

# Impact of Manyata Flagship Program on Effective Management of Maternal Complications - Task-Shifting to Staff Nurses with Improved Competence

Hema Divakar<sup>1</sup>, Richa Mishra<sup>2</sup>, Sheetal Joshi<sup>3</sup>, Bhagyashri Kulkarni<sup>4</sup>, Poorni Narayanan<sup>5</sup>, Rita Singh<sup>6</sup>, Gubbi Venkatasubbaiah Divakar<sup>7</sup>

<sup>1, 2, 3, 4, 5, 6, 7</sup> Asian Research & Training Institute for Skill Transfer (ARTIST), Divakars Speciality Hospital, Bengaluru, Karnataka, India.

## ABSTRACT

### BACKGROUND

Postpartum haemorrhage (PPH) and pre-eclampsia and eclampsia (PE/E) are the leading causes of pregnancy and childbirth-related complications and deaths, particularly in developing countries. FOGSI-*Manyata* skill transfer training is being implemented in private healthcare facilities in India, enabling 'task-shifting' to staff nurses by improving their knowledge and skills towards achieving desired maternal and perinatal outcomes.

### METHODS

In this qualitative study, 4 focus group discussions (FGDs) with staff nurses and 14 in-depth interviews (IDIs) with head consultants of study facilities and assessors from different states (both metro and non-metro regions) were undertaken. Their experiences and perceptions about *Manyata* training, including its impact on building their capacity towards efficient handling of maternal complications during childbirth, were explored and the data was analysed through thematic analysis.

### RESULTS

The two main overarching themes included: barriers to prevention, early identification and handling of complications, and post-training competency gained for effective management of complications. Lack of skilled staff trained in obstetrics and gynaecology, gaps in basic knowledge and skills in emergency obstetric care (EmOC), limited training opportunities at the workplace, and high staff turnover were identified as the factors contributing to the perceived importance of the training program. The competencies gained by staff nurses through *Manyata* training included readiness for prevention and early detection of complications (PPH and PE/E), improved understanding of specific causes of PPH, preparedness for timely management of both PPH and PE/E, and coordinated teamwork.

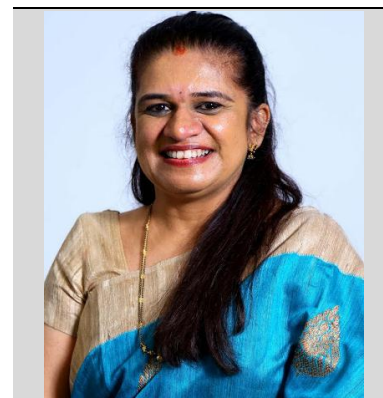
### CONCLUSIONS

All the respondents strongly valued the *Manyata* training for effective management of maternal complications, PPH, and PE/E. Such in-service training, which is also appropriately tailored to the local context, along with the strong motivation of head consultants and staff nurses to upgrade themselves through continuous efforts, is required to achieve sustainable goals to reduce maternal and perinatal mortality.

### KEY WORDS

*Manyata* Training, Postpartum haemorrhage, Pre-Eclampsia/Eclampsia, Competency, Maternal and Perinatal Mortality.

Corresponding Author:



Dr. Hema Divakar,  
Medical Director,  
Divakars Speciality Hospital,  
CEO & Chairman, Asian Research &  
Training Institute for Skill Transfer  
(ARTIST), Bengaluru, Karnataka, India.  
E-mail: drhemadivakar@gmail.com

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## BACKGROUND

As per the World Health Organization<sup>[1]</sup> report, approximately 2,95,000 pregnant women died of maternal and childbirth complications in 2017 worldwide, most of which could have been prevented through the provision of timely and effective healthcare services.

The majority of these deaths (more than 94%) have occurred in low- and middle-income countries, highlighting the inequity in access to quality healthcare services in these regions.

India reported around 35,000 maternal deaths in 2017, during or after childbirth, with a maternal mortality rate (MMR) of 145 per 100,000 live births which accounted for 12% of global maternal deaths.<sup>[2]</sup>

Among the most significant causes of maternal and perinatal mortality and morbidity are post-partum haemorrhage (PPH) and pre-eclampsia/eclampsia (PE/E). Often in combination with anaemia, PPH is the leading and most dangerous complication of childbirth which is characterized by a cumulative blood loss greater than 500 mL in a vaginal delivery or greater than 1000 mL at the time of caesarean delivery with signs and symptoms of hypovolemia within first 24 hours of the delivery.<sup>[3]</sup>

Pre-eclampsia and eclampsia are hypertensive disorders of pregnancy, characterized by high blood pressure, proteinuria, and seizures (in a later stage), which can be dangerous for both mother and baby.<sup>[4]</sup> Effective management strategies are required to bring down the incidence of maternal complications and mortality. Reduced access to quality healthcare, inadequate resources (manpower and medical supplies), and lack of knowledge and competence of healthcare providers/birth attendants are some of the factors identified as major barriers to the effective prevention and treatment of maternal emergencies.<sup>[5,6]</sup>

Understanding the experiences and challenges faced by healthcare professionals during pregnancy and childbirth management and designing interventions that aim to improve their capabilities and competencies would help in improving the preparedness for maternal emergencies and critical health indices.

In this study, we explore the impact of a skill transfer training program called *Manyata*. This initiative by the national professional organisation federation of obstetric and gynaecological societies of India (FOGSI), is an ongoing flagship project in India that focuses on enhancing the competence of healthcare providers for respectful, safe, and quality service delivery to pregnant women and effective management of pregnancy-related complications in private health facilities.

This study documents the perceptions and experiences of head consultants and staff nurses of the facilities from the different regions of the country that have undertaken *Manyata* skill transfer training implemented by Bengaluru-based ARTIST (Asian Research and Training Institute for Skill Transfer) institute and assessed and accredited by FOGSI lead assessors. It also captures the inputs from the lead assessors who have assessed the staff in these facilities after the completion of the training.

## METHODS

### Study Design

This is a qualitative study, conducted to assess the impact of *Manyata* training on building the capacity of health care workers and efficient handling of pregnancy-related complications in private facilities that offer obstetric care in different regions of India, through in-depth interviews and focus group discussions.

### Study Setting and Duration

Bengaluru-based ARTIST institute, through its FOGSI-*Manyata* skill transfer training program, has covered over 180 facilities from both metro and non-metro areas across different states in India. The staff from these facilities was oriented through digital platforms, on the 16 *Manyata* clinical standards through the presentation, practical demonstrations, and role plays. The facilities that achieved a compliance score (a composite score that assesses the performance standards of a facility) of more than 85% in internal assessments were re-assessed externally, by a peer (FOGSI lead assessors) from the same city and another from an adjoining city. Facilities having externally confirmed compliance with more than 85% of clinical standards received a quality-of-care seal by FOGSI-*Manyata*.

In this study, we focused on clinical standards that aim at building staff's competence for prevention, early identification, and timely management of PPH and PE/E (Figure 1).

### Study Duration

This qualitative study was conducted from February 2022 to May 2022 during which the data was collected through interviews and analysed for the emerging themes/sub-themes.

### Study Population and Selection of Participants

The study population consisted of staff nurses who received the training, their head consultants, and assessors who had assessed them. Since staff nurses were the direct beneficiaries of this training program and had experienced it first-hand, they were the key study respondents. The study also aimed to understand the perceptions of their assessors who had conducted pre and post-training assessments, and their head consultants who had observed their day-to-day performance, both before and after the training, and were well positioned to reflect on the impact of the training program.

Maximum variation sampling approach was used to identify the study facilities in two steps: In the first step, all the private healthcare facilities were stratified by geographical regions (states) and category (metro or non-metro). Next, of the facilities that had recently completed their training (between August 2020- February 2022), 2-3 facilities were purposively sampled from each stratum. Those who gave their consent for participation were included in the study. Four focus group discussions (FGDs): 2 FGDs with English-speaking nurses and the other 2 with Hindi-speaking nurses were conducted such that each FGD had around 5-8

staff nurses from the study facilities (Table 1). Additionally, 14 in-depth interviews (IDIs): 9 with head consultants of 9 facilities and 5 with assessors were conducted in English as all the participants were fluent in the English language (Table 2). The interviews were stopped when similar key themes and perspectives started to re-emerge, affirming that data saturation had been reached.

### Data Collection

All the IDIs and FGDs were conducted with selected participants through Zoom calls. IDIs were conducted with head consultants and assessors and FGDs were conducted with staff nurses to understand their overall experiences of participation in the *Manyata* training program.

An interview guide with 6-8 questions was used, and probes were included wherever needed. Open-ended questions (both factual and opinion questions) were asked to understand the challenges faced in managing pregnancy and childbirth-related complications and the role of *Manyata* training in addressing them. On average, each interview lasted for around 30-40 minutes, and two interviews were conducted per day. All the recorded audio files were transcribed verbatim and Hindi transcripts were translated to English before analysis.

### Data Analysis

The transcripts were analyzed manually using qualitative thematic analysis. Each transcript was read several times to look for the relevant parts or initial ideas for generating codes. Manual analysis was undertaken by highlighting important words and phrases and making comments in the text during the coding process. Coding helped in arranging concepts or categories. The codes were then summarised into a spreadsheet and were collated into potential themes. Direct quotations from many interviews were also included in the summarized document.

### Ethical Approval

Ethical approval for the study was taken from the Institutional Ethics Committee (IEC). All the necessary and relevant documents were submitted to the Ethics Committee. Verbal consent for participation was requested after explaining that participation in the study was entirely voluntary, and confidentiality and anonymity would be strictly maintained. Written consent was also obtained from all the study participants through Google forms.

## RESULTS

All health care professionals, who participated in the study, reported positive perceptions and high impact of the *Manyata* training and regarded it as an effective intervention towards building confidence and competence of staff nurses and bridging gaps between knowledge and practice in maternal care.

Based on the IDIs with head consultants and assessors of the study facilities and the FGDs with staff nurses, two

themes were highlighted: 1. barriers to prevention, early identification, and handling complications, 2. post-training competency gained for managing complications. The themes along with the subthemes that emerged from the analysis of the interview transcripts are given in Figure 2.

### Barriers to Prevention, Early Identification, and Handling Complications (Staff-Related Challenges)

Almost all head consultants and assessors of study facilities highlighted staff-related challenges as one of the major barriers to effective management of maternal complications that are demonstrated by subthemes: lack of skilled staff trained in ob/gyn services, gaps in basic knowledge and skills in emergency obstetric care (EmOC), limited training opportunities at work place, and high staff turnover/low retention.

### Lack of Skilled Staff Trained in OB/Gyn

The critical crisis of staff trained for maternity and child care services is a major bottleneck in the reduction of maternal and perinatal mortality. The shortage of health workforce, particularly specialised in ob/gyn services, impedes the efforts to achieve the state of readiness for improved maternal outcomes. Although all the head consultants highlighted this crisis, the burden seems to be more in healthcare facilities in low-resource settings with lesser opportunities for proper education and training.

“In this small place, it is very difficult to find somebody who is very much trained in this particular specialty, they're unanimously trained for medicine, by and large [...] you really need to do a lot of work on them individually, you have to teach each and every one of them. And that was a challenge what we were facing throughout our journey of 20 years. (HC 1)

### Gaps in Basic Knowledge and Skills in Emergency Obstetric care (EmOC)

All staff nurses stated that they worked in an unstructured manner with limited and superficial knowledge and would mostly wait for instructions from their senior staff or doctors. The lack of knowledge and skills that are specifically required to handle pregnancy and its associated emergencies resulted in a poor sense of self-worth, low confidence, and sometimes fear and anxiety too.

“Earlier we had to ask our seniors whenever there was a case; we had to take instructions before doing anything.” (N1, FGD 3)

“We did same procedures before *Manyata* also but we somewhat had fear, if doctor's presence was not there.” (N4, FGD 1)

### Limited Training/Learning Opportunities at Work Place

Head consultants emphasized the importance of training as they understand that upskilling their staff nurses without any formal training support is an uphill battle, owing to their heavy patient load and busy medical practice.

"I was finding it very difficult to make my team understand and make them alert because with our busy practice we will not be able to give time to train our team." (HC 2)

### **High Staff Turnover/Low Retention**

Head consultants reported that a high proportion of their staff was temporary and only a few nurses would be regular for a longer time. High staff rotation further affects the availability of a trained workforce and also the benefits of in-service training as they leave the job or change their workplace.

"And somehow, we liked the initial 10 staff who were regular with us all the time. And we have 50% of the staff who are like rotatory people" (HC 2)

### **Post-Training Competency Gained for Managing Complications**

The staff nurses self-reported higher levels of confidence and competence to deliver safe and quality maternal health care services after this training. Competencies gained by nurses included readiness for early detection and prevention of complications (PPH and PE/E), improved knowledge of specific causes of PPH, preparedness for timely management of PPH and PE/E, coordinated teamwork, and strengthened professionalism.

### **Readiness for Prevention and Early Detection of PPH and PE/E**

The staff nurses have become more competent in identifying emergency signs and diagnosing both PPH and PE/E cases at an early stage. They would look for oedema and monitor blood pressure, and proteinuria in patients who were hypertensive and prone to preeclampsia. They also felt confident in practicing active management of the third stage of labour (AMTSL) and timely recognition of the blood loss which was beyond normal, for prevention and early diagnosis of PPH. Assessors also reported a significantly improved competence of staff nurses in administering uterotonic just after the delivery, performing uterine massage, controlled cord traction (CCT) during contraction, and examining the placenta thoroughly for completeness before discarding.

"We got this systematic way of identifying the symptoms, like eclampsia and all. After the patient got admitted, we used to check FHR and along with these we check the vital signs, if the BP got on the higher side, with any symptoms like headache, vomiting, dizziness, like that if the mother complains about all these things we ourselves get alert, and will start the treatment, and will inform to ma'am." (N4, FGD 1)

### **Improved Knowledge and Skills on Specific Causes of PPH**

Staff nurses acknowledged that they were not aware of the concepts or had a clear understanding of what they used to practice before training. All the respondents believed that improved knowledge and in-depth understanding of specific causes of PPH were required for the prompt treatment.

Improved confidence and competence of staff nurses in early recognition of excessive bleeding and targeted examination to determine its specific causes (4 Ts: tone, trauma, tissue, and thrombin) were very helpful in the proper diagnosis and appropriate management of this life-threatening complication, PPH.

"We have learned a lot about PPH, if the patient has PPH and the bleeding is above 500ml then giving her massage, giving prostodine, starting oxytocin drip, and giving uterine massage to the patient. Also finding out the cause of it, is it because of any internal tear or improper contraction of the uterus. So, we have learned all this from Manyata" (N2, FGD4)

### **Preparedness for Timely Management of PPH and PE/E**

With improved knowledge in emergency obstetric care, staff nurses felt more attentive and competent than before, in effective handling of both PPH and PE/E cases. This was also associated with better stocking, tracking, and forecasting of medical supplies by them. They kept essential drugs and equipment ready in one place in an organized manner and were prepared with neatly labelled kits for any emergency situation. Maintaining the eclampsia kit with the said number of MgSO<sub>4</sub> ampoules and ensuring supply was another key response towards improved care. If danger signs such as continuous bleeding or high BP and convulsions (in case of PPH and PE/E, respectively) are identified, they would immediately call for help, look for specific causes and begin appropriate emergency protocols.

"Madam has told us about PPH so with that we can prepare the PPH tray and keep it ready and that has been a big support to us and we can manage things quickly." (N2 FGD1)

"If it is continuous bleeding then it will be PPH. We will call all the staff and check the BP and respiration of the patient. After that we will check the abdomen and massage it." (N1 FGD3)

Aligned to staff nurses, their head consultants and assessors also testified a significant improvement in their competency in managing pregnancy and its complications and felt that they are more confident, even in the absence of any handholding support. With an enhanced understanding of the correct dosage regimen of MgSO<sub>4</sub> in case of PE/E and oxytocin along with other uterotonic for PPH management, they kept the emergency trays ready and felt better prepared than before.

"After Manyata, we have a team of organized ones and we have step-by-step protocols [...]. They will recognize the PPH changes, and will see the vitals if the patient is bleeding heavily, will bring the PPH tray and they'll do their routine work. It was easy to handle the patient and the complication because they know what is the complication, what is to be done next, each and every staff, they know the role. (HC 4)

### **Coordinated Teamwork**

Additionally, staff nurses well-perceived the importance of teamwork and became more enterprising, reaching out to their colleagues more often. They would summon additional personnel in response to any danger sign, as the first step toward timely management of an emergency. Head

consultants also reported that staff nurses now worked in sync as a team to promptly act upon high-risk pregnancies. With improved competence and collaboration, they were now better positioned to quickly apply their critical thinking in highly volatile and rapidly changing emergency situations.

“See, I am delivering a patient now I have a backup team who just supports me all the time. One staff is near the head

end of the patient and another staff is focusing on whatever she is supposed to keep things ready and another staff is assisting me. So literally, they know multiple things and watch what needs to be ready for labour, so I just do my job silently. Initially, I had one or two staff who were alert but now the whole thing is good. So, I really don't have to focus on everything. I can just do my job at peace.” (HC 2)

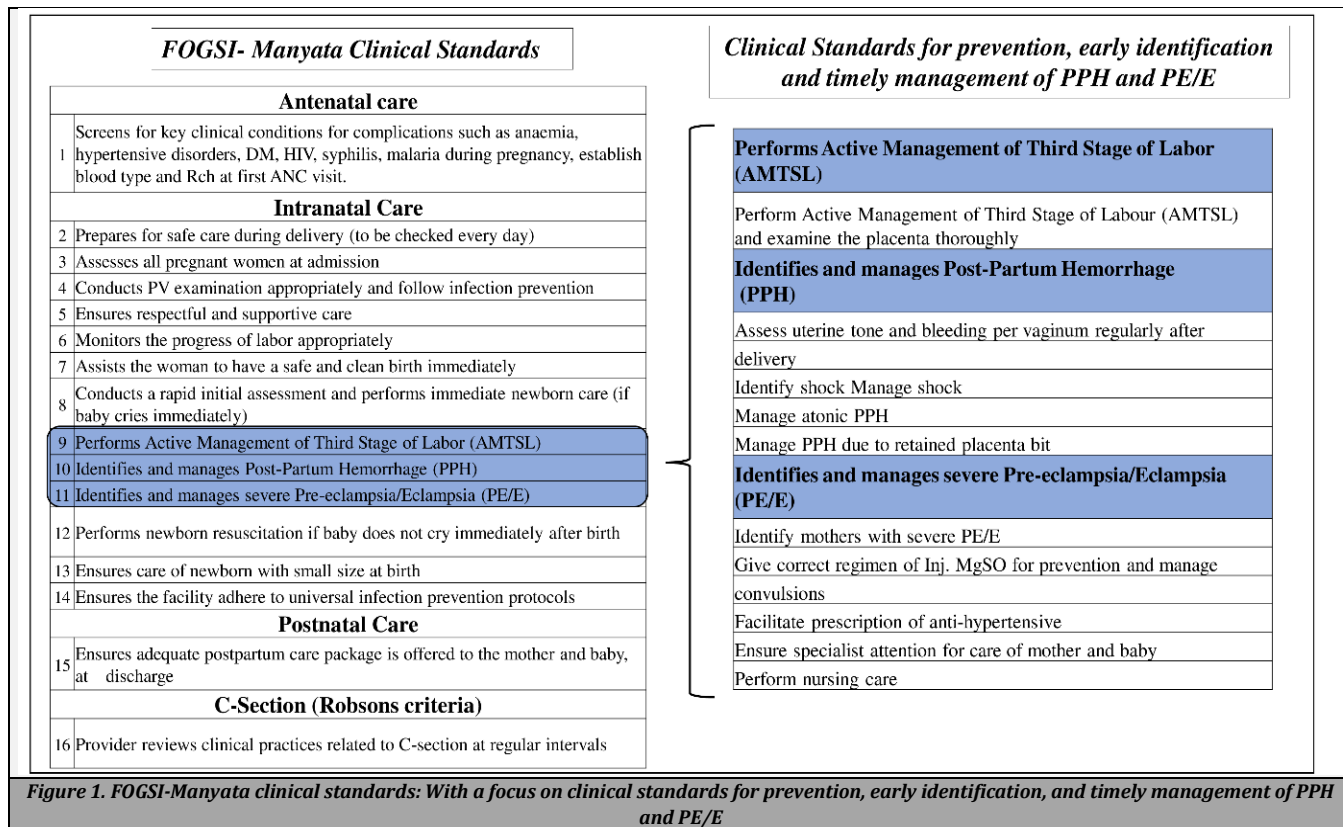


Figure 1. FOGSI-Manyata clinical standards: With a focus on clinical standards for prevention, early identification, and timely management of PPH and PE/E

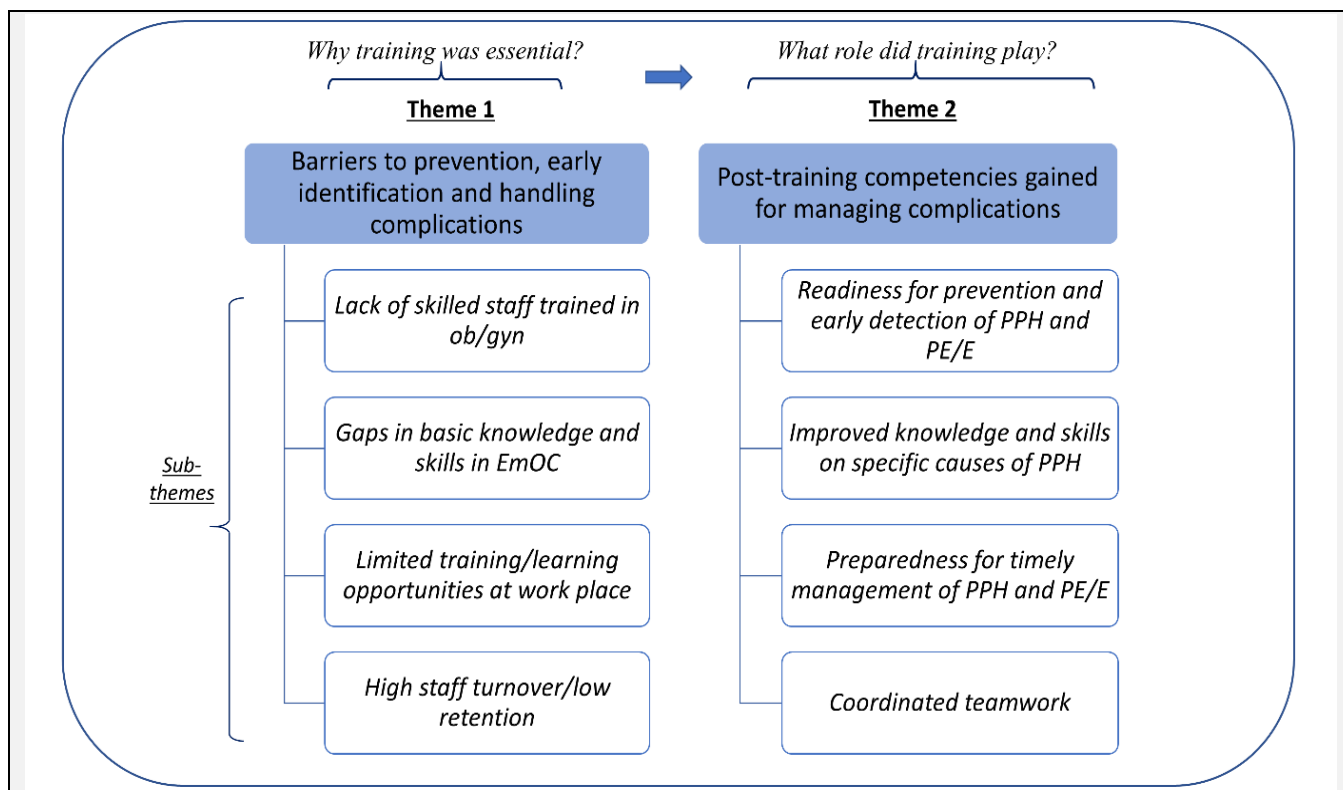


Figure 2. Thematic framework to understand the role of Manyata skill transfer training on effective management of pregnancy and its complications

FGD with Nurses	Metro/ Non-metro	State	No of included participants (ID)	Average Professional experience (in years)	
English speaking region	FGD 1	Metro	Karnataka	3 (N1-N3)	17
			Tamil Nadu	2 (N4-N5)	4.5
	FGD 2	Non-Metro	Karnataka	2 (N6-N7)	10.5
			Tamil Nadu	4 (N8-N11)	2.5
Hindi speaking region	FGD 3	Metro	Assam	2 (N12-N13)	11
			Bihar	3 (N14-N16)	15.3
			Manipur	2(N17-N18)	8
	FGD 4	Non-Metro	Madhya Pradesh	5 (N19-23)	12.4

**Table 1. Characteristics of Participants Included in the Focus Group Discussions (FGDs)**

IDIs with Head consultants	Metro /Non-metro	State	Participant ID	Professional experience (in years)
IDI-1	Non-Metro	Madhya Pradesh	HC1	18
IDI-2	Non-Metro	Karnataka	HC2	15
IDI-5	Non-Metro	Karnataka	HC5	20
IDI-7	Metro	Karnataka	HC7	15
IDI-3	Metro	Assam	HC3	14
IDI-4	Non-Metro	Tamil Nadu	HC4	14
IDI-6	Metro	Bihar	HC6	22
IDI-8	Metro	Maharashtra	HC8	20
IDI-9	Non-Metro	Uttarakhand	HC9	30
<b>IDI with Assessors</b>				
IDI-10	Metro	Karnataka	A1	35
IDI-11	Non-Metro	Tamil Nadu	A2	24
IDI-12	Metro	Rajasthan	A3	35
IDI-13	Metro	Karnataka	A4	26
IDI-14	Metro	Tamil Nadu	A5	32

**Table 2. Characteristics of Participants Included in the In-Depth Interviews (IDIs)**

**DISCUSSION**

This qualitative study evaluates the impact of the implementation of the *Manyata* skill-transfer intervention aimed at addressing the challenges and lacunae in achieving desired maternal outcomes. The themes highlighted in the result section are: Barriers to improved maternal outcomes and competencies gained for managing complications. These are further described by sub-themes demonstrating the strong support for training by all three groups of participants: staff nurses, head consultants, and assessors.

Consistent with the previous studies, this study also suggests that skilled emergency care in response to maternal complications (postpartum haemorrhage, sepsis, preeclampsia/eclampsia, prolonged or obstructed labour, and uterine rupture) is crucial to prevent complications and bring down maternal mortality.<sup>[7-10]</sup> The challenges in skilled emergency care, as highlighted by the head consultants of the study facilities, are mainly attributed to the unavailability of staff nurses specialised in ob/gyn services, difficulty in training them while at work, and the high staff turnover. Staff nurses' superficial knowledge, non-adherence to clinical standards, and lack of competence in emergency obstetric care services could further worsen maternal outcomes in high-risk pregnancies.

*Manyata* skill transfer training is an initiative for the private sector that focuses on skills related to key life-saving practices including early identification and timely management of two leading causes of maternal complications, PPH and PE/E. This skill transfer program enables 'task shifting' of the healthcare workforce to enhance efficiency in the delivery of medical services and attend to maternal emergencies. *Manyata* program has equipped the staff nurses with competencies required for quality

emergency obstetric care such as improved skills on AMTSL, readiness for early detection of danger signs like hypertension or convulsions, preparedness with a dipstick test for proteinuria, and a correct regimen of Inj. MgSO4 (at least 20 ampoules) and other anti-hypertensives in the labour room for prevention and management of PE/E, alertness for heavy bleeding (soaking one pad or clothes in less than 5 minutes), monitoring uterine tone and other vitals, preparedness with the PPH emergency management kits, especially with the correct regimen of oxytocin and other uterotonics for prevention and appropriate management of PPH, and improved knowledge of administration of these drugs.

The use of digital technology to deliver simple and concise training sessions for nurses, that were tailored as per the local context and conducted in their language, had high potential for increased coverage and strong impact. These training will be sustainable and more impactful if the responsibilities are shared between the training faculties/trainers and the head of the health facilities who can guide and constantly motivate the staff nurses for better onsite performance to achieve desired maternal and perinatal outcomes.

There could be some potential limitations of this study. The study focused only on assessing health care providers' experiences and perceptions of the *Manyata* program. Additional studies to understand the impact of *Manyata* training on patients' perceptions related to the quality of maternity care could be valuable.

**CONCLUSIONS**

The lack of skilled staff in maternity care services is one of the key barriers to the effective management of maternal complications that can be addressed through attainable, cost-effective interventions.

*Manyata* skill transfer training program facilitated 'task shifting' to nurses by improving their knowledge and building competencies such as readiness for early detection of danger signs and preparedness with emergency kits consisting of anticonvulsants (magnesium sulphate), and uterotonic drugs (oxytocin) for timely management of complications.

*Manyata* training was conducted through digital platforms to increase coverage. The strength of these quality improvement training sessions was in reaching remote facilities as well, despite the pandemic.

**Implications**

Such in-service training for staff nurses, which is focused on quality emergency obstetric care, along with supply chain management of essential drugs and equipment, will improve maternal outcomes to a great extent. The training may have a strong impact on beneficiaries if it is conducted through interactive sessions delivering simple, specific, and tailored messages adapted to local contexts.

Refresher training may be required, but self-administered reinforcement initiatives at workplaces and shared responsibilities between trainers and trainees can also help achieve sustainable growth.

**Authors' Contribution**

RM, GVD, SJ, BK, PN, RS and HD conceived and designed the study. RM, SJ, BK and HD developed the research and survey questions. RM developed the interview guides, conducted the qualitative analysis and wrote the manuscript. RM, SJ, and BK conducted the FGDs and IDIs and collected the data. RS and PN contributed to content for clinical protocol-based modules. GVD and HD contributed to networking with partners and stakeholders and manuscript review. HD led the pan-India movement in the capacity of a national technical lead. All authors read and approved the final manuscript.

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