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Inclusive partnership and community mobilization approaches to improve maternal health care access among internal migrants in nine Indian cities

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ABSTRACT

Background: Disparities in healthcare access to internal migrants exist, and the gaps may widen further if appropriate steps are not taken. Innovative approaches are needed to better align the healthcare services with the migrants' needs.
Aim: The aim was to develop and test a supportive strategy of healthcare, which would achieve the desired level of access and delivery of maternal healthcare services to internal migrants living in nine Indian cities.
Methods: This intervention with the quasi-experimental design was conducted with pre- vs post-intervention comparisons within the interventional groups and with the control group. The intervention was implemented with an inclusive partnership approach. Advocacy and community mobilization were the main intervention components.
Findings: An increased proportion of women sought antenatal care during the intervention. More women initiated seeking antenatal care in the first trimester. Due to intervention, health workers' prenatal (41.7% in the post- against 14.7% in the pre-interventional phase) and postnatal home visits increased (11.6% to 34.7%) considerably.
Conclusions: Interventions with inclusive partnership would improve healthcare access to vulnerable communities such as migrants. Hence, efforts to strengthen the government healthcare system through novel strategies are crucial to provide better healthcare to migrants.

Introduction

The health of migrants is of major concern owing to various factors and migrants with low socio-economic background are more vulnerable due to uncertainty involved in securing livelihoods, non-familiarity with the urban environment and urban culture, urban community

Abbreviations: ANM, auxiliary-nurse-midwives; ASHA, accredited social and health activist; IEC, information, education and communication; NGO, non-government organizations; NHM, national health mission; OPD, out-patient department; SPSS, statistical package for social sciences.

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characteristics, etc. In India, some of the reasons for rural to urban migration, particularly for the poor, include unavailability of work continuously in rural areas, availability of work in the cities due to urban-centric developmental activities and attraction towards the cities. All citizens of India can move freely throughout the territory of India to reside and settle in any part of the Indian territory. Despite this, migration to a newer environment, say rural to urban areas in the background of low socio-economic conditions, puts these migrants in a vulnerable context. Various social, economic, and political reasons shape people's migration decisions within or across borders. Changes in the rural economy, a shift from agriculture to industry and other developmental sectors, increased transportation and communications, etc., facilitated swift movements of people for various reasons and migration for livelihood opportunities is remarkable. The Census of India (2011) showed that migration has contributed to 21% of the growth in the urban population (Anderson, 1995). Internal migration is a common phenomenon in India, with 326 million internal migrants (i.e., 28.5% of the population) as per the National Sample Survey 2007–08 (Babu et al., 2014). Babu et al. (2017) estimated that there is 20.8% of internal migration, contributing to 9.2% of urban growth in the decade 1991–2001. In addition to the internal migrants, the numbers of undocumented, cross-border migrants in India are considerable. It may be made clear here that the term 'undocumented migrants' is referred to those immigrants who moved in or out of the territory of any country without necessary formal permissions. The exact number of undocumented migrants in India is not known, however, some estimates show that there would be around one million Nepali migrants in India (Babu et al., 2018), while according to Babu et al. (2010), this may vary between 0.5 and 3 million. The cross-border migrants in India are mainly from its neighbouring countries, viz., Nepal, Bangladesh, and Srilanka. The present paper deals with the internal labour migrants of India, who have the right to move, reside and settle anywhere within the territory of India.

While migration has great developmental potential, it poses various challenges to the urban spaces, including unsystematic growth, lacking infrastructure and the rise of slums and slum-like settlements, particularly near the construction sites, empty lands, along the railway tracks, footpaths, under bridges, etc. The implications of rural to urban migration are manifold and have both positive and negative impacts on the migrants and the rural and urban communities at large. Migrating to the urban areas provides livelihood opportunities for the migrants and their families on the one hand, while on the other, its implications include disruption in the family structures, social cohesion, etc. Bhagat and Mohanty (2009) and Bhutta and Lassi (2010) highlighted the sub-human living conditions of the labour migrants. Nearly two-thirds of the migrants are living in non-notified slums, and slum-like dwellings, three-fourths of them are living in katcha (referred to as temporary dwellings that are made from mud, thatch, straw, this plastic/metallic sheets and other low-quality materials) often a single room dwellings; a majority (62%) using unclean fuels for cooking; 80% did not have continuous and regular water supply; and only 36% having a sanitary latrine (Bhagat and Mohanty, 2009). Thus, Migrants often live in dilapidated, unhygienic living conditions amidst lack of basic amenities (water supply, sanitation and access to social services) and these migrants are often represented by vulnerable social classes, lower educational attainment, etc. (Bhutta and Lassi, 2010). These living conditions, coupled with the casual and contractual nature of work, precarious nature of work and lack of social support in the new urban environment, may not allow them to navigate the existing systems for their social, including healthcare needs. Migrants face difficulty coping with urban living and become vulnerable in the new environment. Vulnerability here is defined as a state of being exposed to or susceptible to neglect or abuse. This vulnerability leads to less control over the resources meant for all communities, including migrants. This situation impedes the integration of migrants into the local population. This situation may be more specific to rural to urban migrants. As it is evident that urban cities are larger and more complex than the rural villages that are relatively cohesive. Healthcare delivery varies significantly from rural to urban areas (Borhade, 2011, 2022). Thus, rural-urban migrants face problems like differences in the healthcare delivery systems in addition to the unfamiliarity, lack of social networks, and difficulties in navigating the system in the cities. Compared to rural, urban areas possess a good number of health facilities. However, studies have reported the poor's limited utilization of these existing services (Borhade, 2022; Fiedler, 1981; Gogia and Sachdev, 2016). The reasons for this limited utilization include the inadequate delivery of the public health services in the complex urban system, weak referral system and poor outreach of the services to the poor, and the structure of the urban healthcare system compared to the rural healthcare systems (Government of India, 2013). Migrants are familiar with their rural healthcare system, and they have a sense of belongingness in the native villages. They are not familiar with the available healthcare facilities and their location in the urban cities. Also, they feel alienated due to weak social networks and exposure to a new culture, such as living in limited and crowded spaces. They do not know whom to contact and seek help for their needs, and non-familiarity with the urban healthcare system adds to it. Thus, the migrants become more vulnerable as they are exposed to many health problems and lacking access to the available services, owing to the reasons cited above (Borhade, 2011). Lower utilization of primary healthcare services by the migrants is reported in India (Government of India, 2011) and elsewhere (Heaman et al., 2013; International Institute for Population Sciences (IIPS) and ICF, 2017; Islam and Gagnon, 2016; Kerber et al., 2007; Kusuma and Babu, 2018; Kusuma and Babu, 2019; Kusuma et al., 2009). Inadequate health staff and the failure to include migrant pockets and settlements to provide primary healthcare services are some of the health system-related reasons for this situation (Kusuma et al., 2018). The vulnerability of the migrant population and its livelihood insecurity further added to this situation. It resulted in inequity and limited access to healthcare services, despite availability of healthcare facilities in urban areas (Government of India, 2011).

Though the plight of migrants and their vulnerability is visible, empirical studies on migrants' healthcare access are not available except some micro studies that have highlighted migrant vulnerabilities in terms of health status and poor access to healthcare (Borhade, 2011, 2022; Fiedler, 1981; Gogia and Sachdev, 2016; Kusuma et al., 2013; Kusuma et al., 2010; Kusuma et al., 2014, Kusuma, 2009; Lassi and Bhutta, 2015; Lattof, 2018). A review of published literature on migrants' health and healthcare access in India revealed that major health issues of migrants included work-related injuries, non-communicable diseases like diabetes and hypertension, and communicable diseases like malaria and HIV (Government of India, 2011). An empirical study among migrants in Delhi (Gogia and Sachdev, 2016) reported that fever, respiratory illnesses and eye problems as the common illnesses; and a considerable proportion experience chronic illnesses like hypertension, diabetes, arthritis and chronic respiratory illnesses and chronic weakness (particularly among women), tuberculosis and musculoskeletal problems (Gogia and Sachdev, 2016). Thus, these migrants are vulnerable to communicable as well as non-communicable diseases. And it may also be noted that the access to healthcare is poor, and a majority of them sought care from unqualified practitioners ((48.6%) despite having a wider health infrastructure (Gogia and Sachdev, 2016). The present paper is limited to maternal healthcare services.

It is worth noting that labour migration is characterized by male migration at younger ages. In the course of time, several of them tend to settle and bring their family (wives and children) to the city. Yet, it is not uncommon that young wives do accompany their husbands. In the background of the younger age profile of the migrants, reproductive health is of greater importance. Migrant women are at the risk of foregoing healthcare services, and emphasized the need for specific intervention to improve maternal and child healthcare access (Borhade, 2011, 2022; Fiedler, 1981; Kusuma et al., 2013; Lewin et al., 2010). These studies highlighted the need for specific interventions to improve

access to healthcare to the migrants. Access to healthcare services results from five specific components of access viz., availability, affordability, accessibility, adequacy and acceptability of the existing healthcare services (Lwanga and Lemeshow, 1991; Marston et al., 2016). This model looks at the policy interventions to mitigate the barriers by improving healthcare services like enhancing the availability of clinics, treatment, drugs, and quality of care. Once the illness is recognized and the treatment-seeking process is initiated, access to the services becomes an issue. Availability of doctors, medicines, trust, diagnostic facilities, etc. are prerequisites for the health services to be reliable and credible; other access barriers include long distances to the health facility, lack of or limited public transport, timings of the healthcare facility that mismatches with the people's working time, etc. (Mishra et al., 2015). Treatment costs, both direct (e.g., drug costs) and indirect costs (e.g., loss of wages), remains another barrier. People's judgment of the quality of care (adequacy and acceptability of services) plays another important role. This makes us clear that these access issues and the vulnerability of the community interplay with each other to influence access (Mou et al., 2015). It is obvious that migrants are vulnerable and face negligence and alienation in the new socio-cultural urban environment. Thus, the migrants have less control over available resources and thus affects their access to healthcare services

It has been well recognised that community-based interventions would facilitate understanding the existing situation and mobilising the local resources. These approaches are thought to be sustainable as people are major stakeholders in developing and implementing these interventions. The World Health Organization recommended community participation for improving maternity care services examined various participatory approaches that improved maternal healthcare seeking behaviours (National Sample Survey Organization, 2010; Obrist et al., 2007).

It is evident from the existing scenario that disparities in healthcare access to migrants exist, and the gaps may widen further if appropriate steps are not taken. In order to meet the migrants' healthcare needs and expectations, newer approaches are needed for better alignment of healthcare services. In this direction, a country-wide intervention study was conducted in 13 cities spread across 11 states of India by the Indian Council of Medical Research (ICMR). This intervention aimed to develop and test a supportive strategy of healthcare, which would achieve the desired high level of access and delivery of healthcare services to internal migrants living in these cities. This paper reports the effectiveness of the intervention on the access to maternal healthcare based on the data of 9 cities, as the data of the remaining four cities were insufficient. Also, the paper briefly describes the intervention that was implemented in these cities.

Methodology

Study setting

This is a multi-centric study conducted across 13 Indian cities. However, this paper reports the study of 9 cities only. These nine cities are Delhi, Mumbai, Kolkata, Hyderabad, Jaipur, Lucknow, Visakhapatnam, Ludhiana and Bhubaneswar. The cities were selected to represent all geographic zones of the country. However, some zones were not covered due to administrative reasons of the funding agency of this multi-centric study. Slum and slum-like clusters, settlements at construction worksites, and open space dwelling households with a considerable proportion of migrants were selected. Among these, few clusters existed for a long, and those clusters that would stay for at least two years were selected for the study. Thus, a total of 507 slum and slum-like clusters were included in these nine cities for formative research. For intervention, 36 clusters were selected, and another 36 comparable clusters were selected as control clusters. The selection criteria for these clusters are presented under advocacy, as these were selected through discussions of the research team and core committee. The broad objective of this intervention is to improve overall healthcare access to the migrants, and the intervention addressed to improve access to all sorts of primary healthcare services. However, in this paper, we limited to presenting the impact of the intervention on maternal healthcare services.

Migrants were defined as follows. A person whose last usual place of residence was different from the present place was considered a migrant. Households who have migrated to the city within the last one month to 10 years were considered for inclusion in the study. A total of 36,339 households in the pre-intervention and 7312 households in the post-intervention participated in the study. Out of these, 2092 households in the pre-intervention and 1923 households in the post-intervention had a mother with a child aged one year or below. It was also ensured that the mothers have stayed in the city for at least the past year of the study.

Study design and methods

This community-based intervention, with the quasi-experimental design, was conducted in three phases – (i) formative phase, (ii) intervention and (iii) evaluation. The purpose and conceptual framework of the study, broad and detailed phase-wise objectives and the detailed methodology of the formative research are available elsewhere (Roberts et al., 2004). The details of the study areas with the living conditions of these migrants are available elsewhere (Bhagat and Mohanty, 2009). This design was with pre- and post-intervention comparisons between the interventional and control groups.

The study followed cluster random sampling for selecting migrant households. Urban slums (notified and non-notified) and other poorer inhabitations like open spaces, migrant camps≠construction worksites; where the migrants live were identified from these cities. The sample size for formative research was calculated according to the formula $n = z^2_{1-\alpha/2}(1-P)/\varepsilon^2 P$ (Sacks et al., 2017). Taking the utilization of government healthcare service (P) of 15% with 10% relative precision and 95% confidence interval, with the design effect of 1.7 to account for cluster sampling, anticipating a non-response rate of 5%, the calculated sample size was 3886 for each city. Thus 36,339 households were included from nine cities.

Quantitative data on socioeconomic, demographic details, healthcare seeking behaviour were collected through pre-tested, interviewer-administered questionnaires. Questionnaire was developed by consulting the relevant documents of the government health programmes and brainstorming among the researchers and experts. Data were collected from the households where a woman with a child less than one year is present, and data were collected regarding antenatal and obstetric care-seeking. We could find only 2092 households with women with less than one-year-old children during the formative phase.

After the formative research, a minimum of eight clusters (minimum of four for intervention and four for control clusters) per city were selected. Four slums/habitations, each with a minimum population of 200 to 500, were selected for intervention. These clusters were selected based on the following inclusion criteria – (i) clusters with a considerable proportion of recent migrants (expected proportion of around 20% recent migrants in a cluster), (ii) clusters where no major developmental activities are going on, (iii) clusters which exists at least for next two years and (iv) clusters with no much mobile population. Clusters similar to the intervention clusters (in terms of size, population, characteristics, and distance from the health facility) were selected as the control group.

At the end of the intervention phase, an impact evaluation was carried out. This end-line evaluation was carried out in both intervention and control group clusters. With an expected increase of utilization due to intervention by 5% (H0: p1= 0.25 Vs H1: p2=0.30 (taking the corresponding value α=0.05 and 1-β=0.8, the sample size was calculated (Sacks et al., 2017). By using the formula, $n = \frac{\{Z_{1-\alpha/2}2\sqrt{2\bar{p}(1-\bar{p})}+Z_{1-\beta}\sqrt{[p_1(1-p_1)]+[p_2(1-p_2)]}\}^2}{(p_1-p_2)^2}$ where $Z_{1\text{-}\alpha/2} = 1.96$, $Z_{1\text{-}\beta} = 0.842$,

P = (n1p1+n2p2)/(n1+n2), the required sample size for each arm (intervention arm and control arm) was 1252. Considering the average family size of the present study migrant population (four), the number of households included for each arm was 313. Thus, for both arms total households required were 626 for each city. Thus, 7312 households were included from 9 cities. This sample size has captured the true difference of 5% or more with 95% confidence and with 80% of power. Thus, 1923 women (1128 from intervention clusters and 795 from control clusters) were included in the study. The indicators to assess the impact of the intervention were selected as per India's national programme for maternal health. The quantitative indicators identified for impact evaluation were – change in antenatal care utilization, quality of antenatal care (in terms of adequacy - early registration, >3 visits, consumption of 100 iron and folic acid tablets, tetanus toxoid reception) and change in skilled birth attendance (hospital deliveries). These data were collected through interviewer-administered questionnaires. Data were computerized and analyzed in SPSS, v.22. The descriptive statistics were used, and the chi-square test was used as the test of significance between the intervention and control and pre-and post-intervention indicators. A *p*-value of less than 0.05 was considered significant.

Intervention description

The intervention was developed based on the findings of the formative research. It has been developed with an inclusive partnership approach with the components of advocacy, partnership and community mobilization. Major components of this intervention were depicted in Fig. 1.

Advocacy

Formative research results were widely used in advocacy efforts. Advocacy efforts began with disseminating the results of formative research through meetings with the health administrators, medical officers and other partners. Based on the formative research, policy briefs highlighting the need for some supportive strategies to improve healthcare access to the migrants were shared widely among the partners. In some places, detailed analyses of formative research data were shared with the health system. This facilitated to identification and addressing of the gaps. Participants of dissemination meetings (higher-level administrators under health services, other administrators like zonal officers responsible for public health, officers-in-charge working in the intervention cluster and representatives from non-government organizations (NGOs) formed as '*core committee*'. Thus, each city has one core committee. It has been discussed and decided in the first dissemination meeting that this core committee keeps on expanding throughout the intervention period through the inclusiveness of various key, relevant partners from the government systems as well as non-government partners such as the NGOs. Also, during the dissemination meeting, the researchers suggested the probable intervention clusters and comparable control clusters. Later, those slums with a considerable proportion of migrants and which will exist for the coming 2–3 years were selected. Administratively, these clusters were covered under government facilities. However, concerning certain clusters, such as open site dwellings, confusion existed regarding who should provide healthcare to these inhabitants. Over time, these issues were sorted out through dialogue with the state government and municipal health authorities, and the concerned healthcare facility re-organized outreach services. This core committee actively participated in finalising the intervention plan and micro-level planning for each intervention cluster. A consensus was developed on the following findings – health system-related issues for low access: lack of trust, the uncertainty of services including medicines, out-patient department (OPD) timings and quality of services; community-related issues for low access: lack of awareness on the location of healthcare facilities and health programs, absence of community initiatives and cultural factors. The major focus was on strengthening the existing health system mainly by improving the outreach of services, better human resource management, and generating demand for utilizing the existing government healthcare services. And the services are extended to the underserved clusters. As part of the micro-planning and implementation of the intervention, cluster-level committees were formed with one researcher and medical officer in charge as the research team and health systems coordinators, respectively. The other members of the cluster committee include other concerned health officials (the national health mission (NHM) officers and other programme officers), peripheral health workers, NGO partners active in those clusters, and community-based organizations (CBOs) like youth clubs and women groups. In such a way, some of the partners are common for more than one cluster. Overall, two to three core committee meetings were held in each city. Later, owing to practical constraints of holding core meetings often, it was discussed and decided to hold the individual-level meetings with the concerned health officials like NHM officers, chief district medical officers, chief medical officers, and officers-in-charge of specific national health programmes to brief and plan specific activities for each cluster. These officers mainly instructed the concerned staff for cooperation and their active participation in the intervention. This also facilitated identifying the NGOs working for specific national health programmes, who played an important role in extending their awareness activities in the intervention clusters. Cluster-level meetings were held with a frequency of at least one meeting in 2–3 weeks with an average of two meetings per month on maternal and child health-related issues. The peripheral health workers (namely, auxilliary nurse midwife (ANMs), male and female health workers, health assistants, etc.), community health workers, namely, Accredited Social and Health Activists (ASHAs), and other health staff participated in these cluster-level meetings. A common intervention including outreach activities by the health staff, awareness generation by the research team, and healthcare staff and NGOs were planned during these meetings.

During the advocacy meetings (core committee and individual-level meetings with concerned health officials), the researchers brought the issues of areas neglected for outreach activities. It may be mentioned here that some hospitals (like in Delhi) devised simple procedures as migrants often do not have identity cards and ration cards (for provision of supply of food grains at subsidized prices to the below poverty line people; this card can justify the eligibility to avail various healthcare benefits and financial assistance). Through this procedure, these migrants self-declared their economic status and thus were made eligible for the available schemes such as financial assistance for safe delivery (Janani Suraksha Yojana). The advocacy efforts also focussed on the behaviour of the providers as transpired in the formative phase. This led to the higher-level officials instructing the frontline workers (peripheral health workers, ASHAs, etc.) to talk to the clients in a better and gentle manner.

NHM officers played a crucial role in aligning the services according to the communities' needs. For example, some of the clusters like open space dwellings and newly emerged slum clusters were often neglected for service provision despite administratively coming under one of the nearby health facilities. These issues were brought to the concerned district NHM officers and district medical officers through personal meetings at their offices and facilitating filed visits of the NHM officer to these areas. This has resulted in clearly assigning and instructing the healthcare staff for service provision. Newly emerged colonies were assigned to a nearby health facility. Some clusters, which earlier did not receive any domiciliary services were provided with peripheral health worker's visit in an alternative week and provided the services in the community in partnering with the anganwadi (child care centres established by Women & Child Development Department) worker of that cluster.

Partnership building

Intervention strategy was developed using an inclusive partnership approach with government health systems (at the state – departments of health, women and child development and local level – municipality),

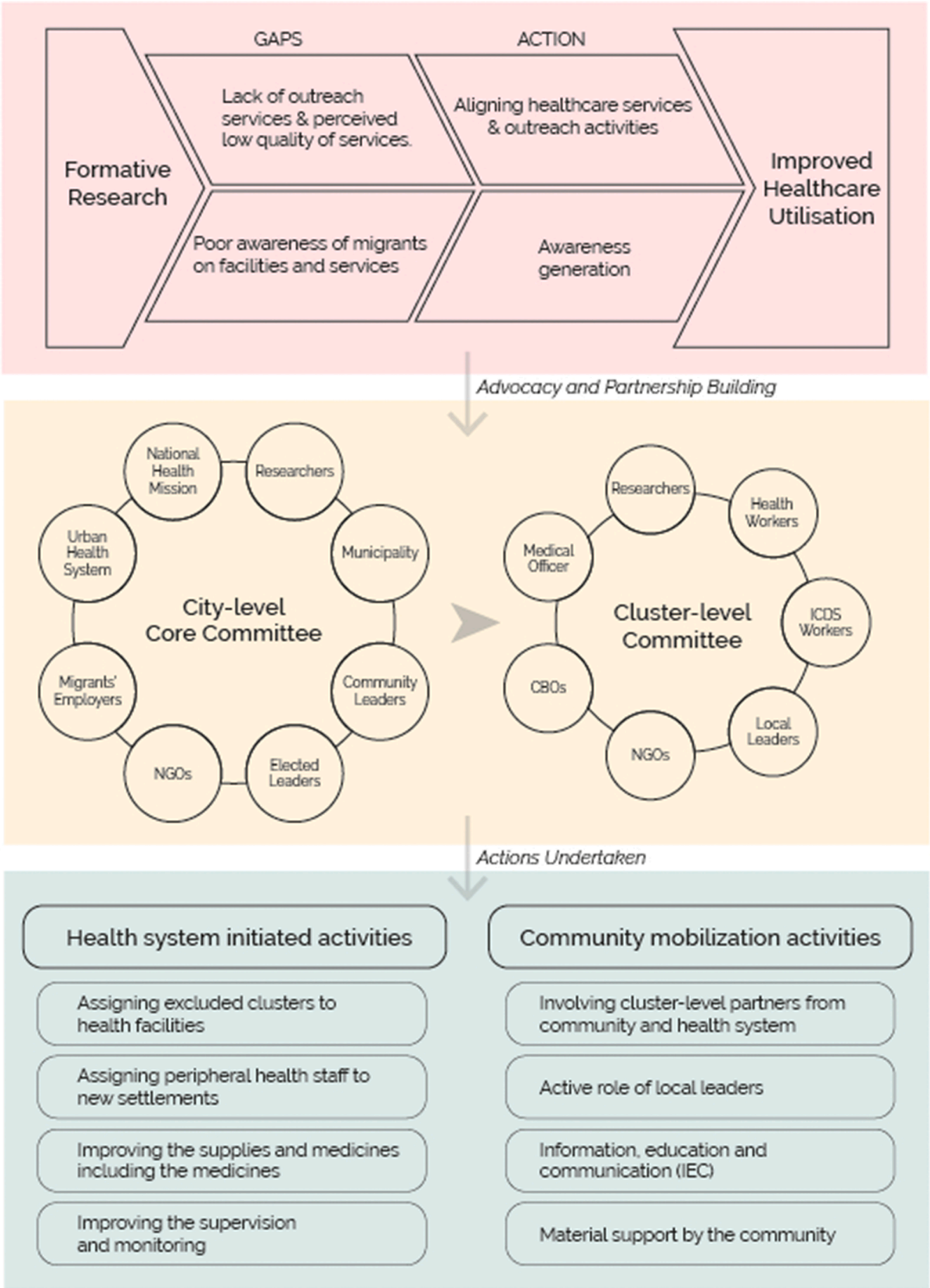

Fig. 1. Components of intervention showing various groups and actions.
NGOs=non-governemental organization, CBOs=community-based organizations, ICDS= Integrated Child Development Scheme

community and other partners, including employers and NGOs. Based on the results of formative research, it was decided to develop an intervention to create a bridge between the community and the existing government health services. It was suggested to go for micro-planning at the cluster-level as it is crucial for such intervention. The intervention involved the inclusive representation of diverse stakeholders from migrants and host communities, health and local administration personnel in local administration in decision making, project design and implementation. Community health workers - ASHAs and *basti sevikas* (local women health volunteers in the slums) had been strongly endorsed by the group. Cluster-level meetings were organized to understand the issues that transpired from the formative research. In addition to core committee meetings and cluster-level meetings, many interpersonal meetings were conducted with concerned officials and healthcare providers. Telephonic conversations and short message services were used for day-to-day coordination amongst the partners, including the community. The partnership was built with NGOs also. The NGOs requested for more material support, mainly the drugs, while some NGOs extended their support and activities utilizing their resources. The partnership was built with people's representatives. Ward-level leaders (influential people) and some of the ward members (democratically elected members to represent respective wards in the municipality) extended their support and even offered some material support which the intervention required. However, the involvement of elected political leaders was put on hold in some cities, as some of the officials felt that the intervention should not become a political platform. However, *Pradhans* (local community heads) and their family members played an important role in mobilizing the women to utilize the government healthcare services. The participation of peripheral health workers in the awareness sessions facilitated familiarity with concerned peripheral health worker. The women members of the Pradhan's family encouraged the women to take part in the awareness sessions, and in some cities (i.e., Delhi), the specific route maps from the intervention cluster to the concerned and nearby health facilities were distributed widely. Also, information on the timings of the health facility, list of other nearby health facilities, ambulance numbers for transportation to the health facility, emergency numbers, route-bus numbers, etc., were provided. Awareness about the existing ambulance facilities was carried out. With regard to maternal and child healthcare issues, the government health system is the main partner, the other partners being the Integrated Child Development Scheme and NGOs. Peripheral health workers's community visits are scheduled on specific days as a part of routine duty in all the cities. However, these visits were not always regular to some clusters and were often missed to capture the migrant women. During the intervention, the partnership between the peripheral health workers, AWWs and the local community was established in such a way that the anganwadi worker and ASHAs (wherever they are recruited) will identify the pregnant women and motivate them to utilise the services on specific days at anganwadi centre or on any day at the nearby primary level health facility. This allowed identifying almost all pregnant women in a cluster. As routine care of delivery in the health department in each city, there are two designated days in a week for maternal and child care, and people are supposed to come for these services on these two specific days. Often, migrant women are not familiar with this arrangement. If they visit the facility on a day other than designated days, they are often asked to visit the facility on specific days for these services. The research team negotiated with the higher health authorities, MOs, that if women come for maternal and child healthcare service on a non-designated day, to provide the care and required service. The health staff provided services by informing them about the specific designated days of services. This resulted in the provision of the service on their day of visit. Despite that, there is a little initial resistance for this proposal. In turn, asked to familiarize these days in the communities and let the people cooperate with the healthcare providers. This is obliged and carried out in the community subsequently.

Community mobilization

Community mobilization was implemented through the involvement of key and active members of the community and community-based organizations. The research team played a catalytic role in mobilizing the communities with the help of NGOs, and *anganwadi* workers and ASHAs. The community, mainly the local community leaders and their family members and followers, played a role in mobilizing the work. One of the components was to listen to the community's concerns and respond to them to the extent possible and make the community aware of some of the limitations health systems face in maximizing the content and quality of services. The issues related to community participation identified in core committee meetings were discussed at cluster-level meetings. Planning was done in those meetings to carry on some community mobilization activities. Resources for their activities were also identified in some clusters. Dissemination of information, education and communication (IEC) was carried out through various means like conducting meetings in the community by involving the concerned health systems personnel. For example, medical officers and other primary-level healthcare facilities (mother and child welfare centres) actively participated in the community-level meetings. Various IEC strategies, including audio-message announcements through the mic system, street plays (like *nukkad naatak)*, audio-visual shows, flip charts, pamphlets, posters, booklets, discussion with participants and interpersonal communication were widely used. Peripheral health workers carried out domiciliary services through anganwadi centres. At the same time, the anganwadi worker mobilised the pregnant women to come to the anganwadi centre on that particular day of peripheral health worker's visit to receive services. These days were also utilised for awareness generation and on the available health facilities and other provisions like incentives by the government. It may be mentioned here that at the time of intervention, very few clusters have ASHAs. Thus, the community mobilization was done mainly through facilitating the peripheral health worker's visits to the community, anganwadi workers along with ASHAs, wherever they were recruited. If the anganwadi centre is not present (as in open space dwellings sites), the local *pradhans* and their families played a role in mobilizing the community to seek services. Anganwadi centres played a crucial role in mobilizing the women, in addition to walk-throughs in the community interacting with the women and other community members, mobilising them through interpersonal communication.

Ethical considerations

Ethical clearance was sought by the institutional ethics committees of the respective author's (principal investigator's) institute. Each of the nine committees approved the study for the corresponding city. All participants were informed about the purpose of the study, and their consent was taken before conducting the interview. The purpose of the study was also explained to the community leaders, and their consent and cooperation were sought.

Results

A total of 2092 women participated in the baseline survey (997 from intervention and 1095 from control clusters). A total of 1923 women participated in the post-intervention survey (1128 from intervention clusters and 795 from control clusters). However, data on postnatal care were available for only 1464 women (870 from intervention and 594 from control clusters) (Figs. 2 and 3).

A significantly increased proportion of women sought antenatal care during post-intervention compared to the pre-intervention phase in both intervention and control clusters. Antenatal care-seeking significantly increased by 26% in the intervention clusters (Table 1). An increased proportion of women receiving antenatal care from health workers in the post-intervention phase (39.2% against 7.3% in the intervention group; 27.2 against 5.9% in the control group) reveals increased

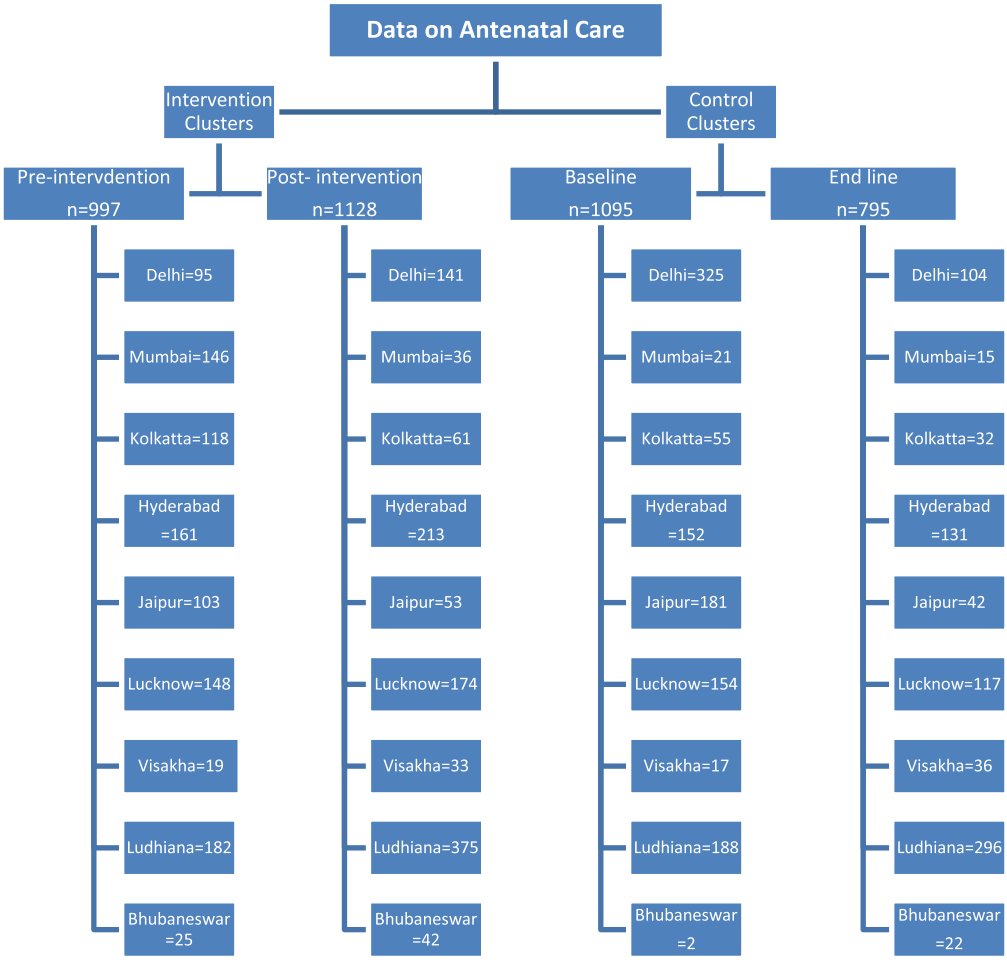

Fig. 2. Details of the sample of mother included for the antenatal care.

outreach of the services to these vulnerable communities. Utilizing the private healthcare services is reduced by 4% in the intervention group (16% in pre and 12% in post-intervention) (Table 1). An increased proportion of women initiated seeking antenatal care in the first trimester (Table 2); however, the proportion of women seeking antenatal care at least four times did not increase remarkably, and a majority sought antenatal care only 2 to 3 times. Reception and consumption of iron and folic acid tablets increased remarkably from pre- to post-interventional survey, and this increase is more in the intervention clusters (Table 2). Health workers' visits increased considerably (41.7% in the post- against 14.7% in the pre-interventional survey) (Table 3).

Regarding birth preparedness, still only half of the women decided to give birth at a health facility (46% in the pre- to 50% in post-intervention) (Table 4). It may also be mentioned here that while 30% of the women decided to give birth at home (12% did not plan), 43% of the deliveries took place at home in the post-intervention, similar to that observed in the pre-intervention phase (Table 5).

Health workers' postnatal home visits (Table 6) increased in both intervention and control clusters (23% increase in the intervention clusters and 15% increase in the control clusters). Also, a considerably increased proportion of women received advice on family planning services, breastfeeding, and childhood immunization during home visits or at the facility. It may also be mentioned here that the interventional activities carried out included meetings with women involving the peripheral health workers, ASHAs and anganwadi workers and were advised on various components of antenatal and postnatal care.

Discussion

The present study demonstrated that interventions with inclusive partnership would help improve healthcare services access to the migrant women. The study showed lower maternal healthcare access to the migrants at baseline and improved service access at the end line; however, remarkable utilisation rates were noticed in the intervention clusters. Increased antenatal care utilization and initiating care in 1st trimester are indicative of motivational efforts as a part of the intervention; however, the perceived quality and satisfaction with the services are important to achieve adequate antenatal care. It may be mentioned here that unless people have satisfactory experiences with childbirth at health facilities, it is very difficult to motivate women to give birth at health facilities. The incentives may play a limited role in the background that people have many complaints regarding the birthing experiences at hospitals. Hence, improving the quality of services, including behavioural aspects of healthcare personnel and physical facilities, is crucial to achieving institutional births, which aim to reduce maternal and infant mortality (Borhade, 2022). It may also be mentioned here that people often go to either tertiary or secondary-level hospitals for childbirth rather than maternity hospitals due to various factors. Often maternity hospitals do not have the required staff present to offer the services. Due to past experiences and depending on whatever they have heard, people often decide to go to higher-level hospitals, resulting in a mismatch between the available facilities and the care-seeking women for childbirth. Also, health systems face non-functional equipment, non-availability of beds and insufficient staff to offer quality services. And the healthcare providers' behaviour (often

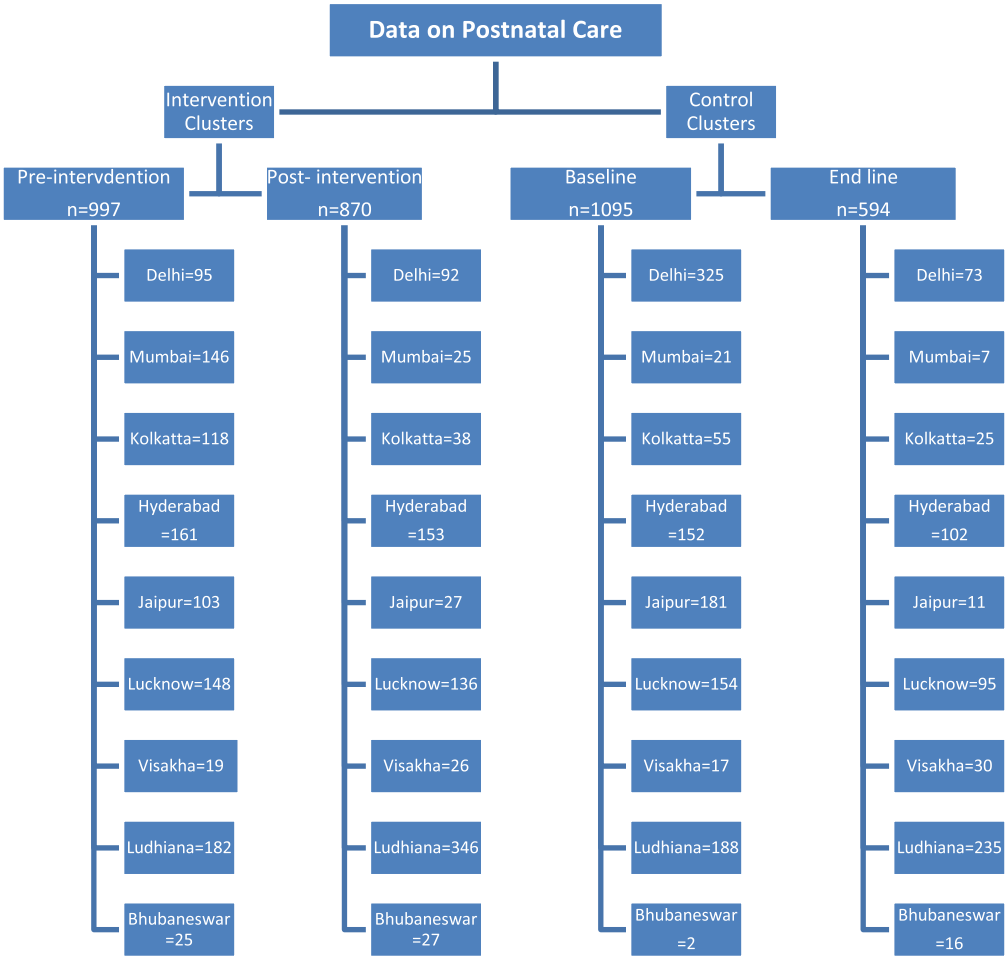

Fig. 3. Details of the sample of mother included for the postnatal care.

termed as 'rude' by the respondents) acts as a deterring factor to utilising the services. Hence, it is necessary to address these issues while motivating women to use safe childbirth services. Also, it is worth mentioning here that since childbirth is a precious event for any parent and family, husbands often worked for extra hours to save money for childbirth, anticipating that they should be able to afford the private care if the need occurs. The institutional births among the present study migrants (56%) were far below that of the national average (79%) (Saggurti et al., 2011). Despite the interventional efforts to motivate the women and their families to utilize the health facilities for childbirth, this grossly remained unchanged from the baseline to the end line owing to the above factors.

Increased postnatal visits by the health workers are indicative of health system's response in motivating the health workers to take the postnatal visits seriously. It is not surprising to see a considerable improvement in various indicators in the control clusters. The intervention and control clusters come under the purview of different primary levels of healthcare facilities and are far away from each other. However, in some cities, they are geographically proximal. Since the higher officials were briefed about the problems in the utilization, and when some solutions are thought off, there is always a chance that the instructions will be passed down through the entire system to a possible extent. The officials' concern is to improve the overall healthcare access to the people irrespective of whether it is under intervention or control clusters. For example, if the next level officers are instructed to streamline the outreach services through ASHAs and peripheral health workers, it would be for the entire city. However, concerted efforts in the intervention clusters due to various additional strategies such as the participatory approach led to much improvement compared to control clusters. This could be the reason for the increased proportion of women receiving these advises compared to the control clusters. An increased number of group activities with the involvement of health workers may be helpful in reaching out to the needy in the background of resource constraints. Concerted efforts of the peripheral health workers to encourage ASHAs and Anganwadi workers for group-level motivation sessions would increase the outreach of maternal healthcare services. We see that the improvements in interventional and control clusters are positive for health systems responsiveness. However, the participatory component and motivational efforts that lead to much improvement due to intervention should also be replicated with the existing health systems and their workforce, involving the community and other partners. It may also be mentioned here that if people are not satisfied with certain services and if the health systems features did not change, any motivational efforts through IEC or even through incentives may not result in expected improvements to reach the program goals. This is evident that the number of home births almost remained the same at pre- and post-intervention. Hence, it is important to address the peoples' concerns and improve the quality of the services in terms of improvement in the physical conditions, behavioural aspects and logistics.

Community-based interventions with participatory approaches are important to improve access to vulnerable communities such as migrants. Community-based interventions are essential for improving healthcare and health outcomes (Şantaş et al., 2019; Sharma, 2013; Sharma and Thapa, 2013; Singh and Sachs, 2013; Singh et al., 2012). Since mobility is another major issue in achieving a continuum of care, planning and implementing strategies is important. Home visits by

Table 1
Source of antenatal care in the intervention and control clusters during pre- and post-intervention.

Source of antenatal care	Intervention Clusters		Control Clusters	
	Pre-intervention *n*= 997 Number (%)	Post-intervention *n*= 1128 Number (%)	Baseline *n*= 1095 Number (%)	End line *n*= 795 Number (%)
Did not seek antenatal care	224 (22.5)	72 (6.4)	283 (25.8)	131 (16.5)
Sought antenatal care*	773 (77.5)	1056 (93.6)	812 (74.2)	664 (83.5)
Nearby government health facility	290 (29.1)	260 (23.1)	418(38.2)	190 (23.9)
Mobile clinic	5 (0.5)	7 (0.6)	2 (0.2)	5 (0.6)
Health worker	73 (7.3)	442 (39.2)	65 (5.9)	216 (27.2)
Maternity hospital	104 (10.4)	130 (11.5)	106 (9.7)	102 (12.8)
Tertiary hospital	127 (12.7)	225 (19.9)	85 (7.8)	140 (17.6)
Private practitioner	162 (16.3)	135 (12.0)	119 (10.9)	91 (11.5)
Non-governmental organisation/ Trust hospital/ Trained Nurse	30 (3.0)	27 (2.4)	36 (3.3)	18 (2.3)
Unqualified practitioner	9 (0.9)	18 (1.6)	7 (0.6)	16 (2.0)
Dai (traditional midwife)	0 (0.0)	2 (0.2)	0 (0.0)	5 (0.6)

* Some women sought antenatal care from multiple sources.
Chi-square values for difference in seeking antenatal care between pre- and post-intervention: intervention clusters=114.20 (p=0.00001), control clusters=23.62 (p=0.00001); for difference between intervention and control clusters: pre-intervention=3.24 (p=0.0718), post-intervention=50.33 (p=0.0001)

community health workers during the prenatal and postnatal period to counsel mothers, provide newborn care and facilitate referral resulted in the early detection of complications and appropriate referrals, specifically for high-risk pregnancies. Studies from low- and middle-income countries, where the mortality is high, revealed that home visits can reduce newborn deaths significantly (Swain and Mishra, 2006; Thapa et al., 2019).

Thus, interventional efforts in community mobilization activities would help generate awareness regarding the available services and motivate them to utilize them. However, perceived quality of care and satisfaction are important in decision-making. Addressing the health system factors (ranging from the ease in accessing the services, strengthening the systems with the necessary equipment, and orientation and training to the healthcare providers at all levels) is crucial. An increased proportion of women receiving antenatal care from health workers is indicative of health systems response. It may be mentioned here that as a part of the intervention, some of the clusters which were not catered to before intervention were made inclusive for service provision by the government health system. Also, the health workers were instructed by the health authorities to carry out regular outreach services and be gentle to the community. Kusuma et al. emphasized the importance of disaggregated data specific to vulnerable groups to understand the actual situation and plan targeted interventions (World Health Organization, 2014). Otherwise, these vulnerable populations continue to be neglected during the healthcare service provisions and contribute to low averages at the state level. Language could be a barrier for migrants to communicate with the healthcare providers or the local host community. However, in the present study the migrants are from within the state (speaking the same language) or from neighbouring states (who can speak the local language of the host state), despite some variations in the accent and variations in the language. Though language and its variations may account for some of the communication issues, the major issue across the sites is the inability of the migrant women to locate the health facilities in these cities.

The present study demonstrated that community mobilisation coupled with improved health systems' recognition of migrants' vulnerability and readiness to cater services to these vulnerable populations would improve migrants' access to the maternal healthcare services. Thus, inclusive strategies for migrants are needed as migration is a continuous process, and new people keep on adding to the urban cities. Regarding the strengths, the study adopted a quasi-experimental design allowing comparisons between intervention and control areas

Table 2
Reception of various components of antenatal care amongst the intervention and control clusters in the pre- and post-intervention.

Variable	Intervention Clusters		Control Clusters	
	Pre-intervention *n*= 997 Number (%)	Post-intervention *n*= 1128 Number (%)	Baseline *n*= 1095 Number (%)	End line *n*= 795 Number (%)
Time of first antenatal care visit				
Did not seek antenatal care	224 (22.5)	72 (6.4)	283 (25.8)	131 (16.5)
Sought antenatal care during	773 (77.5)	1056 (93.5)	812 (74.2)	664 (83.5)
1st Trimester	330 (33.1)	517 (45.8)	398 (36.4)	290 (36.5)
2nd Trimester	375 (37.6)	509 (45.1)	365 (33.3)	359 (45.2)
3rd Trimester	68 (6.8)	30 (2.7)	49 (4.5)	15 (1.9)
Number of antenatal care visits				
Only one visit	78 (7.8)	92 (8.16)	66 (6.0)	71(8.93)
2–3 visits	344 (34.5)	558 (49.5)	397 (36.3)	300 (37.7)
4 or more visits	351 (35.2)	406 (36.0)	349 (31.9)	293 (36.6)
Reception and consumption of iron and folic acid tablets				
Did not receive tablets	408 (40.9)	147 (13.0)	471 (43.0)	198 (24.9)
Received tablets	589 (59.1)	981 (87.0)	624 (57.0)	597 (75.1)
Consumed all tablets	368 (36.9)	621 (55.05)	337 (30.8)	332 (41.8)
Consumed some tablets	191 (19.2)	310 (27.5)	243 (22.2)	234 (29.4)
Didn't consume any	30 (3.01)	50 (4.4)	44 (4.0)	31 (3.9)
Reception of tetanus toxoid immunization				
Received tetanus toxoid immunization	836 (83.8)	1013 (89.8)	861 (78.6)	633 (79.6)

Chi-square values for difference in reception of iron and folic acid tablets between pre- and post-intervention: intervention clusters=213.35 (p=0.00001), control clusters=66.05 (p=0.00001); for difference between intervention and control clusters: pre-intervention=0.94 (p=0.3332), post-intervention=44.66 (p=0.00001)
Chi-square values for difference in reception of tetanus toxoid injection between pre- and post-intervention: intervention clusters=16.60 (p=0.00005), control clusters=0.27 (p=0.6007); for difference between intervention and control clusters: pre-intervention=8.95 (p=0.0028), post-intervention=39.21 (p=0.00001)

Table 3
Health Workers visits in the intervention and control clusters in the pre- and post-intervention.

Variable	Intervention Clusters Pre-intervention *n*= 997 Number (%)	Post-intervention *n*= 1128 Number (%)	Control Clusters Baseline *n*= 1095 Number (%)	End line *n*= 795 Number (%)
Health worker did not visit	850 (85.3)	658 (58.3)	866 (79.1)	543 (68.3)
Health worker visited	147 (14.7)	470 (41.7)	229 (20.9)	252 (31.7)
Visited during 1st Trimester	79 (7.9)	269 (23.8)	154 (14.1)	165 (20.8)
Visited during 2nd Trimester	56 (5.6)	186 (16. 5)	66 (6.0)	81 (10.2)
Visited during 3rd Trimester	12 (1.2)	15 (1.3)	9 (0.8)	6 (0.7)

Chi-square values for difference in health workers' visit between pre- and post-intervention: intervention clusters=186.17 (p=0.00001), control clusters=28.24 (p=0.00001); for difference between intervention and control clusters: pre-intervention=13.47 (p=0.00024), post-intervention=19.76 (p=0.00001)

Table 4
Birth preparedness among the intervention and control clusters in pre- and post-intervention surveys.

Variable	Intervention Clusters Pre-intervention *n*= 997 Number (%)	Post-intervention *n*= 1128 Number (%)	Control Clusters Baseline *n*= 1095 Number (%)	End line *n*= 795 Number (%)
Planned to give birth at home	350 (35.1)	338 (30.0)	439 (40.1)	295 (37.1)
Planned to give birth at health facility	462 (46.3)	563 (49.9)	441 (40.3)	359 (45.2)
Did not plan	106 (10.6)	136 (12.1)	142 (13.0)	108 (13.6)
Felt unnecessary to plan in advance	79 (7.9)	91 (8.1)	74 (6.8)	33 (4.2)

Chi-square values for difference in birth preparedness between pre- and post-intervention: intervention clusters=6.39 (p=0.0409), control clusters=4.62 (p=0.0994); for difference between intervention and control clusters: pre-intervention=8.26 (p=0.0161), post-intervention=10.82 (p=0.0045)

Table 5
Childbirth details in the intervention and control groups at baseline and end-line surveys.

Variable	Intervention Clusters Pre-intervention *n*= 997Number (%)	Post-intervention *n*= 870 Number (%)	Control Clusters Baseline *n*= 1095 Number (%)	End line *n*= 594 Number (%)
Type of childbirth				
Normal	888 (89.1)	745 (85.6)	1000 (91.3)	508 (85.5)
By forceps	5 (0.5)	13 (1.5)	5 (0.5)	4 (0.7)
By Caesarean Section	104 (10.4)	112 (12.9)	90 (8.2)	82 (13.8)
Place of childbirth				
Govt. Hospital	343 (34.4)	316 (36.2)	449 (41.0)	210 (35.4)
Private Hospital	111 (11.13)	172 (19.8)	139 (12.7)	117 (19.7)
Home	431 (43.2)	378 (43.5)	469 (42.8)	264 (44.4)
Non-governmental organisation/ Trust Hospital/ Trained Person	112 (11.2)	4 (0.5)	38 (3.5)	3 (0.5)

NGO=non-governmental organization; Chi-square values for difference in type of childbirth between pre- and post-intervention: intervention clusters=2.98 (p=0.0844), control clusters=13.26 (p=0.0003); for difference between intervention and control clusters: pre-intervention=3.05 (p=0.08), post-intervention=0.21 (p=0.6491)
Chi-square values for difference in place of childbirth between pre- and post-intervention: intervention clusters=0.01 (p=0.9093), control clusters=0.41 (p=0.5229); for difference between intervention and control clusters: pre-intervention=0.03 (p=0.8541), post-intervention=0.14 (p=0.7060)

and at pre- and post-intervention periods. However, this design with a comparison between the two cross-sectional surveys is not as robust as a randomized trial. The intervention and control areas are similar, but in some cities, they are contiguous. Though the control areas were not exposed to the intervention, contamination might have happened, both at the community and health systems levels. People move from one area to another in the city, and people in the control areas may also be exposed to some interventions. Similarly, due to the health system's structural factors, some functionaries in control areas might have been influenced by the intervention. However, they function either only in the control areas or in both areas. Hawthorne effect among the peripheral health workers might have improved some of the control areas' indicators. This intervention is for a shorter duration. However, World Health Organizatio recommends a minimum period of 3 years (World Health Organization, 2015). Also, this study did not include the domestic workers, who are recruited through some agencies meant for supplying domestic workers. These domestic workers are constituted mainly of young girls, and they usually stay with the employer's household. Our data are mainly constituted by the migrants working in various construction worksites and factories, living in slums and slum-like settlements. The present described supportive strategy was not pilot-tested, as all the interventions were routine and through the health system. The purpose is to improve the healthcare access through the existing government healthcare system. Another limitation is the researchers promoted this intervention and limited their role as catalysts; the intervention processes were carried out by the health system. However, the evaluation was also carried out by the same researchers. Hence researchers' bias may be likely to happen. Despite these limitations, the study has methodological strengths like the data were collected by trained interviewers through pre-tested questionnaires. The study had a common protocol and the training for interviewers is common across the sites. This study provides some clues for improving access to government healthcare to the vulnerable sections of the population like migrants. Hence, efforts to strengthen the existing government healthcare system through novel strategies are crucial to providing better healthcare to the migrants. The findings of this kind of study are to be shared with urban health authorities to advocate for migrant-specific policies. Significant and purposeful efforts to improve performance are needed to strengthen the health systems (Zong et al., 2018). As the access to healthcare is conditioned by its five dimensions - availability, accessibility, affordability, adequacy and acceptability; and influenced by the interplay of the state's policies and system and the

Table 6
Postnatal visits at home by the Health Workers and the reception of advice either at home or facility.

Variable	Intervention clusters Pre-intervention *n*= 997 Number (%)	Post-intervention *n*= 870 Number (%)	Control clusters Baseline *n*= 1095 Number (%)	End line *n*= 594 Number (%)
Health workers postnatal visit at home				
Received health workers visit at home	116 (11.6)	302 (34.7)	153 (14.0)	171 (28.8)
Reception of advice on various components of postnatal care at home or health facility				
Received advice on family planning	271 (27.2)	560 (64.4)	339 (35.8)	285 (48.0)
Reception of advice on breast feeding	493 (49.5)	640 (73.6)	517 (47.2)	326 (54.9)
Reception of advice on child immunization	504 (50.6)	707 (81.3)	535 (48.9)	357 (60.1)

Chi-square values for difference in health workers' postnatal home visits between pre- and post-intervention: intervention clusters=142.40 (p=0.00001), control clusters=54.52 (p=0.00001); for difference between intervention and control clusters: pre-intervention=2.54 (p=0.1106), post-intervention=5.6657 (p=0.0173)

people's assets (Mou et al., 2015), it is necessary to address these issues through comprehensive approaches.

Availability of data and material

Data will be available on reasonable request.

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Declaration of Competing Interest

Authors declare that they have no competing interests. And all authors had access to the data and a role in writing the manuscript.

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