



## Strengthening the Quality of Care for Safe Delivery through Capacity Building of Frontline Healthcare Providers

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### Abstract

**Background:** The capacity building of frontline healthcare providers is essential to address the shortage in their numbers as well as the skills gap that hampers the provision of quality healthcare services. FOGSI-*Manyata* skill transfer training program is a quality improvement model for private facilities providing maternal care.

**Method:** The impact of the *Manyata* skill transfer program was evaluated by a mixed-method approach. The participants were selected purposively from different geographical regions across the country. The pre- and post-training scores of staff nurses were captured using Kahoot! platform and statistical significance were determined by paired t-test using STATA software. The Focus Group Discussions (FGDs) with staff nurses and the In-Depth Interviews (IDIs) with the head consultants and assessors were conducted to explore their experiences and perceptions of the *Manyata* training program and data was analyzed through thematic analysis.

**Results:** The statistical analysis of pre- and post-training scores suggests a significant improvement in the knowledge and skills of all the staff nurses from four states (Bihar, Tamil Nadu, Maharashtra, and Punjab). The mean percentage of correct answers (for all questions and states combined) increased from 42.5% before training to 82.9% after training with a mean difference of 40.4%. The qualitative data analysis demonstrates an improved motivation of staff nurses to upgrade themselves and others, their enhanced practical knowledge and skills, an increased sense of recognition and self-worth, respectful maternity care, and overall improved maternal outcomes.

**Conclusion:** Our study suggests that staff nurses' practical knowledge and skills, their adherence to clinical standards on antenatal care, and their overall professional behavior improved significantly post-*Manyata* training program. This FOGSI initiative is a promising intervention to build the capacity of healthcare providers, however, continuous and concerted efforts are needed at their workplaces to make the learning process sustainable.

**Keywords:** FOGSI; *Manyata* skill transfer training; Frontline healthcare provider; Capacity building; Maternal care; Mixed-method; Kahoot

### Introduction

Improving the quality of antenatal care will not only reduce the global burden of maternal complications and deaths but also provide all women with a positive pregnancy experience [1]. Since staff nurses are at the forefront of clinical care and have maximum interaction time with the women at a healthcare facility, it is imperative to strengthen their knowledge and skills to ensure the provision of quality, safe and respectful maternity care.

The Maternal Health Quality of Care (MHQoC) strategy-funded National Program Management Unit of FOGSI has trained the staff nurses and certified facilities on the *Manyata* safe delivery standards. Though *Manyata* clinical standards are meant for private facilities, they are aligned with the government's requirements for the delivery of optimum care. The 16 clinical standards targeted for implementation cover: Antenatal care (one standard), intrapartum care (13 standards), postpartum care (one standard), and caesarean section (one standard), including the standards on identification and management of Postpartum Hemorrhage (PPH) and Pre-Eclampsia/Eclampsia (PE/E) [2-4].

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Bengaluru-based ARTIST (Asian Research and Training Institute for skill Transfer) Skill Gurukool, which is a premier institute for learning, is gearing up to ensure the improvement in capabilities and competencies of Obstetricians & Gynecologists (ObGyn) and healthcare providers in India. Through FOGSI approved *Manyata* skill development training program, the institute aims to create a lasting impact on the quality of training and scale up of *Manyata*'s reach, taking advantage of both the onsite teaching at Skill Gurukool and blended skill transfer programs through digital platforms and other innovative means.

In our previous study, we documented the impact of *Manyata* training on the effective management of pregnancy and childbirth-related complications, PPH, and PE/E. Since the staff nurses of private healthcare facilities are the key beneficiaries, their experiences and perceptions of the *Manyata* training program, along with their head consultants and assessors, were gathered and documented. All the beneficiaries strongly valued the *Manyata* training program for building their capacity for complications management [5]. However, this program is not just committed to reducing preventable maternal complications and mortality but also to improving the overall quality of maternal and child health care.

We believe that a comprehensive understanding of the overall development of the clinical skills and professional behaviors of staff nurses will provide a holistic impact of the *Manyata* training program. Therefore, this study demonstrates how the knowledge and skills of staff nurses have improved from pre- to post-training implementation and how well the beneficiaries have received the *Manyata* training program as evaluated through their pre- and post-training scores for some of the important standards covered, and their in-depth feedback data analysis.

## Methods

### Study design

This is a mixed-method study done to achieve greater insight into the impact of the *Manyata* training program on ensuring quality, safe and respectful maternity care in private healthcare facilities.

### Study setting and duration

Bengaluru-based ARTIST institute, through its FOGSI-*Manyata* skill transfer training initiative, has covered over 200 private healthcare facilities from different states in India. The staff from these facilities was oriented on the 16 *Manyata* clinical standards through the presentation, practical demonstrations, and role plays on digital platforms (Figure 1). The facilities were then assessed by FOGSI lead assessors and received a quality-of-care seal by FOGSI-*Manyata* if they had compliance with more than 85% of clinical standards.

### Study participants

A cluster of 10 private healthcare facilities from one state in each geographical region, North, West, South, and East (Punjab, Maharashtra, Tamil Nadu, Bihar), who enrolled for *Manyata* training, were included. A group of 4 nurses from each hospital participated in the Kahoot! quiz.

For the qualitative part of the study, 22 to 24 staff nurses, and 9 head consultants were selected from these private facilities for focus group discussions and in-depth interviews, respectively. Five assessors were also included for in-depth interviews. The participants were selected using a purposive sampling approach in steps that are described in detail in our previous study [5].

## Data collection and analysis

Kahoot! a game-based learning platform that was launched in 2013, was used to assess the proportion of participants with correct answers for questions based on certain clinical care standards. The pre- and post-training responses for four important questions are focused upon in this study. These are Q1: Glucose test in pregnancy has to be done for all women in non-fasting; Q2: AMTSL for all cases; Q3: Diazepam is the choice for eclampsia management; Q4: Plotting of partograph should be started from 4 cm dilatation of the cervix. The pre- and post-training responses of participants were recorded electronically. Data appeared as a report on an excel sheet with the collective percentage (%) of scores for that region. The data analysis was done using STATA/SE 15.1 software and Microsoft Excel. The results were analyzed for the mean difference in the percentage of the correct answer before and after training and statistical significance was calculated using paired t-test.

In addition, their overall professional behavior change was explored through Focus Group Discussions (FGDs) with them and In-Depth Interviews (IDIs) with their head consultants and assessors. The interview transcripts were analyzed manually using qualitative thematic analysis. The qualitative data collection and analysis are described in detail in our previous study [5].

## 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 from the study participants was also obtained through Google forms.

## Results

### Quantitative analysis

**Improvement in knowledge as highlighted by Kahoot reports:** The pre- and post-training scores represent the percentage of correct answers before and after the training, respectively.

As shown in Figures 2, the proportion of participants with correct answers for all questions (representing important clinical standards) has increased post-training in all four states. The pre-training scores of Bihar and Punjab were much lower as compared to the other two states (Maharashtra and Tamil Nadu), particularly for question related to glucose testing for pregnant women. The proportion of participants with correct answers was as low as 16.7% before training which increased to 89.4% post-training for Q1 in Bihar (Figure 2a). The maximum percentage increase was observed in Bihar which was 437%, 99%, and 222%, for questions 1, 2 and 4 respectively. Of all the states, Tamil Nadu had reported the highest pre-training scores for most of the standards studied, which further improved to 100% post-training for the standards related to glucose testing and plotting of partograph for pregnant women (Figure 2a-2d).

As shown in Figure 3, the statistical hypotheses were tested to determine whether the results were statistically significant using paired t-tests.

The analysis of pre- and post-training results of all participants for all questions revealed a significant improvement in the mean percentage of correct answers from 42.5% before training to 82.9% after training with a mean difference of 40.4% with  $p < 0.001$  (Figure

**FOGSI- Manyata Clinical Standards**

<b>Antenatal care</b>	
1	Screens for key clinical conditions for complications such as anaemia, hypertensive disorders, DM, HIV, syphilis, malaria during pregnancy, establish blood type and Rh at first ANC visit.
<b>Intranatal Care</b>	
2	Prepares for safe care during delivery (to be checked every day)
3	Assesses all pregnant women at admission
4	Conducts PV examination appropriately and follow infection prevention
5	Ensures respectful and supportive care
6	Monitors the progress of labor appropriately
7	Assists the woman to have a safe and clean birth immediately
8	Conducts a rapid initial assessment and performs immediate newborn care (if baby cries immediately)
9	Performs Active Management of Third Stage of Labor (AMTSL)
10	Identifies and manages Post-Partum Hemorrhage (PPH)
11	Identifies and manages severe Pre-eclampsia/Eclampsia (PE/E)
12	Performs newborn resuscitation if baby does not cry immediately after birth
13	Ensures care of newborn with small size at birth
14	Ensures the facility adhere to universal infection prevention protocols
<b>Postnatal Care</b>	
15	Ensures adequate postpartum care package is offered to the mother and baby, at discharge
<b>C-Section (Robsons criteria)</b>	
16	Provider reviews clinical practices related to C-section at regular intervals

Figure 1: FOGSI-Manyata clinical standards.

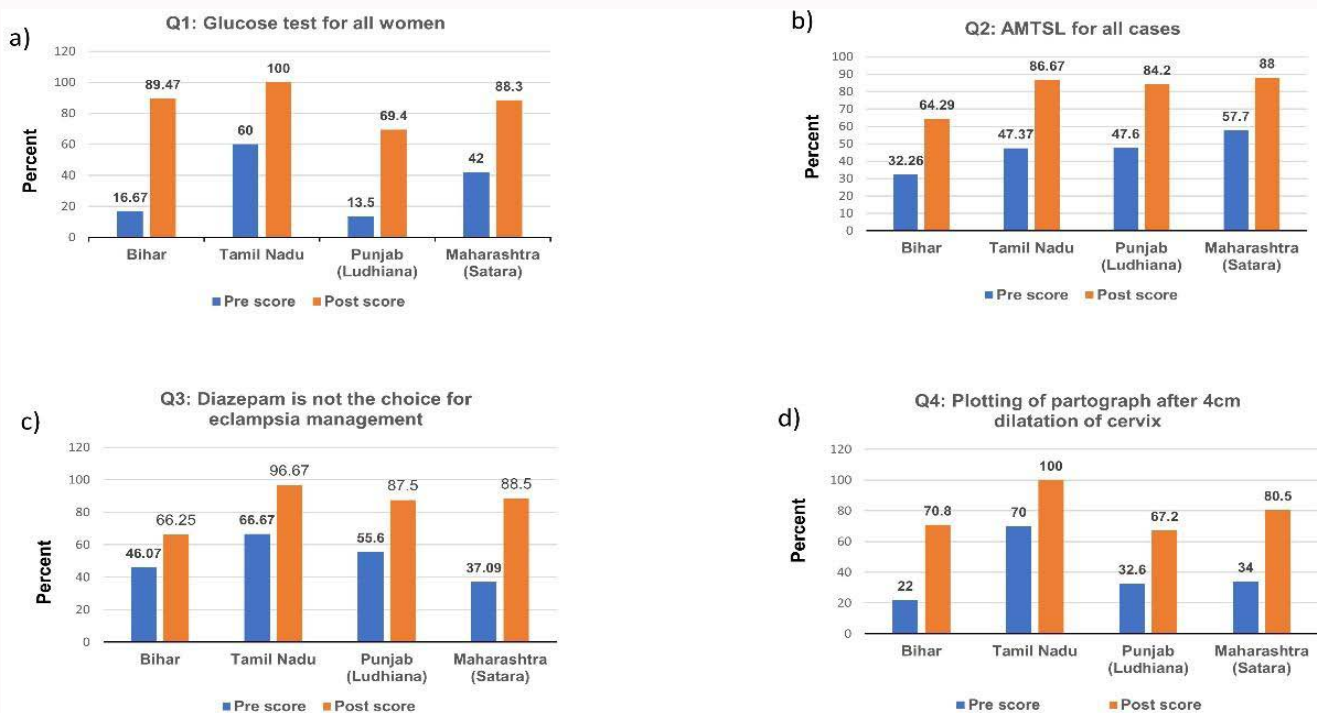


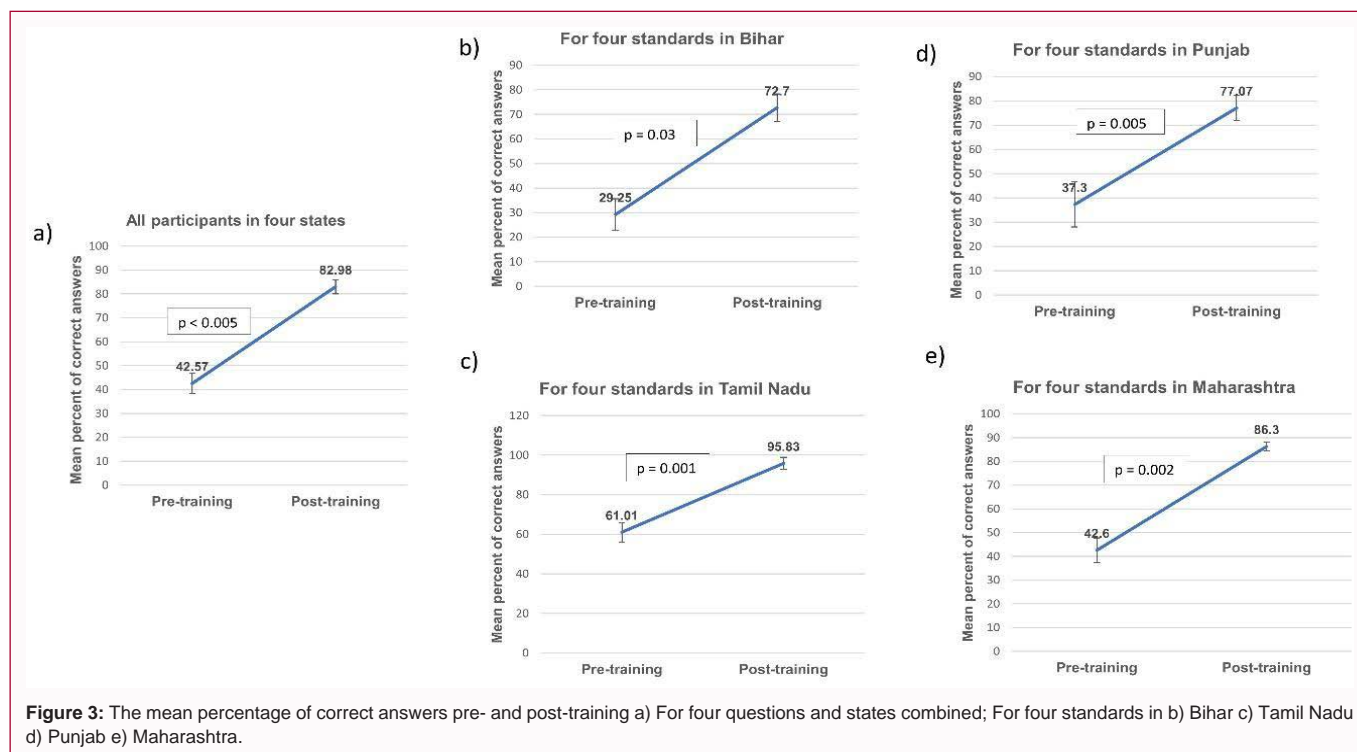
Figure 2: The proportions of participants with correct answers pre- and post-training in four states (Bihar, Tamil Nadu, Punjab, Maharashtra) for questions a) Q1 b) Q2 c) Q3 d) Q4.

3a). Similarly, the difference in the mean percentage of correct answers before and after training was found to be statistically significant with p value <0.05 for each state independently.

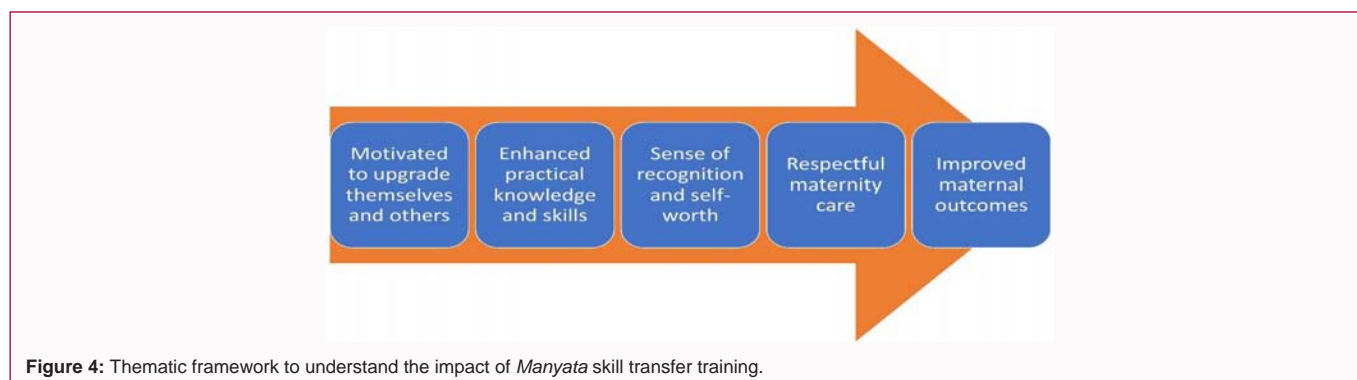
These results demonstrate a significant improvement in the knowledge and skills of the participants from all the states in different geographical regions for all standards covered in the *Manyata* training program.

**Qualitative analysis**

**Positive impact on overall functioning as explored by qualitative data analysis:** In alignment with the findings from the pre- and post-test scores of the participant, the qualitative analysis of FGDs with staff nurses, and IDIs with head consultants and assessors also highlighted a strong positive impact of the training program on the beneficiaries.



**Figure 3:** The mean percentage of correct answers pre- and post-training a) For four questions and states combined; For four standards in b) Bihar c) Tamil Nadu d) Punjab e) Maharashtra.



**Figure 4:** Thematic framework to understand the impact of *Manyata* skill transfer training.

The themes that have emerged out of our qualitative data demonstrate the most significant effects of training on staff nurses and their clinical practice can be summed up as improved motivation to upgrade themselves and others, enhanced practical knowledge and skills, an increased sense of recognition and self-worth, respectful maternity care, overall improved maternal outcomes (Figure 4).

#### Motivated to upgrade themselves and other

As per one of the assessors, one big challenge influencing maternal outcomes is the motivation of the head of the facility who can, in turn, motivate the staff to learn and improve by taking up training and make the learning a continuous process. The perception of the relevance of training to overcome competency-related challenges is a key motivating factor that can make a difference.

“The motivation of the center head that is he or she has to be really motivated so that they allow these girls, the students to attend the training sessions correctly and then they have to have a recap in their own spare facility so that these girls actually understand the practical aspects of that. And it’s basically not a one-day teaching, it has to be like ongoing” (Assessor 2).

#### Enhanced practical knowledge and skills

Now, they realized the importance of plotting a partogram and were able to keep a check on the progress of labor through it. They felt more competent and alert than before in diagnosing and managing complicated stages at an early stage.

“Partogram has been very useful to us. By plotting partogram, we come to know about the complete situation of the patient and this has helped us a lot. (Nurse 1 FGD1).

#### Sense of recognition and self-worth

All the staff nurses stated that their sense of involvement and responsibility had increased manifold which helped them in carrying out their roles and duties effectively. They acknowledged the recognition they received as they applied their learnings from the course to their practice. They not only upskilled themselves but also trained their junior/new staff that offered a huge boost to their sense of self-worth.

“Post training, we do whatever we have learnt during the training and after that we inform the madam. We do all the preparations in advance.” (N3, FGD 1).



## Respectful maternity care

Respectful maternity care during pregnancy and childbirth is not only an important component of quality of care but also every woman has a right to receive it. Head consultants have noticed an improvement in the communication skills of their staff nurses and were elated about the fact that their staff now regularly practiced respectful maternity care and engaged in clinical counseling with the patients.

“Sometimes it happens, no, the patient attendant is not very patient, they try to impose “so there they used to get aggressive”. But after this training, most of the time I see that they try to make them understand. They do whatever the attendants are wanting, they don't just blast on them, and the behavior has become very different. When the mother (or a companion) wants to stay with the patient and all those things, they try to console them”. (HC 6).

## Improved maternal outcomes

While most of the head consultants reported that the overall upgraded functioning of their health facilities has received more positive responses from the patients, two of them also highlighted a significant improvement in maternal morbidity and mortality, since the inception of *Manyata* training.

“The morbidity is reduced and undoubtedly you can see the result, the mortality in the whole country and also in our own region, has come down significantly since this *Manyata* (training) has been rolled in”. (HC 3).

## Discussion

Every human has the right to the highest achievable standard of healthcare. In one of the previous studies, Tripathi et al. documented the poor quality of maternal care, particularly in complications management, in private healthcare facilities analyzed for baseline assessments conducted for the *Manyata* training in three states of India. Nearly half (47.1%) of all staff nurses in maternity care services at these private medical facilities were found to be underqualified in the baseline assessment [4]. However, research conducted on the quality of maternal and child care in private medical facilities in India is limited. It becomes imperative to identify and address the quality gaps in maternity care in the private sector as well, in order to significantly improve maternal and perinatal survival and overall health.

Upskilling of healthcare staff, and improving their competence through training is essential for not only strengthening the quality of antenatal care but also improving maternal outcomes [6]. Magnesium Sulphate ( $MgSO_4$ ) is an anticonvulsant which is recommended for use to prevent and treat pre-eclampsia/eclampsia, but is being underutilized and not widely adopted in practice, mostly in Low- and Middle-Income Countries (LMIC). The provider competence and confidence in administering  $MgSO_4$ , is one of the major factors limiting its use for PE/E prevention as well as treatment [7]. Active Management of the Third Stage of Labor (AMTSL), which includes administration of uterotonics (preferred oxytocin) just after delivery, is of utmost importance for the prevention of complications [8,9]. A recent study has reported low skills of healthcare providers as compared to their knowledge on Active Management of Third Stage of Labor (AMTSL) and has recommended continuous in-service training for them [10].

In our study, the knowledge and competency of staff nurses

around basic aspects of maternal clinical care such as appropriate blood pressure measurement, the glucose test, and plotting of partograph, which are known to be associated with better outcomes, was found to be poor as suggested by their pre-training knowledge assessment scores. *Manyata* training program has provided one such opportunity for these staff nurses to enhance their knowledge as well as skills on 16 clinical standards, ensuring the provision of quality and safe maternity care services. Based on the pre- and post-training scores captured for four standards from four different geographical areas, the knowledge and skills of staff nurses have improved significantly after the implementation of the *Manyata* training program. As shown in Figure 2, there is a significant increase in the proportion of participants with correct answers post-training in all four states, however, the impact varied from state to state. The maximum percentage increase was observed in Bihar for questions 1, 2, and 4 which are focused on standards related to glucose testing, practicing AMTSL, and plotting partograph for all pregnant cases, respectively. It was observed that the proportion of participants with correct answers was as low as 16.7% before training which increased to 89.4% post-training for one of these standards, which explains the highest percentage increase in Bihar of all the states. On the other hand, Tamil Nadu had the highest proportion of participants giving the correct answers during both pre- and post-training assessments, leading to a 100% result post-training for some of the questions (Figure 2). Our data is aligned with the previous findings which suggest that there is a vast disparity in the key health indicators and the outcomes across the states in India, with Bihar among the worst and Tamil Nadu as one of the best-performing states in terms of maternal and child health indicators [11,12]. However, our results demonstrate that the *Manyata* training program has been a game changer in terms of improving the knowledge and skills of all the participants, irrespective of the states and geographical regions they belong to (Figure 3).

Our qualitative analysis also suggests their strengthened professionalism in overall functioning at the workplace. The impact of the *Manyata* training program was found to be positively associated with the motivation levels of head consultants and nurses, to upskill themselves and their team members. Their motivation, in turn, led to improved practical knowledge and skills which helped them with in performing their duties effectively. Their enhanced confidence helped them develop a sense of self-worth and belonging at the workplace which also developed a positive outlook and encouraged cooperative behavior with their patients, enabling the provision of respectful and quality maternity care to them, ultimately leading to overall improved maternal outcomes (Figure 4).

## Conclusion

The practical knowledge and competency of staff nurses related to basic aspects of antenatal care such as appropriate blood pressure measurement, the glucose test, and plotting of partograph were found to be suboptimal before training. Our study demonstrates that the *Manyata* training program has led to a significant improvement in the knowledge and skills of all the participants, irrespective of the states and geographical regions they belong to. The collective learning through these interactive sessions on a digital platform that connected nurses from different facilities, not only made it an interesting process but also provided a competitive environment that motivated them further to outperform. While a few head consultants also emphasized on the need for refresher training and some face-

to-face sessions for their staff, there are others who have taken the initiative of training their staff to ensure that the skills acquired from the training are effectively applied at the workplace.

### 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 quantitative and qualitative analysis, and wrote the manuscript. RD, SJ, and BK conducted the FGDs and IDIs and collected the data. RS and PN contributed to content for clinical protocol-based modules. GVD, HD contributed in networking with partners and stakeholders and manuscript review. HD led the pan India movement in the capacity of national technical lead. All authors read and approved the final manuscript.

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### References

1. Tunçalp O, Were W, MacLennan C, Oladapo O, Gülmezoglu A, Bahl R, et al. Quality of care for pregnant women and newborns-the WHO vision. *BJOG*. 2015;122(8):1045-9.
2. Manyata for Mothers [Internet]. Cited 2022 Dec 28.
3. The Federation of Obstetric & Gynecological Societies of India. [Cited 2022 Dec 28].
4. Tripathi S, Srivastava A, Memon P, Nair TS, Bhamare P, Singh D, et al. Quality of maternity care provided by private sector healthcare facilities in three states of India: A situational analysis. *BMC Health Serv Res*. 2019;19(1).
5. Divakar H, Mishra R, Joshi S, Kulkarni B, Narayanan P, Singh R, et al. Impact of Manyata flagship program on effective management of maternal complications - task-shifting to staff nurses with improved competence. *J Evolution Med Dent Sci*. 2022;11(11):850-6.
6. Nkhwalume L, Mashalla Y. Health care workers experiences in emergency obstetric care following implementation of an in-service training program: Case of 2 Referral Hospitals in Botswana. *Afr Health Sci*. 2021;21(1):51-8.
7. Eddy K, Vogel J, Zahroh R, Bohren M. Factors affecting use of magnesium sulphate for pre-eclampsia or eclampsia: A qualitative evidence synthesis. *BJOG*. 2021;129(3):379-91.
8. Rath W. Aktive Leitung der Nachgeburtperiode - Das Ende eines 50-jährigen Dogmas? *Z Geburtshilfe Neonatol*. 2013;217:173-6.
9. Tsu VD, Mai TTP, Nguyen YH, Luu HTT. Reducing postpartum hemorrhage in Vietnam: Assessing the effectiveness of active management of third-stage labor. *J Obstet Gynaecol Res*. 2006;32(5):489-96.
10. Muyanga DL, Joho AA. Knowledge and skills on active management of third stage of labor for prevention of post-partum haemorrhage among health care providers in Lake Zone, Tanzania: a cross sectional study. *BMC Womens Health*. 2022;22(1):36.
11. Meh C, Sharma A, Ram U, Fadel S, Correa N, Snelgrove J, et al. Trends in maternal mortality in India over two decades in nationally representative surveys. *BJOG*. 2021;129(4):550-61.
12. Bango M, Ghosh S. Social and regional disparities in utilization of maternal and child healthcare services in India: A study of the post-national health mission period. *Front Pediatr*. 2022;10:895033.