

## Original Research Article

# Competency mapping among Rashtriya Bal Swasthya Karyakram nurses in Kerala

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## ABSTRACT

**Background:** In India, birth defects, nutritional deficiencies, disabilities, and developmental delays among children cause significant public health challenges. The Ministry of Health and Family Welfare, aims to address these issues through the Rashtriya Bal Swasthya Karyakram (RBSK) program. RBSK nurses are the crucial part of this program. They screen the children between zero to eighteen years as a part of early intervention. This study mainly aimed to map the competencies among RBSK nurses from randomly selected districts of Kerala.

**Methods:** This qualitative study employed key informant interviews with the state nodal officer, district early intervention centre managers, and district coordinators; and in-depth interviews (IDIs) with RBSK nurses, as well as report and document review. Inductive coding was applied to two selected interview transcripts from each district, followed by deductive coding with the rest of the transcribed data to derive themes.

**Results:** The findings are presented using the 'core competencies of public health professionals' as revised and adopted by the council on linkages between academia and public health practice in 2021. RBSK nurses in Kerala exhibited proficiency in multiple domains, including knowledge of child health issues, clinical skills, communication, patient education, care for vulnerable population, organizing activities, electronic health record usage, multitasking, teamwork, and problem-solving skills.

**Conclusions:** This dedication and proficiency demonstrated by RBSK nurses in Kerala, serve as a global model for emphasising the importance of early intervention and comprehensive care for children.

**Keywords:** Child health, Competency, Kerala, Nurses, RBSK

## INTRODUCTION

The Ministry of Health and Family Welfare in India introduced the Rashtriya Bal Swasthya Karyakram (RBSK) in 2013 as part of the National Health Mission. This initiative focuses on screening and treating children for the 4 D's which are diseases, developmental delays, birth defects and deficiencies, from birth up to eighteen years of age.<sup>1</sup> In India, six to seven percent of newborns (1.7 million children) each year are born with birth defects which accounts for 9.6% of infant mortality.<sup>2</sup>

RBSK nurses, an integral part of this program, conduct the first level of screening at public health facilities. This aids in the early detection and referral of children with 4D's covering 31 health conditions, while ensuring that those referred to other hospitals receive appropriate and timely treatment.<sup>3</sup> RBSK nurses also work with the mobile health team to provide comprehensive care to remote areas.<sup>4</sup> In addition to ensuring early diagnosis with timely intervention and a continuum of care, they are also responsible for patient education, maintaining accurate health records and data management.<sup>5</sup>

In Kerala, a multi-pronged approach is utilised to detect the 4D's. ASHA workers conduct community-based newborn screenings, while Shalabham nurses (nurses trained in pre-discharge examination of newborns) conduct screenings at delivery points in hospitals. Additionally, screenings are conducted by RBSK nurses at Anganwadi centers and government or government-aided schools. Mobile health units are dispatched to far-flung areas for service provisions. Under the RBSK program, medical professionals receive essential training in child health screening and early intervention services, employing a 'cascading training approach' to ensure widespread uptake of requisite skills.<sup>6</sup>

Professionals involved in RBSK screening require skills such as knowledge of growth and development to enable the conduct of age specific screening procedures; effective communication with children, parents and other stakeholders; understanding family dynamics and providing anticipatory guidance; and proficiency in health promotion.

Mapping competencies can help to identify grey areas which can be overcome through processes such as training, which in turn will aid in achieving the vision of the program.

Hence, in this study, we preliminarily assessed the core competencies of RBSK nurses in selected districts of Kerala to identify the capabilities they have with respect to the skills required, which help them to effectively carry out the responsibilities assigned to them.

## METHODS

This descriptive, explanatory study with a qualitative approach used key informant and in-depth interviews (IDIs), review of reports and document review of reports and documents. Initially, key informant interviews (KIIs) were conducted among state nodal officer RBSK, RBSK district coordinators and district early intervention centre (DEIC) managers from six randomly selected districts in Kerala- two from the north (Kannur and Wayanad), central (Palakkad and Ernakulam) and south (Alappuzha and Thiruvananthapuram) zones. Based on these KIIs, IDIs were conducted among one to two RBSK nurses with high and low performances, as identified by each district's RBSK coordinator, based on their performance for the last 6 months in terms of screening, data entry, conducting camps and referral to DEIC. A total of 10 KIIs and 18 IDIs were conducted from June 2023-January 2024 (Table 1).

Secondary data from documents and reports, such as the monthly RBSK report, tour plan and Microsoft PowerPoint presentations that were presented during block conferences were also collected from RBSK nurses to better understand the scope of their roles and responsibilities.

Trained volunteers conducted KIIs and IDIs. All interviews were recorded with the interviewee's consent, transcribed and coded for data analysis. Inductive coding was applied to two selected interview transcripts from each district, followed by deductive coding with the rest of the transcribed data to derive themes.

The findings are presented using the framework 'core competencies of public health professionals' as revised and adopted by the council on linkages between academia and public health practice in 2021. These competencies are divided into eight domains, representing eight skill areas essential for those practicing, researching or teaching public health. The domains include communication, community partnership, public health science, policy development and program planning, leadership and systems thinking, management and finance, health equity and data analytics and assessment.

**Table 1: State and district level interviews conducted.**

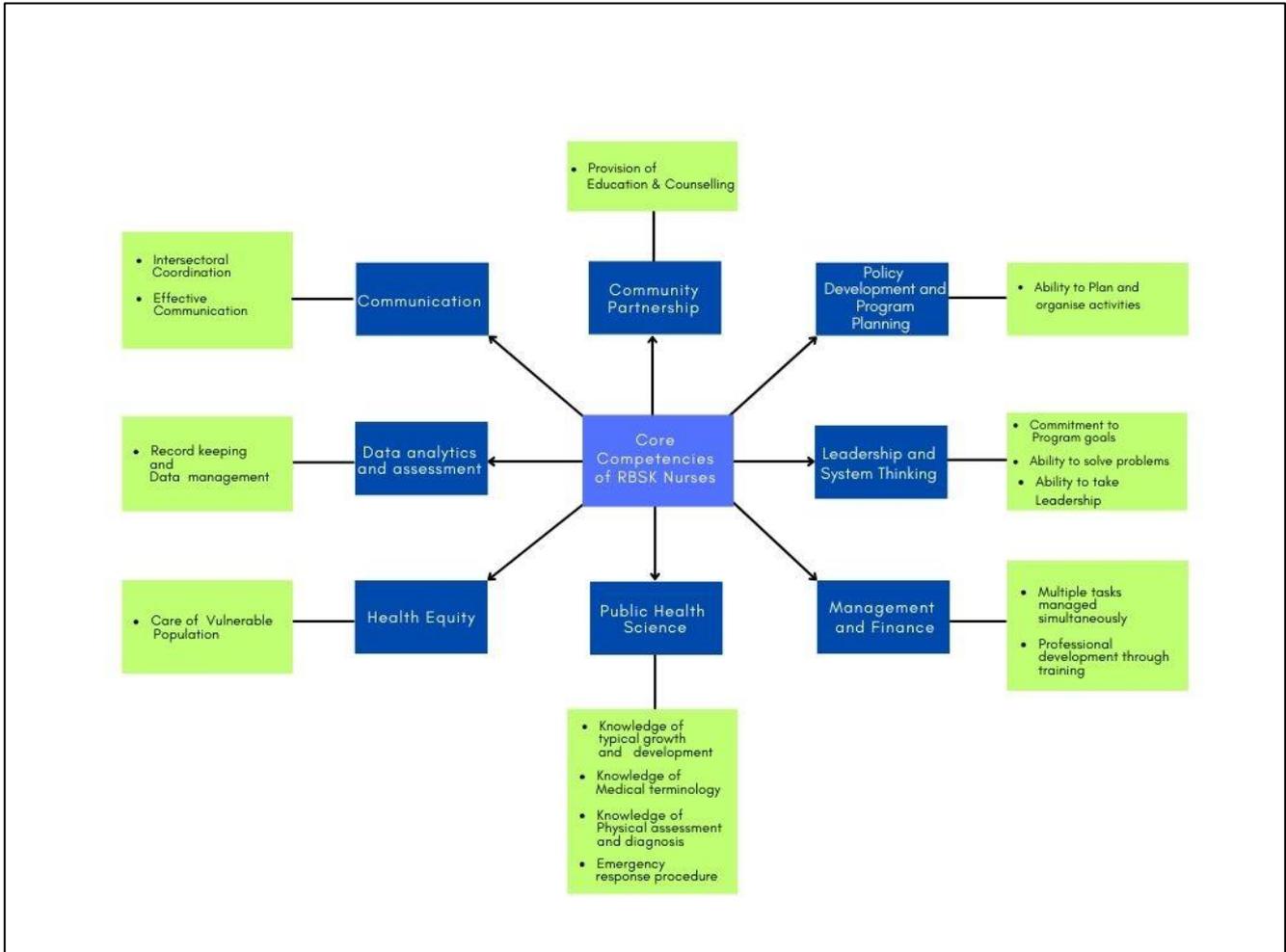
Districts	Data collection methods	Number of participants
<b>State level</b>	Key informant interview- SNO	1
<b>Kannur</b>	Key informant interview	1
	In depth interview	3
<b>Wayanad</b>	Key informant interview	1
	In depth interview	4
<b>Palakkad</b>	Key informant interview	1
	In depth interview	2
<b>Ernakulam</b>	Key informant interview	2
	In depth interview	3
<b>Alappuzha</b>	Key informant interview	2
	In depth interview	3
<b>Thiruvananthapuram</b>	Key informant interview	2
	In depth interview	3

## RESULTS

The RBSK nurses interviewed as part of this study had experience ranging from 2-14 years in the health sector, mostly working in public or private healthcare settings. Their qualifications were BSc nursing or junior public health nurse (JPHN)/auxiliary nurse midwifery (ANM) course. DEIC managers were typically MBA graduates in HR and marketing with an average experience of four to

five years in their current positions. RBSK coordinators bring varied expertise in clinical practice, education and administration. Most of them were previously staff nurses and lecturers with experience in public health coordination.

The study identified a comprehensive range of competencies among RBSK nurses in Kerala which have been detailed below using the identified framework.



**Figure 1: Core competencies for public health professionals, adapted from the council on linkages between academia and public health practice.**

**Domain 1- Public health science**

RBSK nurses need to have a deep understanding of child development milestones and related health issues, enabling them to identify and address problems early. Their proficiency in medical assessments and emergency response procedures ensures timely interventions, significantly enhancing paediatric healthcare outcomes in Kerala.

*Knowledge of typical growth and development, related health problems and medical terminology*

The RBSK nurses demonstrated a comprehensive understanding of typical child development milestones and diagnosis of related health concerns. The nurse monitors these developmental milestones by asking

mothers about their child’s progress, ensuring that any deviations from typical development are promptly identified and addressed. Their strong grasp of medical conditions and related terminologies relevant to child health, particularly in identifying and categorising congenital heart conditions, was crucial for accurate diagnosis and communication with healthcare professionals.

*“We know (milestones) based on different age groups, within 4 months the child will keep their head upright... From 6 months, they will start kneeling, from 9 months they will start sitting, 10 to 11 months children will try to stand by holding somewhere. Some children will try to stand by holding, after 1 year. In 9 months, they will start passing anything from one hand to another. We will ask the mother if they are doing all these things”.* (RBSK nurse Palakkad)

### *Knowledge and ability to perform assessment and diagnosis for monitoring the health and development of children*

RBSK nurses exhibited accurate knowledge and skills which help them in the early identification of potential health issues and has ability to perform physical assessments crucial for monitoring the health and development of a child. They collected data on height, weight, head circumference and blood pressure with equipment such as weighing machines, stadiometers, tapes, stethoscopes etc. Additionally, they employed materials such as red ring, rattle, cubes, crayons to assess developmental milestones and hearing assessment tools for evaluations.

*“We use stethoscope to find murmurs in the heart. I had a case like that, but when enquired with the parents, they said that no one had identified that the child had issues with his heart. We got appreciation for identifying those cases. Hridayam will contain many cases like ASD, VSD, TOF, and TB, included in different categories”.* (RBSK Nurse Ernakulam)

### *Knowledge of emergency response procedures*

RBSK nurses demonstrated an understanding of emergency response procedures, ensuring timely action during critical situations, and prompt escalation to higher authorities facilitating appropriate medical interventions. They offered continuous support and guidance to families, mainly with children facing complex medical conditions.

*“One child posted for heart surgery had severe wheezing and was admitted in hospital, the condition was severe and turned into pneumonia. After 1 week the child was cured and completed the surgery. My involvement helped them to shift to a hospital for surgery”.* (RBSK nurse Palakkad)

### **Domain 2- communication**

RBSK nurses have exceptional communication skills, which helps to build trust within families and enables effective coordination with various departments and healthcare professionals.

### *Ability to communicate effectively with different stakeholders*

The strong communication skills and empathetic nature of RBSK nurses fostered trust, ensured consistent emotional support and respect for families and community, ultimately contributing to improved health outcomes. On a broader level, these communication skills also fostered effective inter-sectoral coordination with other departments such as ICDS, tribal welfare department, education department, Local Self Government (LSG) Institutions and with other field level functionaries such

as ASHA's, Anganwadi workers, tribal promoters and LSG resource persons.

*“There are communication issues in the tribal area when the children get referred to DEIC or somewhere else, the parents will be hesitant to go there. At that time we will communicate with tribal promoters about this issue. Then they will talk to the parents and make them understand about the health condition”.* (RBSK nurse Wayanad)

### **Domain 3- community partnership**

RBSK nurses promoted the active involvement of community members and provided health education and counselling to children, parents, and teachers, ensuring the program's success through targeted information education communication (IEC) activities in Anganwadi, schools, and communities.

### *Ability to provide education and counselling to children, parents and teachers*

RBSK nurses played an important role in providing health education and promoting health awareness through IEC activities in Anganwadi and schools. These sessions covered critical topics like anaemia and the importance of nutritious food and regular health check-ups. Nutritious food exhibitions are organised to educate families about balanced diets. Additionally, haemoglobin testing is performed to identify and address anaemia among children. Parents are informed about the availability of free treatment and medication, ensuring they can access healthcare services without financial strain. Most of the participants ensured that these educational sessions are tailored to the community's specific needs, thereby enhancing their relevance and effectiveness. There is a comprehensive understanding of the community's health needs and a commitment to improving public health outcomes through education and active engagement.

*“Health awareness class is mandatory for bringing-up, feeding, hygiene of the child. We do this in every Anganwadi as per the need. If from 2 months itself they start giving solid food, it will result in overweight for the child. We will make them aware of the importance of breast-feeding and weaning”.* (RBSK Nurse Palakkad)

### **Domain 4- health equity**

RBSK nurses promoted health equity by catering to the needs of vulnerable populations like tribal communities and children with disabilities.

### *Care of vulnerable population*

RBSK nurses possessed a specialised set of competencies to provide care for vulnerable populations such as tribal communities and children with disabilities. Their cultural sensitivity was crucial for identifying health needs, addressing barriers, and building trust. Their strong

advocacy skills, coordination and team work with health care providers allowed them to provide family centred care for promoting health equity in the areas they served.

*"It is difficult to bring children from hamlets in forest to Anganwadi due to long distance. Coming by auto-rickshaw is not affordable. For this we are trying to provide food through providers or bring them to Anganwadi through Gotra Sarathi Program by vehicle".* (RBSK nurse Wayanad)

### **Domain 5 - Program Planning**

Program planning skills of RBSK nurses allowed for the systematic preparation and organisation of healthcare activities which enhanced the delivery of healthcare services.

#### *Ability to plan and organise activities*

RBSK nurses meticulously prepare an advanced monthly microplan, listing activities and tasks including screenings, health awareness sessions, and school visits. The micro-plan ensures a structured approach to their responsibilities, enabling them to manage time efficiently, providing consistent and organised healthcare services, ensuring the smooth and timely execution of plans.

*"I go to school twice a week, Monday and Thursday, Anganwadi on Tuesday, Friday and Saturday. On Saturdays after finishing Anganwadi, the follow up duties are also done on the positive cases found on screening of Hridyam, (An initiative by Government of Kerala to support children with Congenital Heart Disease (CHD) VBD (visual birth defects) cases and other categories as in the Shalabham portal are followed up. Then to Kindergarten".* (RBSK nurse Thiruvananthapuram)

### **Domain 6- data management**

RBSK nurses exhibited data management skills to effectively to record and organise children's health information.

#### *Ability to manage records and data*

RBSK nurses excelled in record-keeping, documenting children's information in daily diaries before entering in Shalabham portal. They manage individual and block-level data, ensuring accuracy, and this data is also used for block conferences. At health centres and during field visits, registers were maintained for organising data, which was also entered digitally.

*"We note down everything in our daily diary. Only after that we do the entry in the Shalabham portal... We keep the individual and block data".* (RBSK nurse Kannur)

### **Domain 7 - Leadership and systems thinking**

RBSK nurses exhibited good leadership skills and displayed a strong commitment to program goals, efficiently managing information and reports through organised communication channels. Their problem-solving skills often made it possible to overcome geographical and logistical challenges.

#### *Commitment to program goals*

RBSK nurses exhibited a strong commitment to program goals, finding satisfaction not only in conducting screenings but also in effectively referring cases to appropriate centres and ensuring timely assistance for those in need to ensure positive outcomes.

*"More than screening, I feel satisfaction in referring cases to concerned centres and getting timely help for the cases... I feel happy when such success stories occur".* (RBSK nurse, Ernakulam)

#### *Ability to take leadership*

There was a proper chain of command among RBSK nurses in Kerala. State-level initiatives such as the formation of WhatsApp groups with appointed leaders from each block were reported. This leader communicated vital information via WhatsApp groups which ensured efficient dissemination of reports and messages to the coordinator, facilitating effective program management.

*"We have one RBSK nurse as a group leader in a block where they have a separate WhatsApp group. The coordinator conveys messages to them (leaders) which they share with us in our separate group. When any report is being asked, we forward it in the group, which is sent to the coordinator by the leader".* (RBSK nurse Thiruvananthapuram)

#### *Ability to solve problems*

RBSK nurses demonstrated problem-solving abilities in overcoming the geographical, logistical and financial barriers that impede the delivery of healthcare services to children in remote tribal areas.

Their initiatives ensure that despite these challenges, children receive the necessary screenings and nutritional support.

*"Tribal people have financial issues to reach the hospital to which they are referred. In such cases we inform the tribal office and they help financially".* (RBSK nurse Wayanad)

### **Domain 8- management and finance**

RBSK nurses multitasked efficiently and had the capacity to manage different responsibilities, from anaemia control to personal hygiene education, demonstrating their organisational skills. They also underwent training to improve their health-related knowledge.

#### *Ability to manage multiple tasks simultaneously*

RBSK nurses exhibited exceptional ability to manage multiple tasks simultaneously, as evidenced by their involvement in various health promotion campaigns and programs. From conducting campaigns targeting anaemia control among adolescent girls [Vilarchayil Ninum Valarchayilekku (VIVA)] to discussions on nutrition in Anganwadi centres, they adeptly juggled diverse responsibilities. Moreover, they oversaw the distribution of iron supplements to students across different grades, ensuring consistent delivery of essential nutrients. They also offered education on personal hygiene and deworming practices.

*“ViVA campaigns are conducted for adolescent girls in Anganwadi, under the Poshan Abhiyan program, which discusses the importance of leafy vegetables to prevent anaemia. If it (anaemia) is occurring due to worms, we provide albendazole and also educate them about personal hygiene.”* (RBSK nurse Palakkad)

#### *Ability to develop knowledge from training*

Regular training enhanced knowledge acquisition and its application among RBSK nurses, particularly in areas such as online portal use and screening procedures. Despite initial challenges in uptake of technology, their capacity to apply new skills is significantly bolstered by the cooperation and positive attitudes of peers. Training ensured they were well-equipped to manage various health needs and utilise modern healthcare tools and techniques efficiently.

*“We get the 4D’s refreshment training on a yearly basis...it helps to improve our knowledge”.* (RBSK nurse Alappuzha)

#### *Challenges faced by RBSK nurses*

RBSK nurses faced several challenges that affected their performance and activities. Technical issues, such as unreliable internet connectivity, adversely impacted the efficient use of online portals like Hridyam and Shalabham. These technical issues led to delays and inefficiency in healthcare delivery, reporting, and timely data entry. The redistribution of work in the absence of designated RBSK nurses, which was frequent due to the high attrition seen in this category, increased the workload of existing nurses, leading to stress.

Other issues faced were logistical, cultural, and structural barriers, which impacted the screening process. Nurses encountered difficulties in bringing children from remote forest areas to Anganwadi for screening due to long distances, the presence of wildlife, and transportation costs that were unaffordable for families. Cultural barriers, including local beliefs and language differences, interfered with effective communication with the children's parents.

### **DISCUSSION**

Competency refers to the variety of knowledge, skills, talents, and attitudes exhibited by human resource personnel.<sup>7</sup> In the case of Kerala’s RBSK nurses, this covers their competence in providing various child healthcare services including screening, diagnosis, treatment planning, safe drug administration, immunisation, infection control, efficient patient and staff communication, multitasking skills, community education and counselling.<sup>8</sup>

The findings of this study shed light on the competencies of RBSK nurses in Kerala, highlighting both strengths and challenges within the program's implementation framework. To discuss study findings, the ‘core competencies of public health professionals’ as revised and adopted by the council on linkages between academia and public health practice in 2021 is used. The core competencies are divided into eight domains representing eight skill areas required for those practising, researching or teaching public health.<sup>9</sup>

The indispensable competencies needed for RBSK nurses in Public Health Sciences including skills such as knowledge of patient assessment and diagnosis; normal development and related health problems; knowledge of medical terminology; and ability to respond to emergencies. Bafna and Mirgunde highlighted the significant impact of undiagnosed and untreated heart diseases on child mortality rates and also observed that RBSK nurses were instrumental in the early detection of congenital heart diseases, enabling timely interventions or surgeries. The current study emphasised the crucial role RBSK nurses play in early detection and intervention, particularly for congenital heart diseases (CHD).<sup>10</sup> By leveraging their competencies, RBSK nurses contribute to improved child health outcomes and reduced mortality rates. Both studies show the importance of RBSK in addressing child health challenges and promoting early intervention to enhance overall health status. A study focusing on frontline female healthcare workers’ involvement in managing COVID-19 cases also resonated with our findings, highlighting the role of frontline health workers in responding to public health crises by providing essential health services while facing challenges such as resource constraints and communication barriers.<sup>11</sup> The empathetic nature possessed by RBSK nurses impacts health outcomes by maintaining dignity and fostering a supportive

environment. This aligns with findings that emphasised the importance of empathetic communication in nursing, reducing patient fears and concerns through unique relational aspects.<sup>12</sup> Findings from studies on nursing competency predictors, which identified work experience as a significant factor, also resonate with our study highlighting the importance of practical experience and hands-on training in shaping nurses' competencies, enabling them to effectively navigate complex healthcare environments and deliver patient-centred care.<sup>13,14</sup>

Training for RBSK nurses is important and helps them develop the necessary skill and knowledge for effective screening and intervention. These annual training programs cover a comprehensive range of topics including growth and development, disease diagnosis, treatment planning, and safe drug administration which ensures they are updated with the latest healthcare information.<sup>15</sup> Previous studies conveyed the effectiveness of short and structured training programs in enhancing the knowledge of healthcare providers and program managers within the context of RBSK.<sup>16-18</sup> Similarly, we identified the importance of ongoing training and supportive supervision to strengthen the competencies of healthcare professionals. Audio-visual refresher training for ASHA workers was found to enhance their knowledge, improving the reporting and referrals of the 4 Ds at the community level.<sup>19</sup> A cluster-randomised trial in Khurdha district, Odisha, aimed to train frontline workers (FLWs) and evaluate the effectiveness of a training strategy in detecting developmental delays in children under six. The intervention significantly improved FLWs' knowledge and increased developmental delay case detection from 9.09% to 61.5%.<sup>20</sup> This underscores the importance of government-led capacity building for FLWs to integrate them effectively into the RBSK program.

Similar to our study, the competencies of RBSK nurses in the domains of community partnership and communication are supported by studies that underline the need to sensitise children and their guardians to pertinent health issues through the introduction of IEC services.<sup>18</sup> Excellent communication with patients, families, communities, and officials from other sectors is crucial. RBSK nurses displayed astuteness in providing equitable and inclusive care through their recognition of diversity among individuals and populations. The findings on logistical, cultural, and structural barriers impacting immediate neonatal care align with our findings and show the necessity of addressing multifaceted challenges to enhance healthcare delivery, particularly for vulnerable populations like tribals and newborns.<sup>21</sup>

Continuous training for medical staff, better referral and tracking systems and raising awareness on child health issues among children and guardians through effective services are essential aspects of the program. However, there are challenges for grass root level workers who may

face shortages in resources, expertise or skills, affecting the screening process's coverage and efficiency.<sup>18</sup> Studies highlight deficiencies in human resources and differences in the attitude and practice of healthcare providers within the RBSK program.<sup>22</sup> Addressing these deficiencies requires ongoing training and support, as emphasised in other studies, which highlight the immediate improvements and sustained achievements resulting from periodic training, evaluation, and monitoring.<sup>11,17,23</sup> Our study also identified barriers such as staffing shortages and infrastructure deficiencies, and strategic local partnerships emerged as a common strategy to overcome these challenges. By collaborating with local stakeholders including healthcare providers and community leaders, tailored interventions can be developed to address specific barriers and improve healthcare outcomes, reducing neonatal mortality rates across diverse settings.

These studies highlight the interaction of factors that influence the RBSK program's performance such as training, human resources, equipment availability, community engagement and program evaluation. Our findings add to these insights by concentrating on the influence of training on healthcare providers involved in child health screening contributing to a more comprehensive understanding of capacity-building efforts within the RBSK framework. Addressing identified challenges and utilising good practices is critical for increasing the effectiveness of the RBSK program and improving child health outcomes across India.

One of the limitations in this study is particularly concerning the selection of RBSK nurses. The process of participant selection was aided by the RBSK coordinators on the basis of low performance and high performance which could lead to a bias as there is no well-defined criteria for assessing the performance of RBSK nurses. Thus, the recommendations of the RBSK coordinators were subjective since the assessment criteria used by the coordinators varied across districts which could have resulted in a possibility of not capturing all the constraints and limitations faced by them.

## CONCLUSION

The study highlights the proficiency and dedication of RBSK nurses in Kerala in addressing the complex health needs of children. Their diverse skill set encompassing clinical expertise, communication abilities, community engagement and adherence to policies and protocols underscores their pivotal role in delivering high-quality child healthcare services. The findings suggest that the RBSK program has equipped nurses with the necessary competencies to identify, intervene and support children with various health challenges effectively. Ongoing evaluation and capacity-building initiatives are imperative to ensure the sustained efficacy of the program amidst evolving healthcare landscapes. By leveraging these insights, policymakers and healthcare authorities can refine strategies, enhance training programs and foster an

environment conducive to continuous improvement in child healthcare delivery. Ultimately, the dedication and proficiency demonstrated by RBSK nurses in Kerala serve as a model for addressing similar health disparities globally, emphasising the importance of prioritising early intervention and comprehensive care for the well-being of children.

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