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Original Article

Assessing the impact of the *Aarambh* nurturing care model on the capacity & support structures for caregiver empowerment: A qualitative study

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***Background & objectives*: The provision of nurturing care during the crucial developing phase from pregnancy to three years is essential for enduring health. The *Aarambh* project, executed in specific districts of Central India, utilised existing Integrated Child Development Scheme (ICDS) and healthcare facilities to improve nurturing care. This study assessed the influence of loving care interventions on the skills, functionality, and support systems of *anganwadi* workers (AWWs) to enhance the capabilities of primary carers.**

***Methods:* This qualitative study evaluated the competencies of AWWs by observing house visits and mothers' meetings in both control (Deoli, Wardha) and intervention blocks (Ralegaon, Yavatmal), Maharashtra. Comprehensive interviews were performed with AWWs, primary carers, ICDS supervisors, CDPOs, ASHAs, and parents.**

***Results*: AWWs in the intervention group exhibited substantial enhancements in providing age-appropriate guidance, play, and communication activities along with effective community-based events.**

***Interpretation & conclusions*: The findings of this study suggest empowerment of beneficiaries and child development through this discussed programme framework. In light of this, it is apparent that the soft skills of service providers hold paramount importance for achieving sustainable outcomes.**

Key words *Anganwadi* workers - early childhood development - ICDS - nurturing care framework

The Nurturing Care Framework (NCF) by the World Health Organisation (WHO) defines nurturing care as 'a stable environment created by parents and other caregivers that ensures children's good health and nutrition, protects them from threats, and provides young children with opportunities for early learning through emotionally supportive and responsive interactions'[1]. Nurturing care during the critical developmental window, from pregnancy to the first two years of life, establishes the foundation for lifelong health and well-being. The first three years are particularly crucial in shaping a child's brain architecture[1]. Early experiences play a pivotal role in organising and functioning of the brain throughout life,

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influencing a child's learning, social, and emotional development[2]. The NCF developed by UNICEF and the World Bank, along with its five strategic plans, serves as a valuable resource for shaping policies, interventions, and guidelines[3]. To achieve the vision of the Sustainable Development Goals (SDGs), it is imperative to invest in policies and interventions related to early childhood development[4]. Evident gaps persist in all indicators related to Early Childhood Development (ECD) across low- and middle- income countries (LIMCs), as indicated by surveys conducted in 2010 and 2018[5]. A global study from 51 nations underscores the need for a global programmatic focus on the first 1000 days[6].

India is currently making progress in child health, with reductions in infant mortality, increased immunisation coverage, and improved child growth, as well as enhanced knowledge among caregivers about supplementary foods[7]. However, according to the National Family Health Survey-5 (NFHS-5), 32.1 per cent of children under the age of 5 yr are underweight, 35.5 per cent are stunted, and 19.3 per cent are wasted[8]. Malnourished children often experience delays in reaching developmental milestones. Exclusive breastfeeding, immunisation, and prompt medical attention when a child falls ill are essential for a child's healthy development and a happy childhood experience. Clean air, safe water, sanitary facilities, and secure play areas are critical for young children's exploration and learning. Parents and caregivers must meet the needs of young children and may require guidance to do so[9]. Furthermore, there is a connection between early childhood care, nutrition, and young adult childbirth rates, as well as the age of menarche and first pregnancy[10].

A model nurturing care intervention called 'the *Aarambh* project' has been created and implemented in several districts of Central India, utilizing existing opportunities within the Integrated Child Development Services (ICDS) and the healthcare sector[11]. This model employs a cascade training approach, where ICDS supervisors undergo five 5-day training cycles. Subsequently, they employ an incremental learning strategy to provide one-day training sessions to *anganwadi* staff each month. All field training sessions are conducted using district-level resources to ensure long-term sustainability. The details of the intervention under the project have been published[11].

The *Aarambh* project employs a cascade training model to build the capacity of *anganwadi* workers (AWWs) through incremental learning sessions. The training covers essential areas such as health, nutrition, responsive caregiving, and early stimulation, with a focus on empowering frontline workers to deliver age-appropriate advice during home visits and mothers' meetings. The project also includes community-based events like *Palak Melawa*, which foster family and community engagement through interactive activities that promote child development. These events include demonstrations of play-based learning, responsive feeding, and communication activities, with the aim of creating a supportive environment for caregivers[11]. So, this study aimed to assess the communication skills, functionality, and support structure of AWWs who have undergone training through the Incremental Learning Approach (ILA) mentioned above, and to compare these findings with AWWs in a control block where the intervention was not implemented. The objective was to assess the effect of the *Aarambh* programme, a package of nurturing care interventions, on the communication skills of AWWs and their ability to function effectively within the available support structures.

Materials & Methods

The study was conducted as part of a larger project in selected community development blocks. The study took place over a period of two years, from March 2021 to January 2023. Qualitative methods were employed for data collection. The intervention area comprised the Ralegaon block in Yavatmal district, while the control area consisted of the Deoli block in Wardha district. Careful consideration was given to ensure that the control area had a similar profile in terms of its distance from the district headquarters, socio-economic status, and the primary occupation of households.

Privacy and confidentiality were maintained for all information captured. An informed written consent was taken from all the participants in the study. A verbal consent was obtained from respondents of IDIs and was recorded. Study was conducted after obtaining permission from the Institutional Ethical Committee of Mahatma Gandhi Institute of Medical Sciences, Wardha, Mumbai. Additionally, permissions were obtained from the ICDS authorities for conducting the study. This study employed a qualitative research design using deductive reasoning. The deductive approach was chosen because the study aimed to test the effectiveness of an established intervention model based on existing theoretical frameworks, particularly the NCF.

Table. Methods of data collection is as shown in this matrix

Domain	Specific objectives of assessment	Methods	Sample size/ Number of qualitative tools to be used
1. Skills	Communication skills along with other soft skills of AWWs towards primary caregivers	Simulated exercise and observation based on checklist	Each ICDS block was divided into 5 sectors. 2 AWW from each sector were selected from both intervention and control blocks. Out of the 2 selected from each sector, 1 AWW was chosen for home visit observation and other for mother's meeting observation. So, a total of 5 observations from 5 home visits and 5 mothers meeting in each block were covered.
2. Functional ability	Empowerment of primary caregivers for child nutrition, development and health through home visits, mothers' meetings, community-based events	In-depth interview of the AWWs and primary caregivers	5 AWW from each sector that is 25 AWWs each from control and intervention block were included. 2 mothers and 1 father from each sector, amounting to10 mothers and 5 fathers each from the control and intervention block
3. System support	The perceived support that the ICDS staff and other frontline workers give to the AWWs Also understanding the supportive supervision by the ICDS supervisors and CDPOs	In depth interview of ASHA, ICDS supervisors, CDPOs	5 ASHA workers from in each block 2 ICDS supervisors from each sector and CDPO from each sector

AWW, *anganwadi* worker; ICDS, integrated child development scheme; CDPO, child development project officer; ASHA, accredited social health activist

Data collection methods: The specific domains assessed in this study—communication skills, responsive caregiving, home visits, and community engagement – were chosen based on their alignment with the NCF. The NCF outlines five core components essential for early childhood development, namely, good health, adequate nutrition, responsive caregiving, security and safety, and early learning.

Our data collection was done using qualitative methods like in-depth interviews (IDIs), Simulated exercise and observation by checklist. These methods were applied for collecting data from AWWs, accredited social health activists (ASHA) workers, Child Development Project Officer (CDPOs), Integrated Child Development Scheme (ICDS) supervisors and from the parents/primary caregivers. Detailed explanation about the data collection methods has been given in the table.

Our analysis primarily focused on mothers' meetings, home visits, and *Palak Melawa*. These components were selected for evaluation because these are central to the nurturing care model's objective of engaging and empowering primary caregivers, especially mothers[11].

Mothers' meetings serve as a platform for peer-learning and collective engagement, allowing AWWs to deliver important messages on child health and development in a group setting. Home visits enable AWWs to provide personalised, family-centred support and ensure the practical application of responsive caregiving messages at the household level. *Palak Melawa* provides a community-focused environment where caregivers actively engage in child development activities, fostering broader community participation in nurturing care practices.

Other AWW functions, such as record-keeping, distribution of supplements, and preschool education, though essential, were not directly analysed because the core objective of the *Aarambh* project was to promote caregiver empowerment through direct engagement and responsive caregiving practices[11].

Data triangulation: To enhance the validity and reliability of the findings, triangulation was employed through multiple methods. Data source triangulation involved collecting data from various stakeholders, including AWWs, primary caregivers, supervisors, CDPOs, and ASHA workers. By comparing responses from these different groups, consistent patterns and discrepancies in the implementation of the nurturing care intervention were identified, allowing for cross-validation and reducing bias from any single

perspective. Methodological triangulation was applied by using both interviews and observations to assess AWWs' performance. Data collection persisted until no more themes or insights were identified, guaranteeing a thorough representation of participant viewpoints. Researchers contemplated their responsibilities and any biases, utilising peer debriefing and triangulation to maintain objectivity in data analysis.

Data analysis: Emergent thematic analysis pattern is used for the analysis of the IDIs done. Through a systematic process, the data was coded and organised using ATLAS.ti Scientific Software (2022 web version), involving the identification of themes through careful reading and re-reading of the transcribed interviews. The interpretation process was reflexive, where recurrent themes were identified.

Results

Home visits: Five home visits were observed, and the results showed that AWW communication varied by block. While AWWs in the intervention group prioritised play, communication, and responsive caregiving, few in the control block talked about interactive play or provided counselling on age-appropriate stimulation.

AWWs in both blocks talked about managing common illnesses, updated the MCPC, addressed child growth, and provided carers with information. In contrast to the control block, intervention block AWWs asked more questions about feeding procedures and provided nutritional recommendations. In contrast to the control block, which provided broad information, they also provided carers with problem-solving techniques and useful advice.

In control block: Our interviews with AWWs revealed a consistent pattern of home visits in the control block. Most AWWs in the control block conduct home visits after they finish their work, often accompanied by an *anganwadi* helper (AWH). On average, each AWW visits approximately 5 to 6 homes in a single day.

When asked about the response of family members to their visits, one AWW remarked that the care provided to the child depended on the parents. She stated,

'Yes, I conduct home visits to five families every day. From my experience, I've noticed that when parents take good care of their baby, the baby's growth is good. Conversely, when parents do not pay adequate attention to their baby, the baby's growth is poor. The response of parents to our home visits varies based on their level of caregiving.'

In intervention block: A 50-yr-old AWW explained,

'*I conduct home visits based on the family's convenience, ensuring everyone, including the father, is present. Care for the baby is a shared responsibility. We provide age-appropriate guidance, and the response is positive.'*

During their visits, most AWWs stressed the importance of involving all caregivers and invited everyone to join discussions. Nearly all of them emphasised topics such as diet, feeding practices, child growth and development, and immunisation during their visits. Additionally, most AWWs mentioned that they provide information on how to prepare nutritious complementary foods. An AWW from the intervention block shared an experience,

'*We conduct three to four home visits daily. Once, I advised a mother to feed her baby mung dal khichdi for weight gain. Despite initial discomfort, I explained its benefits, and the child eventually adapted, started eating varied foods, and gained weight.'*

Effect of interventions: In the control block, AWWs typically conduct home visits after their *anganwadi* duties without prior scheduling, visiting 5 to 6 homes daily to provide general guidance on cleanliness, diet, and child health. They carry out basic assessments like weighing children and measuring height but rarely provide age-specific guidance. In contrast, AWWs in the intervention block conduct more structured and planned visits, usually 4 to 5 times per month, considering the child's age and family availability. They provide more comprehensive, age-appropriate advice on nutrition, feeding, and Early Childhood Development (ECD) and emphasise responsive caregiving and feeding practices, often following up with families *via* mobile communication.

Mothers' meetings: AWWs showed excellent engagement skills in both blocks by extending a warm greeting to mothers, communicating effectively both verbally and nonverbally, and displaying positive body language. They explained child growth and development using the Maternal and Child Protection (MCP) card. One significant distinction was in the ways of communication. Intervention block AWWs

promoted enquiries, stimulated conversations, and made sessions interactive by using role-play and examples. Control block AWWs, on the other hand, were less interactive and depended on conventional techniques. Although both offered fundamental health advice, intervention block AWWs were superior at providing age-appropriate counsel and encouraging play-based learning, while control block AWWs placed less emphasis on interactive play and conversation.

In control block: In the control block, most AWWs reported that mothers' meetings occur once a month, with a few indicating a frequency of twice a month. Overall, they agreed that they typically hold around 10 meetings per year. Many AWWs in the control block send their helpers to invite beneficiaries, including lactating and pregnant mothers, typically one hour before the meeting. However, a couple of them mentioned that they provide invitations two days in advance. One AWW explained,

'We hold mothers' meetings, notifying parents two days prior, offering guidance on child growth, though attendance is about 50 per cent.'

In intervention block: An enthusiastic and experienced 54-yr-old AWW enthusiastically explained,

'We hold mothers' meetings regularly, organised by age groups. We demonstrate child development, complementary feeding, play activities, immunisation, handwashing, and growth monitoring. We explain growth charts and provide dietary advice for underweight children.'

More than half of the AWWs mentioned that they divided mothers based on their child's age to provide targeted information. For instance, one AWW mentioned,

'We divide mothers' meetings into four age groups, offering guidance for optimal child development. We advise pregnant mothers to maintain mental well-being and communicate with their baby in the womb. Parents are encouraged to support their child's play based on their interests.'

Effect of interventions: 50 per cent of the mothers in the control block attended the monthly or bi-monthly meetings, which number exceeded about ten per year. Mothers were frequently invited an hour in advance, and some helpers were given two days' notice. Anthropometric measures were taken and guidance is given during meetings at AWCs that center on food, weight, cleanliness, and hygiene. Weekly meetings were held in the intervention block, and invites were sent out according to the child's age. Mothers, family members, and customised advice on subjects like nutrition, play, vaccinations, hygiene, and child development were included in these organised sessions. There was full attendance, good levels of engagement, and some AWWs prepared wholesome meals as well.

Palak Melawa:

In control block: Upon inquiring about the *Palak Melawa* programme in the control block, AWWs expressed unawareness of such a programme and denied its existence. They mentioned conducting other enjoyable activities with a focus on health promotion. Even the ICDS supervisors in the control block were not familiar with the *Palak Melawa* programme.

A 39-yr-old AWW with 11 years of experience mentioned,

'We didn't have a Palak Melawa. We conducted mothers' meetings where we provided guidance on diet and hygiene.'

In intervention block: In the intervention block, *Palak Melawa* was a regular and well-received event. When asked to describe it, many referred to it as a type of parents' meeting. Most mentioned that the venue for *Palak Melawa* was typically selected on a rotating basis in different villages within the block. In the chosen village, AWWs and parents from various areas gather to participate.

The organisation of *Palak Melawa* is facilitated with the assistance of key community figures such as ASHA workers, ANMs, *Gram Panchayat* members, and the *Sarpanch*. Chief guests were usually ICDS supervisors and CDPO.

A 30-yr-old AWW with six years of experience described,

'*Palak Melawa was held in our village with stalls on child development, play, and nutrition. Colorful paintings were displayed, and parents created dolls. The event facilitated valuable information exchange, received positive feedback, and I hope it continues.'*

Supervisors emphasised community involvement and rewarding outstanding AWWs with gifts. One highlighted addressing addiction and tobacco chewing

during mothers' meetings. Both showed strong support and enthusiasm for *Palak Melawa*.

Effect of interventions: In the intervention block, *Palak Melawa* was a regular and well-organised event, often described as a type of parents' meeting. The event took place in different villages on a rotational basis, with AWWs, parents, and community members actively participating.

Capacity building and supportive supervision:

In the control block: Many of them in the control block denied when asked about if any special training was taken in recent times. Some even confessed that they didn't remember their last training session. For almost all of them, their last training was the refresher training. Everyone accepted that their supervisors were friendly and easily approachable. One such AWW said,

'Our supervisor madam helps and guides us. We can call the supervisor anytime and ask for doubts regarding our AWC.'

AWWs would reach out for any doubts, and the supervisors used to provide advice for them whenever needed. The supervisors apparently visited the AWWs once or twice a month and would accompany the AWWs for home visits once a month. Most of the supervisors preferred to visit the home of underweight children. Almost every AWW got advice regarding work, mother's diet, and child nutrition.

Both of the ICDS supervisors in the control block made surprise visits to *anganwadi* centres, and during these visits, they looked at the registers maintained by the AWW and also helped the AWW in her work. One of the supervisors said that,

'As ICDS supervisor, we have to keep an eye on the work of the anganwadi worker. We have to see if they are doing their job well; we have to remind them if there are any incomplete or left-out works. For all these, we have to visit the anganwadi centre.'

The supervisors used to distribute modules. She told, *'I meet the anganwadi worker three to four times. We provide training using modules provided to us in the meeting, about anaemia, hygiene, activities to increase the weight of the child, to guide the parents.'*

During the visit, both the supervisors go for home visits with their respective AWW. A 36-yr-old supervisor of the control block told,

'If we visit the home of an underweight baby, we tell them about the ways to keep the baby clean, about proper feeding practices including breastfeeding, complimentary feeding and also about different types of food to be given to the child.'

The CDPO of the control block said that she felt a socially responsibility. On expressing her role, she said that she needed to look after the supervisors as well as get the list of children in SAM and MAM category. She also inquired about the well-being of the children during her subsequent supervision visits. The CDPO of the control block told that,

'I ask for records from the supervisor. We analyse the number of children malnourished and underweight. We also have a note if all the children are improving/ gaining weight.'

In the intervention block: All of the AWWs in the intervention block had completed the ECD training. When asked about their experience post this intervention, most of them told that they were working with more love and passion as compared to before while focusing on empowering parents in child growth and development.

Almost all of them informed that they liked their supervisors teaching them using small games and their bond was also strengthened with such training. Most of them were eager for their subsequent training sessions from their supervisors or any project team members. Many AWW acknowledged that their supervisors also appreciated them for all their efforts and good work. One of the AWW from a tribal dominant sector in the intervention block told,

'*Initially, many children in my anganwadi were in SAM and MAM categories. With the supervisor's guidance, I conducted home visits, and most children improved to normal, earning appreciation. ECD training enhanced our knowledge, which we shared with villagers. I hope refresher training continues annually.'*

During their visit to the AWC the supervisors checked the registers and mark the SAM, MAM children and approach them separately. One said that,

'*If there is a malnourished baby, we have to visit more often. I regularly visit the families of children with Severe Acute Malnutrition and Moderate Acute Malnutrition. I do check diet register, mothers' meeting*

register, Community-based programme register, birth and death register.'

Another supervisor informed that, '*We advise anganwadi workers to hold meetings for mothers based on age groups, including separate sessions for pregnant and lactating mothers and teenage girls. Guidance includes:*

- *For lactating mothers: Demonstrating breastfeeding, responsive feeding, talking, and play.*
- *For children 6 months to 3 yr: Feeding practices, play with household items, communication, and colour identification.*
- *For children 3 to 6 yr: Regular anganwadi attendance and timely meals.*'

This clearly shows the emphasis of the supervisors in the intervention block upon customised messaging. Furthermore, a CDPO from the intervention block informed regarding her work satisfaction and held monthly meetings with all her AWWs and a weekly meeting with all her supervisors. She also understands the necessity for continuous training and arranges trainings on important topics on a regular basis. For further supervision of her AWWs. By classifying AWWs into three performance categories—good, average, and poor- and assigning them specialised revision sessions, she plans training sessions and oversees them.

Effect of Interventions: In the control block, many AWWs reported no recent special training, with most only recalling their last refresher session. Supervisors were described as supportive, visiting AWCs regularly, conducting home visits, and offering advice on nutrition and child growth. Supervisors used WhatsApp for communication and focused on record-keeping and cleanliness during their visits. In contrast, the intervention block saw all AWWs completing ECD training, which improved their work quality and focus on child development. Supervisors visited more frequently, providing age-specific advice on diet and caregiving, and held targeted meetings with mothers. The CDPO in the intervention block emphasised regular trainings and structured supervision for continuous improvement.

System support: In the control block, all five ASHA workers mentioned that they conducted individual home visits and occasionally accompanied AWWs on their home visits.

'*ICDS and health are two sides of the same coin*,' she said, acknowledging cooperation with the health system. Noting seamless collaboration with ANMs, she underlined the importance of depending on the health department to manage SAM, MAM, and immunisations.

ASHA workers primarily emphasise the importance of child vaccination. A 48-yr-old ASHA worker with 12 yr of experience explained,

'*During mothers' meetings, I provide information to parents about breastfeeding, proper feeding practices, interactive play, effective communication, and more importantly, vaccination. These meetings are tailored according to the baby's age group.*'

Both ASHA workers and AWWs collaborate on events like '*Palak Melawa*' and other community-based programmes in their respective villages. One of the ASHA workers shared their experience, saying,

'*We have organised 'Palak Melawa' twice. We set up various stalls, offering healthy food items and disseminating important messages. AWWs asked us to address the community and educate them about handwashing*.'

Effect of interventions: In the control block, ASHA workers conducted individual home visits, sometimes accompanying AWWs, focusing on topics like breastfeeding, diet, hygiene, and vaccination. They also discussed challenges, such as limited access to doctors and a shortage of Vitamin A syrup. In contrast, in the intervention block, ASHA workers actively collaborated with AWWs during events like *Palak Melawa*, participating in mothers' meetings and emphasizing child vaccination. The CDPO in the intervention block expressed satisfaction with her role, highlighting her efforts in continuous training and regular supervision, along with strong collaboration between ICDS and the health department.

Functionality of AWW for the empowerment of the primary caregivers:

In control block: All the mothers and fathers demonstrated awareness of child diet, vaccination, and growth. They expressed gratitude towards the AWW and ASHA workers for providing them with valuable information. Many mothers found the mothers' meetings to be useful and informative, introducing them to new ideas they were previously unaware of.

Most participants acknowledged that the duration of AWW's home visits varied, typically lasting a maximum of 20 minutes. Nearly all mothers were aware of the MCP card and followed it. They could also explain the growth chart and its color-coded sections.

A mother of an eight-month-old baby explained,

'*We receive an immunisation card that includes the child's vaccination history. Additionally, it features graphs marked by the AWW, providing insights into the child's growth*.'

However, none of them were familiar with *Palak Melawa*. Only a few had knowledge about the distinctions between child growth and child development, as well as the significance of age-appropriate play materials and activities. Few fathers expressed interest in attending AWW's home visits.

In intervention block: Most primary caregivers reported receiving information about child nutrition, growth, and development from ASHA workers and AWWs. They mentioned being educated about responsive caregiving by AWWs and actively implementing it. A mother with a two-and-a-half-year-old child stated,

'*When we eat, we involve the baby in our mealtime, allowing the child to feed themselves. The baby shows hunger cues, and we respond accordingly*.'

Several fathers admitted to never attending mothers' meetings, while a few mentioned participating in AWW's home visits whenever possible. One mother shared,

'*AWW advised me on allowing the child to engage in activities like colour matching, singing songs, playing with household items, and tossing balls. AWW emphasised the importance of play and exploration*.' Almost all caregivers understood the importance of spending quality time with the child, involving all family members. When asked about their playtime methods, a father mentioned,

'*I engage with the child by talking to her, naming objects, and encouraging her to repeat after me. We also introduce her to relatives during our outdoor walks*.'

Effect of interventions: In the control block, both mothers and fathers showed awareness of child diet, vaccination, and growth, with many appreciating the guidance provided by AWWs and ASHA workers. Mothers found mothers' meetings useful, though there seemed to be limited understanding of responsive feeding. Most parents were familiar with the MCP card and growth charts but lacked awareness of *Palak Melawa* and the distinction between child growth and development. In the intervention block, caregivers had a better grasp of responsive caregiving, with many implementing practices like self-feeding and engaging in play activities. Fathers were less involved in mothers' meetings but participated in home visits and playtime when possible. Caregivers were generally well-informed about the MCP card, and AWWs used WhatsApp groups to share health information and videos.

The synergy and divergence between the intervention and the control blocks: In both blocks, AWWs were consistent in their basic caregiving duties, including monitoring child health, updating the MCPC, and discussing feeding practices. However, a notable divergence emerged in the depth of caregiving advice and the engagement strategies employed. In the intervention block, AWWs were able to deliver more age-appropriate guidance on responsive caregiving, such as play-based activities and communication strategies, while in the control block, this aspect was largely under emphasised. The supervisory support in the intervention block fostered greater confidence and skill development in AWWs, enabling them to address complex issues such as child stimulation and caregiver empowerment. This divergence highlights how the nurturing care model in the intervention block led to a more holistic approach to caregiving, while the control block remained focused on routine health monitoring, lacking the dynamic community involvement seen in *Palak Melawa* events.

Discussion

Intervention models have been implemented with AWWs in the past, and there is existing evidence that highlights the significant improvements AWWs can achieve when they receive appropriate training[12-15]. Many intervention packages focusing on child and maternal health have yielded positive results through AWWs' involvement[12]. Furthermore, there have been operational research models that utilised AWWs to assess cardiovascular risk factors, demonstrating notable enhancements in their communication skills[12].

The outcomes of these previous initiatives closely mirror the findings of this study. In our nurturing care model, substantial improvements in AWWs' soft

skills were observed within the intervention block, even though there was no significant difference in their knowledge base. Additionally, there is a well-established example from Tamil Nadu, where a dental module was successfully integrated into the existing Integrated Child Development Services (ICDS). This module aimed to educate beneficiaries about oral self-examination and oral health, with AWWs playing a pivotal role in its implementation[13].

There are studies that have reported that AWWs often spend a significant portion of their time on administrative tasks, sometimes under peer pressure to achieve favourable results for their supervisors[16]. To address this issue, our study emphasised the importance of supportive supervision and the implementation of community-based programmes such as *Palak Melawa*. Additionally, conducting age-appropriate home visits and mothers' meetings led to a more effective use of an AWW's time.

A study conducted in Madhya Pradesh highlights the significance of respectful care and communication by Community Health Workers (CHWs) and its connection to various feeding-related behaviours. Improved message retention appears to be a key mechanism in this context. Therefore, enhancing CHWs' soft skills and their social interactions with beneficiaries can have significant benefits[17]. This finding aligns with the results of the present study.

There is existing evidence supporting the need for supportive supervision in the context of community health workers. Often, community health workers, including AWWs, provide services at a large scale but receive insufficient support from the health system. Supportive supervision is recognised as a promising intervention to enhance the health system and enable CHWs to deliver high-quality services[14]. The findings of this study also suggests that supportive supervision from Supervisors and Child Development Project Officers (CDPOs) positively impacts the work patterns of AWWs. The data strongly supports the idea that in order for young children to reach their developmental potential, parents, caregivers, and families need support in providing nurturing care and protection[18].

Furthermore, interventions that focus on improving the home environment and provide customised parenting tips through AWWs have been proven effective in nurturing care. A cluster randomised controlled trial (RCT) in India evaluated the effectiveness of a regionally tailored family parenting education programme that aimed to enhance parents' abilities and confidence in supporting early child development. Such initiatives have shown realistic strategies for nurturing care[15].

A systematic review[19] highlights the favourable effects of peer-led home visiting parent support programmes on mother-infant relationships. These programmes adopt a framework of cooperation between parents and home visitors. The quality of interaction between parents and home visitors, as well as the working conditions of home visitors, promotes positive changes in parenting attitudes and beliefs. Moreover, it increases the frequency of preventive healthcare visits for children[19]. These results support the importance of strengthening home visits, which are already part of our system, especially when integrated with responsive caregiving components.

Another quasi-experimental study[20] conducted in India introduced an intervention model involving community health workers to strengthen home-based newborn care through home visits by ASHA workers. While the number of home visits significantly increased as a result of this intervention, coverage levels in absolute terms remained low. However, the intervention led to improvements in various outcomes, including feeding practices, handwashing, iron and folic acid supplementation, oral rehydration solution supplementation, growth monitoring, and immunisation[20]. In the present study, although we did not observe a significant increase in the number of home visits, we did find an enhancement in the quality and duration of each visit in the intervention block. While this study used qualitative methods to assess the number of home visits, quantitative methods might provide a more comprehensive understanding of this aspect. Furthermore, the concept of customised messaging in-home visits and mothers' meetings proved effective in empowering primary caregivers across various domains.

A study from Pakistan introduced the observation of mother-child interaction (OMCI) measurement, which involves a five-minute paper-based game between mothers and children[21]. Although we did not include this measurement in our observation checklist, our study did encourage mother-child play interactions. Future studies and interventions that aim to maximise child development through responsive parenting may benefit from OMCI's ability to pinpoint key routes for changing caregiving habits.

Despite these strengths, this study did have its limitations. Its focus on two blocks in Central India limits generalisability to other regions. The qualitative design provides insights but cannot quantify outcomes or establish causality. Researcher presence may have influenced AWW and caregiver behaviour (observer effect). The study emphasised more on home visits, mothers' meetings, and *Palak Melawa*, neglecting other duties like nutrition distribution and preschool education. Interview responses may reflect social desirability bias. Unequal supportive supervision between blocks may also introduce bias. Lastly, the absence of longitudinal data prevents evaluating long-term sustainability of caregiving or child development improvements.

Overall, the evaluated intervention showed significant improvements in AWWs' skills and functionality, aided by supportive supervision from ICDS supervisors and CDPOs. Activities like *Palak Melawa* and caregiver empowerment have strengthened the nurturing care model, particularly the *Aarambh* model, which focuses on enhancing service providers' soft skills for sustainable outcomes. Further research is, however, needed to assess the model's impact on child growth and development in both blocks. Aligning with WHO's Nurturing Care Framework, this model could be integrated into ICDS programs to support holistic child and family development.

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