

# Retention of medical doctors and nurses in rural areas of Odisha state, India – a policy analysis

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## Abstract

**Purpose** – Retention of medical doctors and nurses in remote and rural areas is a key issue in India. The purpose of this paper is to assess the relevant policies and provisions with respect to health care professionals, aiming to develop feasible retention strategies in rural areas of Odisha state of India.

**Design/methodology/approach** – The study employed documentary review and key informant interviews with policy elites (health planners, policy maker, researchers, etc.). The document review included published and unpublished reports, policy notifications and articles on human resources for health (HRH) in Odisha and similar settings. Throughout the study, the authors adapted World Health Organization's framework to study policies relevant to HRH retention in rural areas. The adapted framework comprised of the four policy domains, education, regulation, financial incentives, professional and personal support, and 16 recommendations.

**Findings** – In Odisha, the district quota system for admission is not practiced; however, students from special tribal and caste (Scheduled Tribe and Scheduled Caste) communities, Socially and Educationally Backward Classes of citizens, and Persons with Disabilities have some allocated quota to study medicine and nursing. Medical education has a provision of community placement in rural hospitals. In government jobs, the newly recruited medical doctors serve a minimum of three years in rural areas. Doctors are given with location-based incentives to work in remote and difficult areas. The government has career development, deployment, and promotion avenues for doctors and nurses; however, these provisions are not implemented effectively.

**Originality/value** – The government could address the rural retention problems, as illustrated in the study and put in place the most effective policies and provisions toward recruitment, deployment and attraction of HRH in remote and rural areas. At the same time, implementation HRH strategies and activities must be rigorously monitored and evaluated effectively.

**Keywords** India, Odisha, Policies, Rural retention, Human resources for health

**Paper type** Research paper

## Introduction

Human resources for health (HRH) is one of the six building blocks of health system (WHO, 2006). Approximately 4.2m health worker (physicians, dentists, nurses and midwives) shortage has been estimated worldwide (WHO, 2008). Globally, there is a positive correlation between the proportion of the professional health care workforce and key health outcomes, such as infant and child health, maternal survival, institutional delivery and



immunization (Anand and Barnighausen, 2007). Therefore, bridging this gap is crucial toward attaining sustainable development goals (WHO, 2008).

Rural and remote populations face disproportionately shortages of HRH. Various governments, planners, policy makers and ministries of health face Herculean tasks in meeting the exact health needs of rural population (Dolea *et al.*, 2010), mainly due to the scarcity of health care workers, decreased intentions of staying of HRH in remote locations, and skewed geographic distribution of rural health care providers (WHO, 2010). Almost all countries in the world, including rich and poor, report a higher proportion of health care professionals in urban and city areas (Nigenda and Machado, 2000; Braveman *et al.*, 2001; Behera *et al.*, 2017). This is mainly due to health workers' preferences for socio-cultural, economic benefits, and the personal and professional development available only in city areas (Van Lerberghe *et al.*, 2002). Furthermore, half of the world's population lives in rural areas, whereas globally 75 percent of physicians and 62 percent of nurses work in urban areas (World Health Organization and Global Health Workforce Alliance, 2013). This evidence marks urgent need for an improved retention of health care professionals especially in rural, remote and underserved locations.

There is a growing body of evidence in the literature on HRH stating different factors affecting retention level among professionals' health worker in rural areas and low and middle income countries (Lehmann *et al.*, 2008; Ojaka *et al.*, 2014; Willis-Shattuck *et al.*, 2008). A research was conducted in rural hospitals in Zimbabwe to study the determinants of the retention of health care workers (Nyandoro *et al.*, 2016). This study recommended for interventions, strategies and proactive measures that address relevant factors that are important for hospital staffs at different stages of their careers. In fact, interventions that support health workers to retain them in public hospitals were suggested, which included packages for career enhancement, introduction in equity in training and development of the professional health workers.

A research study in Bangladesh reported that difficult living conditions (lack of drinking water and electricity), poor infrastructure and less career development opportunities were the vital factors obstructing the retention of medical doctors and nurses (Darkwa *et al.*, 2015). In Vietnam, challenging living conditions (inadequate infrastructure and limited transportation facilities) were the key factors discouraging health workforce from working in underserved areas (Dieleman *et al.*, 2003). Likewise, a study in Tanzania, a self-administered survey was carried out among 70 health care workers in rural areas revealing that only two were satisfied with infrastructure, two with equipment facility and another eight were satisfied with their salaries. The study also highlighted that a limited availability of social support in the work environment contributed toward not practicing in rural areas (Mbaruku *et al.*, 2009).

In Kenya, two studies have been conducted to assess the factors affecting HRH retention. The first study was conducted in Trans-Nzoia, Kenya (Butaki, 2015), and it was recognized that nurses' intention to leave or stay at rural hospitals are influenced by institution's capacity to integrate various human resource management practices with the inclusion of training and development component of medical staffs, effective policies for improving work-life balance and maintaining congenial working environment. The second study highlighted the factors affecting motivation and retention of health professionals in three regions of Kenya (Gikuya, 2014). The study recommended the establishment of policies for the provision of non-monetary packages, benefits and other feasible interventions that can support health care staffs to stay in rural areas.

Similarly, one study conducted in Eastern Cape, South Africa, revealed that that poor working conditions tend to be associated with frustrations among doctors that hinder the institution's capacity to retain them in rural health posts (Longmore and Ronnie, 2014). In the same way, the lack of career development and training opportunities among health workers leads to frustration that is associated with decrease in the intention to stay of

medical staffs in Malawi (Manafa *et al.*, 2009). Recently, a study in Sierra Leone investigated the health workers intention to stay in rural areas (Wurie *et al.*, 2016). It indicated that careful attention on focussed policies for improving financial conditions as well as non-financial factors is needed to increase the rural retention of health professionals.

There are two studies conducted in Nigeria in this area. The first study was conducted in Ogun state, and it investigated the factors affecting the attraction and retention of qualified health professionals (Ebuehi and Campbell, 2011). The finding indicated that health professionals' motivation mainly depends on the improvement of working conditions and provision of ample career development opportunities. The second study that was conducted in Lagos state (Oyetunde and Ayeni, 2014) aimed at knowing the factors affecting the retention of nurses in rural areas. The study revealed that the availability of training and career development opportunities is crucial determinants for nurses to decide whether they want to stay or leave. Apart from this, the study recommends other strategies such as the provision of financial assistance for attending the conferences, communicating with other health workers and helping those who feel rural isolation and ensuring safety in rural areas that can improve rural retention. The study also highlights that timely promotion and provision of leave are other good policies to motivate and retain health workers to continue in rural service.

Factors associated with retention, such as job satisfaction, have also been reported in the literature (Van Dick *et al.*, 2004). However, it is crucial to understand which specific aspects of job satisfaction affects retention. One study explored the health workers' satisfaction with the job reward that affected their retention intention in rural areas. The study identified that the retention was mainly affected by satisfaction with financial reward, psychological reward and material reward. Moreover, along with job satisfaction, other individual variables such as age, gender and family responsibilities also play a vital role affecting the retention level in rural areas (De Gieter and Hofmans, 2015).

### Context

India is the second most populous country in the world (17.5 percent of the global population), with around 74 percent of people residing in rural areas (Census of India, 2011). India suffers a huge scarcity of HRH, as well as equitable distribution of clinical care providers, within regions of its national boundaries. In 2014, World Health Organization (WHO) estimated the availability of about 7.4 doctors and 17.1 nurses per 10,000 populations in the country during 2006–2013 (World Health Organization, 2014). About 27 percent of doctor posts are vacant at primary health centers (PHCs) of India. At the community health centers (CHCs), the shortage is even more staggering, as 82 percent of pediatricians, 84 percent of surgeons, 76 percent of gynecologists and obstetricians, and 83 percent of doctor posts are vacant (Ministry of Health and Family Welfare, 2015). Also, the country had a shortage of 12,956 posts for nursing staff in PHCs and CHCs in 2014 (Ministry of Health and Family Welfare, 2014). The rural scarcity is even more prominent than urban availability of health care professionals. The doctors, nurses and midwives availability in urban (rural) India are 11.3 (1.2) and 4.3 (0.7) per 10,000 population, respectively (Rao *et al.*, 2012). In 2011, there were only 1.5 nurses per doctor (High Level Expert Group, 2011) that was low as per the 1993 World Development Report, (World Bank, 1993) which recommended the nurse-to-doctor ratio in a country to be two to four nurses to one doctor or higher, to meet the best for the provision of quality care. Thus, the health workers in India are very scarce in absolute numbers and under-represented in rural vs urban areas (Rao *et al.*, 2011, 2013).

Odisha (formerly known as Orissa) state is located in the eastern part of India with a population of around 42.0m (Government of India, 2011). Its capital city is Bhubaneswar. The state has a large proportion of disadvantaged sections of population, mainly scheduled caste (SC) (17 percent) and scheduled tribe (ST) (23 percent). SC and ST are special caste and tribal groups, as recognized by the constitution of India, 1949. These

communities face social exclusion and are, thus, granted government welfare facilities to uplift their socio-economic status. Additionally, these special communities are among the most deprived groups, with undeveloped economies and low health indicators in India (Balarajan *et al.*, 2011). Odisha has a total of 30 districts, where the 11-district southern region is known as KBK+ and is comprised of the districts of Kalahandi, Bolangir, Koraput, Khandhamal, Malkanagiri, Boudh, Gajapati, Nabarangpur, Nuapada, Rayagada, Sonepur and another 19 districts known as non-KBK+. KBK+ have a large proportion of ST and SC populations (56 percent) as compared to non-KBK+ (35 percent). KBK+ districts have poor health indicators (Rahman, 2016) and extremely food insecurity compared to non-KBK+ districts (UN World Food Program and India Institute of Human Development, 2008) are covered with hilly terrain, and have poor access to road transport, which tends to obstruct health service delivery (de Arjan and Dubey, 2005). In KBK+, all rural areas are designated as tribal.

Furthermore, the Odisha public health system consists of a three-tier structure. The district hospital (DH) and sub-divisional hospitals (SDH) are located at the district level to provide mainly secondary care and serve around 1.3m people. At the local block level, CHC provides both curative and preventive services and serve around 100,000 population. Three to five Primary Health Centers (PHCs) are present under each CHC, which provide primary health care services to a population of about 25,000–30,000 each. The government has divided all the 1,751 peripheral health facilities into five categories (ranges from V0 to V4), V0 being the least rural areas and V4 being the most remote and difficult areas. The state defined remote and difficult areas where people have limited access to medical workers and quality health care services. These areas are graded based on the vulnerability status of the places, taking into consideration key parameters such as remoteness and hard to reach of the location, tribal dominance, left wing extremisms, train communication, road and transport facilities, social infrastructure, distance from state head quarter, etc. (Department of Health & Family Welfare, 2015).

Furthermore, Odisha faces a severe scarcity of medical doctors among all states of India. Around 24 percent of doctor posts at various professionals' levels across the state are vacant (Kadam *et al.*, 2016). Furthermore, the availability of physicians per 10,000 population in Odisha is 3 times lower than that of other states of India, such as Kerala and Goa (Nallale *et al.*, 2015). The nurse-to-doctor ratio in the state is only 0.6:1, which is very low compared to the strongly recommended 3:1 nurse-to-doctor ratio (Department of Health and Family Welfare, 2010).

Despite various efforts made by the government to recruit and retain HRH, particularly doctors and nurses, in underserved and rural locations, retention has become a key challenge. Physicians and nurses prefer to work in city areas rather than rural and remote areas due to better financial avenues, superior working conditions, and ease of access to facilities and infrastructure. They can also enjoy a better living environment and better opportunities for sending their children for higher education (Behera and Na-nongkhai, 2014). Recognizing this importance, in 2010, the WHO addressed the long-standing problem of the acute shortages of health workers and then developed evidence-based recommendations for an improved retention of the health workforce in remote and rural areas, in four major policy domains: education, regulatory, financial incentives and professional and personal support and 16 recommendations under four policy domains (WHO, 2010). The recommendations made by WHO and its early implementation have been studied and discussed on international levels (Buchan *et al.*, 2013). Furthermore, there is a dearth of studies in India to retain medical workers in rural areas with reference to the WHO policy guideline. Therefore, the current study adds an important contribution toward analyzing rural retention policies, based on the aforementioned WHO policy recommendations and determining how these policies could help in retaining health workers, especially medical doctors and nurses in Odisha state, India.

## Methods

### *Study design*

The study was conducted in Odisha, state of India. Qualitative research was employed, which included document review of national and state policies relevant to rural retention and key informant interviews with policy elites (i.e. policy makers, planners and researchers). The data collection and analysis were carried out from December 2016 to February 2017.

### *Literature search*

The literature search included the relevant literature in electronic database including SCOPUS, MEDLINE, CINAHL and Google Scholar. We used the keywords in the subject headings with the following combinations such as “doctors,” “nurses,” “midwives,” “community health workers,” “human resources for health,” “health-care professionals,” “health workers,” in combination with “India,” “underserved,” “remote,” “rural,” “recruitment,” “deployment,” “retention,” “rural retention policy,” “retention strategy,” “education” “regulatory,” “financial incentives,” “mandatory service,” “salaries,” “personal development” or “professional development.”

The WHO policy framework for rural retention of health workers was used to assess the policies relevant to rural retention in Odisha under four major domains: education, regulatory, financial incentives and personal and professional development.

### *Data collection: document review*

We reviewed policy documents on HRH in both national and state context. Although Odisha does not have a separate policy on rural retention, some policy documents have a sections on HRH development and rural retention issues. Therefore, at the beginning, the tentative list of relevant policy documents was prepared with the discussion of the study team. Furthermore, this list gradually enriched after receiving suggestion from the key informants’ at the time of interview process. The first author also got permission from the Department of Health and Family Welfare (DOHFW), Odisha, to access policy documents that would be unavailable to public to access. Thus, we analyzed Odisha government reports, notifications, guidelines and circulars on HRH such as on overall HRH plans, Orissa Health Sector Plan (OHSP), vulnerability status reports of health facilities, location-based incentives for the Medical Officers (MOs) working in V1–V4 health institutions, State Service Codes (1959) and the State Services Manual (2004). Furthermore, a comprehensive search of government website including the website of international and non-government organizations and academic databases was conducted. In addition, peer-reviewed journals on HRH were included for review.

On the basis of the WHO policy recommendations for rural retention on HRH, we examined the relevant policy documents and literature under four major headings: education, regulatory, financial incentives, professional and personal support (Table I).

### *Data collection: key informant interviews*

We interviewed high-ranking officials working in the rural retention of HRH in Odisha. A list of key informants was tapped as discussion with the policy makers at State Human Resource Management Unit under the DOHFW, Government of Odisha. The key informants were selected based on their qualification, past experience, present involvement with HRH rural retention, and interrelated issues. We selected eleven key informants for interview who represented administrators, policy makers, and researchers from the nursing, medical and other associated areas. The key informants included eight key people (mainly policy makers and planners) from different directorates under DOHFW. These included high-ranking officials one each from Directorate of Health Services, Directorate of Public Health, Directorate of Medical

Category of intervention	Example
Education	Students from rural backgrounds: target admission policies to enroll students with a rural background in education programs for health facilities Health professional schools outside of major cities: locate health professional schools and family medicine residency programs outside major cities Clinical rotations in rural areas during studies: during, studies, arrange clinical rotations in remote and rural areas Curricula that reflect rural health issues: revise curricula to reflect the main issues in rural health Continuous professional development for rural health workers: develop programs of continuous professional development for rural health workers
Regulatory	Enhanced scope of practice: introduce enhanced scopes of practice in remote and rural areas Different types of health workers: introduce different types of health workers in remote and rural areas Compulsory service: implement compulsory service in remote and rural areas Subsidized education for return of service: subsidized education for return of service in remote and rural areas
Financial incentives for rural health workers in remote and rural areas	Provide appropriate financial incentives
Professional and personal support for rural health workers in remote and rural areas	Improve living conditions Develop a safe and supportive working environment Provide outreach support Provide career development programs Support the development of professional networks Adopt public recognition measures

**Table I.**  
World health organization policy recommendations to improve the recruitment and retention of health workers in remote and rural areas

**Source:** Adapted from WHO (2010)

Education and Training, Directorate of Family Welfare, Directorate of State Institute of Health and Family Welfare, Directorate of Nursing (DON), Department of Leprosy and State Human Resource Management Unit. Also, one researcher from an academic and research institute at Bhubaneswar was included. We also included two independent health consultants – one representative from medical doctors and another from the nursing profession. Key informant guidelines were used for key informant interviews. Interviews were recorded and notes were taken. Later verbatim transcription was performed. Then, all transcripts were read carefully to check if any information was missing (matched with hand written notes) or for any inconsistencies found. We assured that anonymity and confidentiality of key informant information was strictly maintained. Each interview lasted for 40–60 min.

Key informant interviews mainly focussed on government policies for improving the rural retention of medical workers mainly doctors and nurses with reference to the 16 recommendations made by WHO (2010).

### *Data analysis*

After the completion of qualitative data collection, all transcripts were compiled and thoroughly read for familiarization of data purposes. General codes were identified from transcripts and the information categorized based on education, regulatory, financial incentives, professional and personal support. Interviews identified main themes and sub-themes, which were then rearranged with key thematic words under relevant headings

and sub-headings, based on the WHO policy recommendations: educational, regulatory, financial incentives and professional and personal support. Finally, the information under particular headings were reviewed and interpreted. Then, we prepared a tabular matrix that consisted of 4 domains and 16 sub-domains corresponding to the WHO policy options, which was used for presenting the results. We also made efforts to triangulate information from the interviews and document review. The key informant interview guidelines document was verified by three public health experts, two researchers, and two clinicians working in the local areas, to ensure the relevance of its content to the local context.

#### *Ethical approval*

The ethical approval of this study was taken from the Institutional Review Board (IRB) of Mahidol University, Bangkok (COA No. MUPH 2016-094). The study was also approved by the Research Committee, Department of Health and Family Welfare, Government of Odisha (Letter No. 179/SHRMU). The study objectives and data collection process were thoroughly informed to the key informants before conducting interviews. Verbal informed consent was taken from all key informants prior to the interviews.

#### **Result**

Since the independence of India in 1947, the Indian health care approach has mainly focus on an “equitable health care system” and a number of policies relevant to HRH have developed, starting from the Bhore Committee Report in 1946 (Government of India, 1946) to the recent National Health Policy in 2017 (Ministry of Health and Family Welfare, 2017). However, these policies are not particularly aimed for improving the retention of HRH in rural areas. In the Odisha context, the formulation of major health sector policy plan such as Government of Odisha (2002) and “OHSP” has been witnessed. The later follows specific targets, indicators and sector-wide approach to achieve the objectives of the former. Over these years, Odisha has made notable progress toward formulating and implementing various policies toward the improvement of health indicators (Thomas *et al.*, 2015). The thematic areas identified in this study are presented with reference to WHO’s 4 policy domains and 16 sub-domains for an improved retention of health professionals in rural and remote areas.

#### *Educational policies*

In Odisha, no seats are allocated for applicants from the district to which they originally belong. However, there is other reservation policy that exists for SC, ST communities, Socially and Educationally Backward Classes of citizens and Persons with Disabilities for medicine and nursing studies. The Odisha Reservation of Vacancies in the Posts and Services Act of 1975 is followed for admission. In 1944, the state established the first medical college; however, most medical colleges were located in major cities of Cuttack, Berahampur, Burla and Bhubaneswar. At present, the Odisha government has taken initiative that encourage establishing medical colleges outside the major cities. Also, the first nursing college was established in Berhampur city in 1983 and other nursing colleges were located in other major cities. However, nursing institutions that offer diploma and BSc nursing course were distributed across the districts (i.e. outside of the major cities) (Indian Nursing Council, 2016).

The medical curriculum of MBBS program allows students to spend 30 days in rural areas as part of their community placement or internship program. There is also field practice for nursing students. However, the duration of field practice varies among government and private nursing colleges. The Medical Council of India (MCI) and Indian Nursing Council (INC) provide uniform education standards for doctors and nurses across the country and play an important role toward formulation, implementation and revision of medical and nursing

curriculum. Other departments of Odisha, such as Directorate of Medical Education and Training and DON, also play a key role in this process. There is also an opportunity for medical doctors and nurses to undergo diploma courses and short-term training programs in both public health and clinical disciplines. Over the last 10 years, Odisha has been devoted to the health sector reforming and developing a number of health sector plan. These included Health Equity Strategy (2009–2012) and the Nutrition Operational Plan (2009–2015) (Thomas *et al.*, 2015). The details are outlined in Table II.

### *Regulatory provisions*

The government has started the posting of newly recruited doctors for a minimum of three years to work in rural health facilities in KBK+ and the designated tribal blocks of non-KBK+. There is also a provision of preferential entry to post-graduation (PG) for doctors who have served in KBK+. Government has also given preference to fill-up vacancies located in hard to reach and the remote health facilities. Moreover, India's National Health Policy of 2002 and 2017 emphasizes the equitable distribution of health workers through the deployment of additional health workforce particularly in hard to reach and rural health facilities. The National Health Policy 2017 also includes the creation of public health management cadre in all states of India. The details are outlined in Table III.

### *Financial incentives*

The medical and nursing education cost in government colleges, set out by the government of Odisha, is relatively reasonable. There is a provision of additional financial

Medical profession	Nursing profession
<i>Students from rural backgrounds</i> No targeted policy to enroll students from rural backgrounds No seats are allocated for district quotas to get admission in public and private medical colleges Some percentage of seats are allocated to SC, ST and other disadvantaged sections of population in private and government medical colleges	No targeted policy to enroll students from rural backgrounds In public and private medical colleges, no seats are allocated for district quotas Some percentage of seats are allocated to SC, ST and other disadvantaged sections of population in private and government medical colleges
<i>Health professional schools outside of major cities</i> Initiatives are taken to establish four new government medical colleges outside the capital city (Bhubaneswar)	Initiatives are taken to establish new nursing schools outside the major cities
<i>Clinical rotations in rural areas during studies</i> Provision of 30 days of community placement during MBBS studies. This is also referred as the Primary Care training program	Community placement/field practice duration varies in public and private colleges depending upon the subjects and semesters
<i>Curricula that reflect rural health issues</i> Subjects such as population health, rural health, community and preventive medicine topics are included in the MBBS curriculum which is regulated by Medical Council of India (MCI) Initiatives are taken by MCI to revise and implement the MBBS curriculum	Contents related to population health and community health nursing are included in the nursing curriculum regulated by Indian Nursing Council (INC) Initiatives are taken by INC to implement and revise nursing curriculum
<i>Continuous professional development</i> Provision of in-service training exists Provision of capacity building program time to time through need based approach	Provision of in-service training exists Provision of exposure visit/skill upgradation program available time to time

**Table II.**  
Educational policy  
for doctors and nurses  
in Odisha



**Table III.**  
Regulatory policy  
for doctors and  
nurses in Odisha

Medical profession	Nursing profession
<i>Enhanced scopes of practice</i>	
Doctors are allowed to private practice without any specific fees beyond office hours	There is no specific information regarding private practice of nurses
<i>Production of different types of health workers</i>	
Community health workers such as Accredited Social Health Activist (ASHA) and other paramedics such as laboratory assistants, medical assistants, pharmacist and physiotherapists are already available. Further, Initiatives are taken to include other paramedics such as radiotherapy assistants, CT scan assistants, ECG scan assistants, etc.	Currently, nursing related courses and programs such as BSc nursing, post-basic nursing, MSc nursing, diploma in nursing are available
<i>Compulsory service in rural areas</i>	
Provision of 3 years of rural service in KBK+ districts and some designated tribal blocks of non KBK+ districts Provision of 10% extra mark added in every year to maximum 30% for 3 years of rural service for post-graduate study to encourage doctors to complete rural service period Preferences to fill-up vacancies in hard to reach and remote health facilities	There is no provision of compulsory rural service
<i>Subsidized education for return of service</i>	
Scholarship, educational subsidies and other training subsidies are present, but not predominantly focussed to retention efforts in rural areas	Provision of training, scholarship and education subsidizes, but not predominantly focussed to retention efforts in rural areas

incentive for medical doctors working in rural health facilities. Before 2015, financial incentives of 8,000 Indian rupees (\$124) per month at peripheral and 4,000 Indian rupees (\$62) per month at districts hospitals in KBK+ districts were being provided (Kadam *et al.*, 2016; Nallale *et al.*, 2015; Department of Health and Family Welfare, 2010). Also, incentives of 3,000 Indian rupees (\$47) per month were being given to specialist doctors (Kadam *et al.*, 2016). In 2015, by analyzing the severe scarcity of doctors in remote and underserved areas, the Odisha government introduced the new provision of location-based financial incentives for MOs and specialists working in remote and difficult areas of health facilities (Department of Health & Family Welfare, 2015). This scheme is available to those MOs and specialists working in V1–V4 health institutions (see Table IV). Under this scheme, MOs get Indian rupees 40,000 (\$628) and specialists get 80,000 (\$1,256) as part of their additional financial incentives, along with monthly salary for most remote and difficult V4 institutions. Currently, this incentive scheme covers 18 districts (all 11 KBK+ districts, plus 7 non-KBK+ districts of Sambalpur, Mayurbhanja, Bargarh, Deogarh, Kendrapara, Keonjhar and Sundargarh) of Odisha (Department of Health & Family Welfare, 2015). However, this place-based incentive is not applicable to other rural areas of Odisha. Also, such provisions are not available to nurses working in rural areas. The details are outlined in Table V.

*Professional and personal development*

The government has a provision of accommodation facilities for medical workforces working at rural hospitals. The government has also shown commitment for creating a supportive work environment to retain health professionals in remote areas. However, the

Sl No.	Category of hospital	Grading of hospital	Amount of incentives for MOs	Amount of incentives for specialists
1	DHH	V4	Rs 20,000 (\$314)	Rs 40,000 (\$628)
2	SDH	V4	Rs 20,000 (\$314)	Rs 40,000 (\$628)
3	CHC	V4	Rs 40,000 (\$628)	Rs 80,000 (\$1,256)
4	PHC	V4	Rs 40,000 (\$628)	NA
5	DHH	V3	Rs 15,000 (\$235)	Rs 30,000 (\$471)
6	SDH	V3	Rs 15,000 (\$235)	Rs 30,000 (\$471)
7	CHC	V3	Rs 30,000 (\$471)	Rs 60,000 (\$942)
8	PHC	V3	Rs 30,000 (\$471)	NA
9	DHH	V2	Rs 10,000 (\$157)	Rs 20,000 (\$314)
10	SDH	V2	Rs 10,000 (\$157)	Rs 20,000 (\$314)
11	CHC	V2	Rs 20,000 (\$314)	Rs 40,000 (\$628)
12	PHC	V2	Rs 20,000 (\$314)	NA
13	DHH	V1	Rs 5,000 (\$78)	Rs 10,000 (\$157)
14	SDH	V1	Rs 5,000 (\$78)	Rs 10,000 (\$157)
15	CHC	V1	Rs 10,000 (\$157)	Rs 20,000 (\$314)
16	PHC	V1	Rs 10,000 (\$157)	NA

**Note:** NA, not applicable, as specialists do not work at PHC level

**Sources:** Notification No. 13053/H, DOHFW, Government of Odisha, 2015; \$1 = 64 Indian rupees at the time of study

**Table IV.** Monthly location-based financial incentives for MOs and specialists working in V1–V4 health facilities in Odisha

#### Medical profession

##### *Provide appropriate financial incentives*

Provision of location-based incentives to the Medical Officers and specialists working in remote and hard-to-reach areas (categorized into V1–V4) in 18 districts of Odisha

#### Nursing profession

No additional financial incentives are available for nurses working in rural areas

Efforts are made to introduce specific monetary incentives for retaining HRH in rural areas

**Table V.** Financial incentives policy for doctors and nurses in Odisha

approaches for improving work environments have not been clearly defined. Many government policies highlight the need for training and higher education facilities for medical workers. Doctors after completing post-graduate training in medicine can get promotion to “specialist” and are engaged for working in CHC, district and state public hospitals. There are few professional bodies in Odisha that support the development of health professionals both personally and professionally, which include the Indian Medical Association (IMA) and the Trained Nurse Association of India (TNAI). The details are outlined in Table VI.

## Discussion

The current study assessed rural retention policies of HRH in Odisha, state of India in reference to WHO’s 4 policy domains and 16 recommendations on increasing access to health workers in remote and rural areas through improved retention (WHO, 2010).

### *Education*

The study results showed that Odisha does not have any targeted policy to enroll students from rural areas. Preferential seatings or district quotas have not been practised neither in public nor private medical and nursing colleges. The existing reservation system in medical and nursing colleges provides opportunity for disadvantaged sections of society, who come from rural background, to enter into health profession; however, challenges remain toward the

**Table VI.**  
Personal and  
professional support  
policy for doctors and  
nurses in Odisha

Medical profession	Nursing profession
<p><i>Improve living conditions</i> Provision of accommodation at rural hospitals at PHCs and CHCs in government quarters upon availability</p>	<p>Accommodations at PHCs and CHCs are provided at government quarters upon availability</p>
<p><i>Safe and supporting working environment</i> Emphasis are given for creation of safe and supportive work environment for retaining HRH in rural areas by addressing multiple factors</p>	<p>Emphasis are given for creation of safe and supportive work environment for increase retention of health care professionals in rural areas by addressing multiple factors</p>
<p><i>Outreach support</i> Currently, telemedicine services are available in all district hospitals of Odisha. These services are under process to be set up at rural hospitals for special care outreach from specialist doctors from medical colleges</p>	<p>Telemedicine services has been started in limited locations of rural hospitals</p>
<p><i>Career development programs</i> Provision of post-based promotion and promotional benefits for position exist</p>	<p>Selection of one of the three cadre such as clinical nursing cadre (nurses to chief matrons), teaching nursing cadre (tutors to principal/director) and public health nursing cadre (midwives to district public health nurse officer) are available</p>
<p>Promotion in position and ranking is purely based on seniority Post-graduation education is not important for promotion in higher position/ranking. However, doctors are declared as specialist after acquiring post-graduation degree and work experience</p>	<p>Promotion in position and ranking is purely based on seniority Provision of training and access to higher education exist</p>
<p><i>Professional networks</i> Professional bodies such as Indian Medical Association (IMA), Indian Association of Physicians (IAP) and Federation of Obstetrics and Gynaecological Societies of India (FOGSI) affiliated to Odisha plays an important role in the development of for professional capacities and establishment of network between physicians and other health cadre</p>	<p>Professional bodies such as Trained Nurse Association of India (TNAI), Nursing Research Society of India (NRSI) affiliated to Odisha plays an important role in the development of professional capacities and establishment of network between nurses and other health cadre</p>
<p><i>Public recognition measures</i> Government has a provision to reward best performing district hospitals under Kaya Kalpa project of National Health Mission program – a government of India project Currently efforts are underway to go for rewarding best performing rural health facilities</p>	<p>National Florence Nightingale Nurses award exist for the meritorious services render under Government of India project</p>

execution of these provisions effectively. The literature mentions that pupils selected from rural communities tend to work and stay for rural practice for longer periods than those coming from other sections of society (Laven and Wilkinson, 2003; Woloschuk and Tarrant, 2004; Walker *et al.*, 2012; Wilson *et al.*, 2009). A systematic review, for instance, found that physicians coming from rural and underserved backgrounds are twice as likely to continue to work in rural areas, in comparison with those doctors coming from other backgrounds (Laven and Wilkinson, 2003). Studies of different countries such as Australia (Walker *et al.*, 2012) and South Africa (de Vries and Reid, 2003) found that doctors from rural backgrounds were ten times more likely to join rural areas than doctors from other backgrounds.

Currently, the Odisha government has taken initiatives to establish a few health professional colleges and new hospitals outside the major cities. There is an establishment of four new government medical colleges and hospitals in districts of Koraput, Bolangir (KBK+), Mayurbhanj and Balasore (non-KBK+) (Department of Health & Family Welfare, 2017). This event might have arisen due to improvement in basic facilities, such as access to roads and transportation, electricity, improved education, sanitation and water supply. In addition, in recent years, the government's efforts to strengthen public-private partnerships to expand health services, outside the capital city of Bhubaneswar, have been noticed. Furthermore, medical institutions have 30 days of community placement in rural areas during the MBBS program. The international literature suggests that community placement during undergraduate program can influence student's choosing to take up rural jobs (Walker *et al.*, 2012; Halaas *et al.*, 2008; Tolhurst *et al.*, 2006). A study conducted by Walker *et al.* (2012) found that around 86 percent of students considered working in remote and rural locations after the completion of their rural exposure training. However, there is no significant evidence available on the effectiveness of community placement or clinical rotation in rural areas on retention rates. Pieces of evidence highlighted the curricula that focus more on rural health topics, in some instances, increase the number of health care professionals willing to work in underserved areas (Kaye *et al.*, 2010). Also, with the continuation of current medical and nursing education in Odisha, the government has taken a number of initiatives for the improving access to health services, especially in KBK+ districts. This included upgrading and new construction of rural hospitals, capacity building among community health workers, known as Accredited Social Health Activists (ASHA) and implementation of mobile health units (MHU). The MHU have become the key health care provider in hard to reach and remote villages. One study concluded that MHU meet around 80 percent of health care needs of households who reported ailments in last six months and saved households \$4-6 on transportation expenditures to the nearest rural hospitals (D-Cor Consulting Private Limited, 2011). Furthermore, the scarcity of clinical providers has led the government to shift primary care-driven approaches by focussing on strengthening of its public health workforce. The state plans to establish a public health cadre and to double the number of nurses by 2017 and to invest in the nursing profession. Scholarships have been given to female nursing students from ST and SC categories at Indian rupees 50,000 (\$780) and 15,000 (\$234) per year for KBK+ and non-KBK+ districts.

### *Regulatory*

International studies suggest that in many countries there are some forms of compulsory rural service available (Reid, 2001; Frehywot *et al.*, 2010). In Thailand, the rural health service offered by the doctors is coming under compulsory rural service scheme (Wongwacharapaiboon *et al.*, 1999; Wibulpolprasert and Pengpaibon, 2003). In Bangladesh, there are also provisions of mandatory rural service for doctors (Ministry of Health and Family Welfare, 2008). However, few studies have assessed the impact of these compulsory rural service schemes toward improving rural retention (Frehywot *et al.*, 2010). In Odisha, the appropriate distribution of medical doctors is a concern for ensuring better quality health care services and stands most priority for the government. Therefore, government has made a provision for compulsory service in rural hospitals for minimum of three years in KBK+ districts and other designated tribal blocks of non-KBK+. However, such scheme does not apply to nurses in their appointment to jobs. Enforcing regulatory provisions for doctors to complete rural service period in hard to reach and remote areas of Odisha has also been challenging. For instances, to ensure that doctors really join in their duties and after that continuing rural service as well as staying these posts is a challenge for the governments (Kadam *et al.*, 2016). More so, the lack of strong leadership roles and frequent political interference in the state discourage the administration from taking the right decision and, thus, many doctors who have been posted to rural areas have not stayed for a

long time. The state is also struggling with rigorous monitoring and evaluation of such schemes, additional incentives (monetary and non-monetary), and unfair transfer policies for those doctors completing their rural service period. This results in an unfair distribution of HRH in urban vs rural areas, leaving greater distribution of doctors in urban areas vs unqualified health professionals in rural areas (Nallale *et al.*, 2015). Furthermore, regional differences exist within the state, which includes KBK+ having less health professionals than non-KBK+ and which directly impacts service delivery and health outcomes. Therefore, placing a particular policy like rational rotation of health care workers especially doctors from rural to urban areas after a fixed period might bring transparency to the health system across various levels of health facilities that is central for establishing a fair mechanism of deployment.

#### *Financial incentives*

An appropriate provision for financial incentives for medical professionals serving in underserved locations is critical in attracting and motivating health workers to work in rural areas (Kadam *et al.*, 2016; Marc *et al.*, 2009). Physicians of Odisha, for instance, receive additional location-based financial incentives for working in V1–V4 health institutions. This location-based incentive is a huge budgetary allocation of government aiming to motivate and attract doctors to stay in remote areas and provide health care to people. However, there is a concern that this location-based incentive has not been dispensed timely along with doctors' monthly salary. In India, financial incentives are a commonly used strategy to attract physicians to serve in rural areas. Ample evidence suggests that though financial incentives are important, the inclusion of other benefits, such as improved living and working conditions, better housing, schooling and access to transportation, can significantly improve health workers choice to work in rural areas (Kotzee and Couper, 2006; Lehmann *et al.*, 2008; Sheikh *et al.*, 2012; Mullei *et al.*, 2010; Blaauw *et al.*, 2010). Current conditions include that although there is an existing provision for accommodation facilities within the premises of rural hospitals for medical workers in Odisha, the rural infrastructure has improved significantly in the last few years, but is still in progress.

#### *Professional and personal support*

Grobler *et al.* (2009) in their systematic review suggested that training opportunity, health service management, and professional and personal support may influence medical workers to work in rural and remote locations. At the same time, a career ladder is important for the professional development of health professionals to understand their career path (WHO, 2010). Thus, the career ladder stands as a critical indicator, especially in government medical workers where hierarchical professional growth clearly defines into which career path they opt to work. A study carried out in Nepal indicates that health care professionals consider their career path as an important factor in deciding where to work (Butterworth *et al.*, 2008).

Current policies in Odisha toward career path of health professionals are not favorable for rural retention (Kadam *et al.*, 2016). There is no provision, such as promotion or ranking exist for those health workers who have completed post-graduate studies for their career tracks. The promotion of public doctors is based on the year of service and seniority that is based in the gradation list of the cadre. Also, these provisions get diluted due to political interference that limit its effectiveness. Recruitment, deployment, transfer and promotion policies for doctors and nurses are not clear, a fact which is criticized often. Also, the current health system does not provide formal recognition to doctors and nurses, which negatively impacts health service delivery.

The available information suggests that professional associations may influence the rural retention of health care professionals to some extent and development of rural health program (Wibulpolprasert and Pengpaibon, 2003). For example, the “Rural Doctors Society and Foundation” of Thailand is the association of doctors that can significantly contributed toward strengthening the health services in rural areas, implementation of tobacco control policies and drug policies, etc. (Wibulpolprasert and Pengpaibon, 2003). Odisha has a few associations that are affiliated to IMA and TNAI, which play key roles in formulation and implementation of health-related policy issues, improvement of health services, and service delivery mechanism. This study captured overall policy-related issues regarding rural retention of health workers in Odisha, specifically targeting medical doctors and nurses. However, it excluded other types of health workers who also play crucial roles in health service delivery in rural areas. These cadres include Accredited Social Health Activist, lab technicians, pharmacists and alternative medicine AYUSH (Ayurveda, Yoga, Unani, Sidha, Haemopathy) doctors, who are posted in rural hospitals and play key roles in the provision of primary health care (Behera and Na-nongkhai, 2014). Therefore, this study explored the policies related to education, regulatory, financial incentives, personal and professional development implemented to support health workers, especially doctors and nurses toward the recruitment, deployment, and retention process for developing an improved overall picture of the retention of HRH in rural areas of Odisha.

### Conclusions

The retention of professional health workers is a noteworthy issue to ensure equitable access to health care services and maintaining a well-functioning robust health care system. Over the last few years, Odisha’s Government efforts to adopt and implement various health-related policies to retain health professionals in remote and underserved areas have been commendable. This has been reflected in this study through the policies such as education, regulation, financial incentives, professional and personal support for medical and nursing profession. However, Odisha still struggles in terms of clear polices and provisions for attracting and retaining health workers in rural areas. Therefore, the important task ahead for the state government is to specify transparent policies and provisions for rural retention and recruitment of HRH, as well as deployment, and transfer policy processes. Recruitment and deployment stand vital for Odisha government to ensure the availability of adequate staff and their equitable distribution in rural areas so that better health care services can be delivered to rural population. Policies toward the establishment of new medical schools outside the capital and other major cities need to be established. The preferential selection of enrolling students from rural back ground in medical and nursing studies might be useful with the condition that students after completing their studies should preferably return and work in their native villages followed by placements in rural areas. This could help them to advocate further developments in rural and remote facilities. The medical and nursing curriculum revision prioritizing the exact health needs of the entire country is essential. The curriculum must reflect more rural health topics, inclusion of long-period clinical exposure in remote and rural areas during studies, provision of equitable distribution of health care services across rural villages and urban cities, and investment of basic facilities and infrastructure for doctors and nurses in rural and remote areas. More so, a strong mechanism needs to be established for effective monitoring and evaluation of these policies. All these can be possible through strong political will, along with government’s commitment and support from professional bodies. This could help in achieving the sustainable development goal and increase the rural retention of HRH in India.

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