quantitative, qualitative, and mixed studies on the turnover of nurses and policies adopted in rural PHCs in India. The articles published from 01 January 2001 to 31 October 2021, available in the English language will be screened by searching through databases, grey literature, and tracking. The Mixed Methods Appraisal Tool (MMAT) 2018 will be used for screening and the search process will be reported in the PRISMA flowchart 2020. The data on turnover of nurses will be synthesized in two ways: the magnitude of the problem, the determinants of turnover, and the policies designed to overcome it. **Discussion:** The interpretive framework can be used for future research and policy informing of exact-estimated, underestimated, overestimated, and non-estimated determinants and adopting policies on nurse turnover in rural PHCs in their context. Systematic review registration: PROSPERO 2021 CRD42021288944.

Keywords: determinants, India, turnover of nurses, policies, primary health centers, systematic review, thematic synthesis.

Introduction

The population of India is equivalent to 17.7% of the world's total population and holds 65.07% of rural people (World Bank, 2018). India has a well-developed public primary healthcare infrastructure by delivering preventive and promotive patient care services in the communities as per the recommendations suggested by the Bhore Committee 75 years ago (National Health Policy, 2015). The Indian public healthcare delivery sector has two types of Primary Health Centres (PHCs) based on working hours and Maternity services in rural areas: 24/7 PHCs and non-24/7 PHCs. A PHC is a six-bed facility that covers 30,000 people in rural areas. It is staffed by a medical officer, 3-7 nurses, and 3-6 paramedical staff (Bangalore Sathyananda et al., 2021). There are currently 23,391 PHCs established to provide health services to the rural population in India (Sriram, 2018). However, the quality and quantity of available primary healthcare facilities in rural areas have not yet met World Health Organization norms (Singh & Badaya, 2014). This shortage is due to a variety of reasons, including low investment in primary healthcare, high workforce turnover, a lack of school facilities, and placement in rural areas (Mohan & Kumar, 2019). Workforce turnover is the voluntary or involuntary

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departure of an employee from an organization (Olubiyi et al., 2019). The review examines both the factors influencing voluntary turnover, which occurs when licensed clinical nurses decide to leave PHCs, as well as the policies adopted in India to address turnover.

Nurses play a vital role in the public primary healthcare system by addressing healthcare demands at the micro level. Thus, it is important to retain them (Amin et al., 2020; Karan et al., 2020) for continuity of healthcare services to achieve health coverage for all (Van Weel & Kidd, 2018). The nature of the workplace (Amin et al., 2020) plays a role in the low turnover of registered nurses in rural PHCs in India. It is reported that community rude behavior, lack of proper job descriptions, low salary without any allowances for temporary posts, and lack of involvement in managerial decision making are the workplace factors (Amin et al., 2020; Bajpai, 2014; Chattopadhyay, 2010; Nandan et al., 2007; Rao et al., 2011) that contribute to nurse resignation (Lakshman, 2016; Williamson, 2013). It has also been pointed out that long working hours (>72 hours a week), multitasking, no basic facilities for break time and restrooms, harassment, blaming by doctors and administrators when something goes wrong are other workplace factors (Bangalore Sathyananda et al., 2021; James, 2017) that lead to sudden turnover by nurses. Urban government job opportunities, private job offers with higher salaries, marriage, and family responsibilities are personal factors (Amin et al., 2020) that influence nurse turnover in rural areas.

Methodology

A rapid literature review was conducted between 01 July 2021 and 31 July 2021, before the systematic integrative review (Chandy et al., 2022). The aim was to develop an analytical framework on the determinants of turnover of nurses in rural PHCs and the policies adopted in India to overcome that. This initial framework was meant to guide the subsequent systematic review. Google tools (Google Scholar and Google Scholar Citations) and open access sources (ResearchGate) were searched for the same. A total of 17 full PDF articles published in English between 01 January 2001 and 31 July 2021 were screened and 10 articles on turnover of nurses and 7 articles on policies (of the latter, 5 articles are primary research studies and 2 are national policy documents) were found appropriate. The steps of a thematic synthesis analysis were followed, which included line-by-line coding, and the development of descriptive and analytical themes (Thomas & Harden, 2008). The review identified 4 levels in the health system (analytical themes), 11 sub-levels in the health system (descriptive themes), and 21 sub-themes (sub-descriptive themes) (see Figure 1). The review also identified 14 different policies implemented to reduce the turnover of nurses in PHCs in India and were classified into two groups: specific policies (5) and general policies (9). Specific policies are meant to reduce the turnover of nurses in rural PHCs. General policies aim to reduce the overall workforce turnover in rural PHCs. We have not identified policies that address personal issues (age, gender, marriage, stay away from family, and family responsibilities) and job characteristics (career enhancement and supervision by non-nursing personnel like medical officers), which are the reported determinants of nurse turnover in rural PHCs in India. This analytical framework will guide the systematic review process.

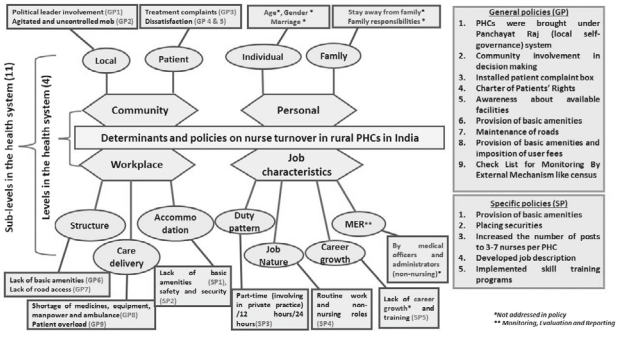

Figure 1. *Analytical framework on the determinants of turnover of nurses in rural PHCs* (Amin et al., 2020; Bajpai, 2014; Bangalore Sathyananda et al., 2021; Chattopadhyay, 2010; James, 2017; Nandan et al., 2007; Ramani et al., 2019; Rao, 2011; Rao et al., 2011; Sriram, 2018) and policies adopted (Chauhan et al., 2016; IPHS, 2006; IPHS, 2012; Kaur et al., 2019; Lahariya, 2020; Pandve & Pandve, 2013; Varatharajan, 2004).

Systematic review process

The researchers have not found any sort of literature review addressing the determinants of turnover of

nurses in rural PHCs and related policies in India. The review intends to fill the gap by gathering all fragmented pieces of research on the subject of turnover in rural PHCs through a systematic integrative review. In the first part, the magnitude of turnover in rural PHCs will be reported through a descriptive analysis. The determinants of nurse turnover and policies adopted in rural PHCs in India will be identified through the narrative and thematic synthesis. The identified themes (determinants) will be used to upgrade the initial analytical framework (Figure 1) into a more elaborate interpretive framework (an output of a systematic integrative review). This interpretive framework will illustrate the 'whole' picture of the turnover of nurses in rural PHCs in India. This framework (Choudhury Kaul et al., 2019) acts as a social determinant framework (Watt & Sheiham, 2012) that will guide future research for optimizing policy (Huang et al., 2021).

Objectives

The main objective of this integrative review is to identify the determinants of turnover of nurses in the context of rural PHCs in India and the policies adopted to overcome it. It aims to answer the following sub-questions: What is the magnitude of nurse turnover in rural PHCs in India? What is the current state-of-the-art knowledge on the determinants of nurse turnover in rural PHCs in India? What have been policies for addressing the nurse turnover in rural PHCs in India? And what has been their impact?

Design and reporting

The guidelines of the PRISMA 2015 (Page et al., 2020) will be followed for data reporting. The protocol was registered in PROSPERO on 03 December 2021 and the number is CRD42021288944.

Operational definitions

Nurses in rural PHCs - Nurses who are posted as staff nurses in rural PHCs as per the norms with State Nursing Councils.

Nurse turnover - The process of staff nurses leaving the organization or the nursing profession, or transferring to a new job environment within two years of posting in rural PHCs.

Determinants - The dimensions in the Indian public health system that influence nurse turnover in rural PHCs are community, workplace, personal, and job characteristics (Figure 1).

Adopted Policies - Policy interventions aiming to reduce nurses' turnover, by preventing their resignation and retaining them in the workplace for a minimum period of two years in rural PHCs.

Eligibility criteria

Inclusion criteria:

1. Quantitative, qualitative, and mixed studies on factors determining turnover of nurses and policies adopted in rural PHCs in India.
2. Health statistics reports, as well as national and state-level policy documents.
3. Publications in English from national, sub-national, and local contexts.
4. Full-text publications published between 01 January 2001 and 31 December 2021.

Exclusion criteria:

1. Papers with severe flaws in methodology and analysis will be excluded.
2. Viewpoints and discussion papers on factors determining the turnover of nurses in rural PHCs will be excluded, unless they include elements on policies implemented in rural PHCs to reduce workforce turnover.
3. Review papers will be excluded.

Search strategy

Three search methods will be used: databases, grey literature, and tracking (Putturaj et al., 2020).

1. Databases: A systematic search strategy will be used to identify all published studies. Keywords such as "nurse", "rural", "turnover", "determinants", "India", "primary health centres" and "policies" will be entered into PUBMED, Ovid MEDLINE, Web of Science, and CINAHL databases for retrieval of all available studies. A search strategy was developed for PubMed using the NLM MeSH database on 30 October 2021 and entered the terms #1 Nurse, #2 Turnover, #3 Determinants,

#4 Policy, #5 India, #6 Primary Health, #7 Health Center, #8 Rural Health, and #9 (#1 AND #2 AND #3 AND #4 AND #5 AND #6 AND #7 AND #8) and converted MeSH terms into tiab terms. The MeSH and tiab terms were combined into search blocks and the final search results were 4,16,136 (refer Table 1). Following this, additional index terms for each database will be developed by reviewing the title, abstract, and index terms of articles that meet the review's inclusion criteria. A separate search strategy will be developed using the Boolean operators "OR" and "AND" to focus searches on the review's specified PIO format: population (nurses), intervention (turnover in rural PHCs in India), and outcomes (determinants/policies adopted).

Table 1. *Search strategy and results*

Search	Terms	Results
#1 Nurse	"Nurses"[Mesh] OR "Nurs*"[tiab] OR "Family Nurse Practitioner*"[tiab] OR "Pediatric Nurse Practitioner*"[tiab] OR "Nurse Midwive*"[tiab] OR "Nurse Clinic*"[tiab] OR "Nurse Anesthetist*"[tiab] OR "Nurse Practitioner*"[tiab] OR "Nurse Admin*"[tiab] OR "Nurse Specialist*"[tiab] OR "School*, Nurs*"[tiab] OR "Licensed Practical Nurse*"[tiab] OR "Nurse, Male*"[tiab] OR "Nurse*, Neonat*"[tiab]	5,26,757
#2 Retention	"Personnel Turnover"[Mesh] OR "Person Turnover*"[tiab]	5,578
#3 Determinants	"Social Determinants of Health"[Mesh] OR "Epidemiologic Factor*"[tiab] OR "Decision Theory"[tiab]	6,512
#4 Policy	"Policy"[Mesh] OR "Public Policy"[tiab] OR "Policy Mak*"[tiab] OR "Health Policy"[tiab] OR "Fiscal Policy"[tiab] OR "Social Control Polic*"[tiab] OR "Guideline Adher*"[tiab] OR "Economic*"[tiab] OR "Ethic*"[tiab]	6,60,086
#5 India	"India"[Mesh] OR "India*"[tiab]	2,16,706
#6 Primary Health	"Primary Health Care"[Mesh] OR "Primary Health Car*"[tiab] OR "Nurses, Community Health*"[tiab] OR "Health Transition*"[tiab] OR "Preventive Health Servic*"[tiab] OR "Population Health Manag*"[tiab]	1,93,728
#7 Health Center	"Community Health Centers"[Mesh] OR "Community Health Center*"[tiab] OR "Rural Health Servic*"[tiab] OR "Maternal-Child Health Center*"[tiab] OR "Area Health Education Center*"[tiab] OR "Ambulatory Care Facilit*"[tiab] OR "Fitness Center*"[tiab]	16,631
#8 Rural Health	"Rural Health"[Mesh] OR "Rural Health*"[tiab] OR "Rural Health Servic*"[tiab]	29,367
#9	#1 AND #2 AND #3 AND #4 AND #5 AND #6 AND #7 AND #8	4,16,136

2. Grey literature: Google, institutional websites (public and private), ProQuest, and INFLIBNET Dissertations and Theses that are relevant to the area of turnover among nurses and implemented policies in rural PHCs in India will be searched.

3. Tracking: Reference and citation tracking will be conducted.

Period

12 January 2021 - 31 May 2022

Steps of article selection

The researchers developed six steps for screening articles using our previous review experience and background. 1. Team development: A team of four reviewers will be created. 2. Initial search: Identify articles in databases, grey literature, and other tracking methods. 3. Initial selection: Titles, abstracts, and keywords will be screened, and categorized under three categories: direct selection list, waiting lists (I and II), and direct rejection list. *Direct selection list*: The articles that meet all inclusion criteria will be selected and are

directly shortlisted. *Waiting lists, I and II:* In waiting list I, the articles that are doubtful of meeting the inclusion criteria will be allocated and their selection will be finalized after reviewing the full texts. In waiting list II, we will allocate the articles that are doubtful of meeting the exclusion criteria. Article rejection will be finalized after reviewing the full texts. *Direct rejection list*: The articles will be directly rejected if they meet all exclusion criteria. 4. Second selection: The articles will be shortlisted from the waiting list after reviewing the full texts. 5. Data extraction sheet: The details of the articles will be entered in a data extraction sheet and duplicate articles will be removed from the list. 6. Final selection: Three reviewers will review the full-text articles and finalize the articles using a data extraction sheet independently. The fourth reviewer will resolve any disagreements on final inclusion. A PRISMA flowchart for 2020 will document the search process (Page et al., 2020).

Data extraction

The data will be in three ways:

1. Rural Health Statistics - State governments publish the recruitment status of PHCs as well as the turnover rate of all rural health workers every year. Turnover rate is calculated by dividing the total number of nurses who leave in a year by the average number of nurses who work within the same year and multiplying by 100 (Daouda et al., 2021). The data on turnover of nurses in India will be collected from all states and union territories of India from 2018-2020. The data will be arranged state-wise like sanctioned posts, filled posts, and vacant posts, using number and proportion.
2. Quantitative studies - A narrative synthesis of quantitative data from individual studies will be presented. A table will be used to present the study title, author, state and year, design, results, recommendations, and adapt the narrative summary to the heterogeneity of quantitative studies.
3. Qualitative studies – A combined methodological model, which is an applied model with seven steps for synthesis (Sandelowski et al., 2007) will be used. This model will help us to combine heterogeneous qualitative studies and extract the determinants for upgrading the analytical framework into an interpretive framework.

Stage 1 will follow the exploration inquiries for synthesis suggested by Finfgeld (Finfgeld, 2003). The questions are: 1) What viewpoints are identified concerning nurse turnover in rural PHCs and the policies adopted in India to address this turnover? 2) What is the methodology of the studies? 3) What are the output themes of the studies? In stage 2, the steps of the article selection process that will be outlined in the PRISMA 2020 flowchart (Page et al., 2020) will be followed. In stage 3, the Mixed Methods Appraisal Tool (MMAT) 2018 (Hong et al., 2018) will be used for screening (O'Brien et al., 2014) all selected studies. In stage 4, a WFWCF (warming I-freezing-warming II-comparing-filtering) analysis process (Jobin & Turale, 2019) will be used to finalize the themes. In the *warming I* stage a thematic synthesis of the main ideas will be conducted in the synthesis matrix table in three stages: line-by-line coding, developing descriptive themes, and analytical themes. After the line-by-line coding, descriptive themes will be identified. These themes will be grouped based on similarities and differences. These groups will be named and they will be called analytical themes. Both descriptive and analytical themes will be entered in the WFWCF matrix table. During the *freezing stage*, we have a two-week break. It helps to approach the data in a fresh way before the next stage of analysis. In the *warming II* stage, the thematic synthesis of the main ideas will be done in three stages: line-by-line coding, identifying descriptive and analytical themes as fresh one. Both themes will be entered in the WFWCF matrix table. In the *comparing stage*, we will compare the descriptive and analytical themes of the warming I and II stages using the WFWCF matrix table. In the *filtering stage*, the 'even' themes will be confirmed and the 'odd' themes will be filtered based on their relevance in both stages of warming I and II. In the end stages 5 and 6, we will use analytical and descriptive themes to upgrade the analytical framework (Figure 1) into an interpretive framework on determinants of nurse turnover and policies adopted pertaining to retaining nurses in rural PHCs in India. Finally (stage 7), reports will be prepared and disseminated.

Quality appraisal criteria

1. During screening - The MMAT tool (Hong *et al.*, 2018) will be used for screening all selected studies. The studies that score more than 80% will be finalized for review and the quality threshold will enhance the rigor and reliability of the review findings.
2. During data analysis - The WFWCF (Warming I-Freezing- Warming II-Comparing- Filtering) will be used for the analysis process in stage 4.

Study outputs

1. In the quantitative analysis, the rural health statistics on nurse turnover will be presented in tables and the findings of the quantitative studies will be narratively synthesized.
2. In the qualitative analysis, the thematic synthesis will lead to the identification of descriptive and analytical themes. Both themes will be used for upgrading the final interpretive framework.

Expected outcomes of the study

The main expected outcomes are:

1. An updated and accurate view on the magnitude of the phenomenon of the turnover of nurses in rural PHCs in India.

Outcome 1 will be illustrated using quantitative analysis and narrative synthesis.

2. The current state-of-the-art in terms of our existing knowledge on the determinants of turnover of nurses in rural PHCs in India.
3. Insight into the nature and effectiveness of the various policies implemented in India aiming to address the problem of high turnover of nurses in rural PHCs.

Outcomes 2 and 3 will be illustrated using an interpretive framework that has levels and sub-levels in the health system, sub-themes, and policies (general and specific).

Strengths and limitations of the study

Strengths of the review: An analytical framework (Figure 1) is developed with the support of a rapid literature review; the review will follow six steps in the article selection process; and a thematic synthesis will be conducted using the WFWCF process, which is embedded in the combined methodological model. The possible limitations can be subjective interpretation and difficulty in understanding the policy data. To overcome these limitations, the data will be read and discussed repeatedly. All investigators are qualitative researchers and will use their knowledge and skills in data extraction and synthesis. The subjective interpretation will be overcome through impartial assessment and the investigator-triangulation approach (Carter et al., 2014).

Discussion

The current review aims to develop an interpretive framework (by upgrading the analytical framework (see Figure 1)) on the determinants of turnover of nurses in rural PHCs and on the policies adopted in India to overcome the turnover problem. This framework will guide future research exploring the exact-estimated, underestimated, overestimated, and neglected determinants of nurse turnover in rural PHCs and the strategies adopted in various study settings. Thus, the review can inform policymakers regarding identified determinants of nurse turnover in rural PHCs with contextualized policy options.

We will disseminate the findings in a peer-reviewed journal. We will inform national and state authorities on determinants that have not been addressed in policy and possibly delineate new relevant policy options.

Conclusion

Nurses are the major human resource of the primary healthcare system by representing nearly half of all health professionals in India. Nurse turnover in rural PHCs is receiving a great deal of attention around the world in both professional publications and the media. The researchers conducted a rapid literature review and from thereon, developed an analytical framework on the determinants of nurse turnover in rural PHCs and policies adopted in India to overcome it. The current review aims to develop an interpretive framework for future research and policymaking on nurse turnover in rural PHCs in India.

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Authors' contributions

First and second authors conducted the conceptualization and design of the protocol.

First author drafted the manuscript. All authors have read and approved this manuscript.

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Conflict of Interest: None

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