

Factors Shaping Uptake of Antenatal Care in Surabaya, Indonesia: a Qualitative Study

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Research article

Keywords: Access, Antenatal Care, Maternal Mortality, Qualitative Research

Posted Date: August 10th, 2020

DOI: <https://doi.org/10.21203/rs.3.rs-48436/v1>

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Abstract

Background: Antenatal Care (ANC) is a central plank in reducing maternal mortality in low and middle income countries. ANC provides pivotal education to all individuals involved and can be utilised as a preventative tool in avoiding complications during childbirth. Within Indonesia, the maternal mortality ratio (MMR) remains unacceptably high in comparison to high income country counterparts, with an ANC coverage of 77% for a minimum of 4 visits. Few studies within Indonesia have explored the experiences of pregnant women accessing ANC and the impact this has on uptake of ANC services.

Methods: Five focus group discussions (FGDs) with pregnant women were conducted at community health facilities within the city and urban areas of Surabaya, Indonesia, along with five semi-structured interviews with midwives employed at these health facilities.

Results: Findings suggest individual circumstances, social and cultural dynamics and community and health care conditions shaping the uptake of ANC services. Fears of negative diagnosis prior to initial ANC appointment, personal beliefs and myths surrounding pregnancy, influence of husbands, family and friends and long waiting times with overcrowding leading to limited seating were shaping timely access and achieving 4 ANC visits. In addition, feeling comfortable with the quality of the service and receiving a friendly service from the practitioners was a theme across all FGDs. Finally, it was acknowledged feeling afraid of being referred to a hospital if deemed a high-risk pregnancy shaped return ANC visits.

Conclusions: Efforts to decrease maternal and infant mortality rates in Surabaya have largely centred on increasing ANC coverage. The findings of this study highlight several factors shaping the uptake of ANC services by mothers. However, with ANC coverage (minimum 4 visits) now at 77% of the population, findings suggest that future research should be directed towards the standard of quality of ANC services being delivered.

Background

Antenatal Care (ANC) is central to effective healthcare to reduce both maternal morbidity and mortality, whilst improving infant survival and health. In 2019, the World Health Organisation (WHO) estimated that 810 women died every day globally from preventable causes related to pregnancy and childbirth [1]. In 2017, a total of 295,000 maternal deaths were recorded globally, with South-Eastern Asia accounting for 16,000 of these maternal mortalities [1]. Further, when comparing the Maternal Mortality Ratio (MMR) in high income countries with low to middle income countries, the disparity becomes apparent. For example, in Australia the MMR was estimated at 6 maternal deaths per 100,000 live births in 2017; whilst, Indonesia reported a MMR of 126 maternal deaths per 100,000 live births in 2015 [2, 3]. Indeed, inequalities exist between low to middle and high-income settings for pregnancy and maternal health outcomes.

The leading causes of maternal mortality and morbidity in women aged 15 to 49 in low and middle income countries are complications that occur during pregnancy and childbirth [4]. Whilst haemorrhage (after birth), infections, pre-eclampsia and eclampsia during pregnancy, complications from delivery and unsafe abortion as the major causes for nearly 75% of all maternal deaths [1]. Although ANC is unlikely to impact on several major causes of maternal mortality, such as haemorrhage (after birth); ANC does provide essential education to women on how to recognise signs of complication, consequently reducing mortality and promoting birth preparedness with a skilled birth attendant and/or at a facility [5, 6]. Further, ANC can also provide effective interventions for the prevention and treatment of other conditions which could harm both mother and baby such as anaemia, preeclampsia and eclampsia [5]. Since the consensus suggests that most maternal mortalities and morbidities are preventable, utilising ANC as a preventative tool is essential, particularly for avoiding complications in childbirth.

Within Indonesia, it was estimated an ANC coverage of 77% in 2017 (mother attending at least four ANC visits) for women aged 15-49 years [7]. This coverage rate has decreased since 2012, with data showing a slow decline from 88% coverage [7]. Although the national ANC coverage (minimum 4 visits) may be considered acceptable at the current rate of 77%, the MMR of 126 per 100,000 live births in Indonesia remains unacceptably high compared to high income country counterparts [3, 7]. Although this demonstrates a decrease from the year 2000 (265 per 100,000 live births); this decline is occurring at a much slower rate when compared to the South-East Asian region, despite remarkable improvements in key health and economic

indicators [3, 8]. Whilst maternal mortality trends are steadily declining, uncertainty remains regarding the high ANC coverage rates not translating to lower MMRs [9]. For example, the East Java province has the third highest rate of maternal deaths in Indonesia [10].

The Republic of Indonesia has committed to implementing Sustainable Development Goal (SDG) 3.7, 'ensuring *by 2030 universal access to sexual and reproductive health care services*' [11]. In addition, with the introduction of Universal Health Coverage (UHC) in 2014 to enable Indonesians to access healthcare services without financial hardship, there is growing momentum for quality and affordable health care for all Indonesians [8, 12, 13]. As part of efforts to meet these commitments, it is important to explore factors influencing the uptake of ANC services by pregnant women. Better understanding the experiences of pregnant women accessing ANC services will support the planning of future public health interventions in Indonesia, including the city of Surabaya. In addition, this may help to identify potential areas of future research into why ANC attendance differs by location in Indonesia and why the MMR remains high.

Research suggests a number of factors may shape the uptake of ANC services across Indonesia, these factors can be conceptualised as individual circumstances, cultural and social dynamics, and community and health care conditions. Within Indonesia, this literature indicates that individual circumstances influencing ANC uptake may include socioeconomic status, income, age, education and whether a mother is pregnant with her first child [14-17]. These factors interact with broader cultural and social factors within which a mother lives to shape ANC uptake [17-20]. Further, community and health care conditions are believed to shape accessibility and uptake of ANC services by mothers, with women in urban areas much more likely to achieve adequate ANC visits [14, 21]. Shortage of qualified health providers and overcrowded facilities has also been suggested to influence ANC uptake [8, 15, 22].

This study will explore the experiences of pregnant women when accessing ANC within the urban areas of Surabaya. Whilst current research indicates several influencing factors, there is limited qualitative literature exploring the views of pregnant women in Surabaya, or elsewhere in Indonesia, on utilising ANC services. In addition, although national and local quantitative data can link certain determinants with ANC health seeking behaviours it does not provide an explanation as to why or provide insight on potential community-based strategies on how to reduce maternal mortality. The findings will guide future research and support the planning of public health interventions improving both ANC services and uptake within this area. It is essential that public health promotion strategies and interventions focus on ANC due to the evident link with reducing maternal mortality.

Methods

Focus Group Discussions (FGDs) with pregnant women located in the city and urban areas of Surabaya alongside semi-structured individual interviews (SSIs) with midwives at community health facilities were utilised to explore factors shaping expectant mothers' experiences of uptake of ANC services in Surabaya. Demographics were collected on FGD participants. The research was conducted at five separate community health facilities located around Surabaya; a community health facility or *puskesmas* is a basic health care facility and a central plank of the Indonesian community health care system. FGDs and SSIs were carried out in the national language of Bahasa Indonesia to ensure inclusion of all participants. A researcher fluent in Bahasa Indonesia facilitated the FGD and English translations were provided at time of FGD to the non-Bahasa Indonesia speaking facilitator to ensure the discussion was directed appropriately.

The topic guides for the FGDs and SSIs were developed after a literature review and discussion with academic researchers within the maternal and child health field at the University of Airlangga, Surabaya. An overview of the FGD guide and of the SSI guide is provided in Table 1 and Table 2, respectively. The method of FGDs with pregnant women was well suited to the present study as it encouraged participants to explore and share their individual views to build a shared understanding of the factors shaping their access to ANC services [23, 24]. This method was particularly appropriate given the sensitivity of the influence of cultural and family factors shaping access. Utilising SSIs with midwives respected their expert status in delivering ANC services and enabled the collection of a different operational perspective on access to ANC services [25]. This approach facilitated a more comprehensive understanding of the uptake of ANC by encouraging the convergence of information from different sources.

Table 1: An overview of the FGD guide

Theme	Guiding Questions
Perceptions	What does Antenatal care mean to you?
Comfort of facility	When you first arrived at the facility how did you feel? Did you feel comfortable in attending this health facility? Why/Why not?
Potential barriers to ANC	What is your experience accessing ANC – did you experience any barriers to arriving here today e.g. transport, money, weather?
Cultural factors in attending ANC	Did you alone make the decision to utilise ANC for your pregnancy or most recent pregnancy?
Promoting ANC	Would you promote ANC to your friends and family? Could you see your friends and family using these services?

Table 2: An overview of the SSI guide

Theme	Selected Questions
Comfort of facility	How important do you think it is for the pregnant women accessing this Health Facility to feel safe with the quality of the services? Why/Why not?
Accessibility of ANC	Do you often have space and availability every day to book an appointment and see a pregnant woman? a. How long does it usually take from booking an ANC appointment, to seeing a health professional staff?
Potential barriers to ANC	Are there any barriers you can think of that would stop someone from accessing ANC? a. Transport, weather, money, disapproving family members, the use of traditional birth attendants instead or other cultural factors?
Cultural factors in attending ANC	Who, other than the pregnant women, usually attends the ANC sessions? a. Family members, friends? b. Do you think this is important for the pregnant woman?

This study utilised a purposive sampling strategy, to ensure the selection of information-rich cases whilst accounting for limited resources [26]. Through the connections between the University of Airlangga and the community health facilities around Surabaya, sixty-one pregnant women were recruited into the FGDs through purposive sampling. These pregnant women either had attended the community health facility in the past or were there for their first appointment on the same day as the FGD. Participants were recruited through the assistance of the midwife coordinator of the community health facility during their routine appointments. Alternatively, those participants who were attending the facility for their first appointment were recruited through the midwife coordinator by asking community health volunteers, *kaders*, and the pregnant women in the community if they know anyone or would like to be a part of the study. Further, one midwife working at each of the facilities on the day of the FGD was approached by the FGD facilitators and asked if they would like to participate in the study and involved in a SSI.

All FGDs and SSIs were audio recorded and later translated and transcribed to English after approval was obtained from all participants. In addition to informed consent, ethical considerations were followed to ensure participants were informed about their rights to withdraw from the study at any time, confidentiality, and ensured no harm would come to their reputation at the health facility or to their career. No financial incentive was provided to the participants, however individuals in the FGDs were provided a free lunch whilst SSI participants were provided with lunch and a small token of appreciation.

Thematic analysis was utilised to identify and describe both implicit and explicit ideas from the data collected [27]. This approach includes coding and classifying data into concepts, categories or themes and consequently interpreting the resulting thematic structures by seeking commonalities, relationships, and patterns within the data [27, 28]. Data from the transcripts were linked to these overarching conceptual ideas, then further organised into themes and subthemes to help interpret and evidence the results [27].

Results

Sixty-six participants were involved in the present study, including sixty-one FGD participants and five semi-structured interview participants. Demographic details of FGD participants are summarised in table 3. Of the sixty-one FGD participants, ages ranged between 18 to 35+. Further, 26.3% reported it to be their second pregnancy at time of FGD whilst, 13.1% identified that it was their first pregnancy. Within the FGDs, 80.3% of participants were married. In addition, 42.6% of participants' highest level of education was Senior High School. Majority (60.6%) of participants were not working at time of FGD. Finally, 19.7% of the participants reported a monthly household income (Indonesian Rupiah [IDR]) between 1,000,001 - 2, 000,000 IDR. However, 21.3% had above 3,000,001 IDR, and 8.3% had a monthly household income below 1,000 000 IDR.

The FGDs and SSIs identified several, often interrelated factors shaping the uptake of ANC. These findings align with several broad categories including individual circumstances, cultural and social dynamics, and community and health care conditions. Table 4 presents a taxonomy of the categories, themes, sub-themes and associated quotes shaping the uptake of ANC derived from the thematic analysis of the data. First, there was a shared fear of attending the first ANC visit due to not knowing if there will be a problem diagnosed with their child. Whilst, for many of the pregnant women, their cultures informed beliefs about pregnancy and when they could seek health care. For some, this meant not leaving the house during certain time periods. In addition, for this study population, the wait for an appointment was often a long process with limited waiting area seats that deterred individuals when compared to seeing private midwives and not encountering this discomfort. This was despite being able to book online and with the community health facilities offering a complete set of the necessary services.

Discussion

The study conformed to three overarching and interrelated categories that shape the uptake of ANC in Surabaya, Indonesia: 'Individual Circumstances'; 'Cultural and Social Dynamics'; 'Community and Health Care Conditions.'

Individual Circumstances

Perceptions

The results of this study revealed that knowledge of pregnancy differs greatly for many pregnant women. Although several midwives commented that women are mostly aware when they first arrive at the community health facility that they are pregnant, several participants had limited knowledge on pregnancy risks or emergency signs. In addition, one midwife explained, *"They (pregnant women) think that pregnancy is the normal process. So, they have in their mind that it is okay if they do not go to the health facility."* (MW5-P3)

For unplanned pregnancies, there was often late pregnancy awareness which resulted in late uptake of ANC. This aligns with research conducted in the United States, which found maternal awareness of pregnancy being significantly later for unintended pregnancies versus those that were intended ($p < 0.01$) [29]. Within this study there was a noted significance of early pregnancy detection and ANC for improving pregnancy outcomes due to the critical window of foetal development in the first trimester [29]. Further, timely uptake of ANC was also shaped by not experiencing nausea or feeling that they were too old to be pregnant. *"First time I came to midwife when my pregnancy had been 3 months. I did not realise that I was pregnant already because there is no symptom like dizziness or nausea."* (FGD5-P1)

Similarly, it was demonstrated some women associate symptoms of nausea as the first signs of pregnancy, however the authors acknowledge that this symptom typically occurs during pregnancy weeks 6-8 and peaks in weeks 11-13 [30].

Consequently, not having nausea until later in the first trimester could shape the early uptake of a first ANC [30]. Separately, a study conducted in Kenya showed one of the main reasons for a late ANC booking was “*not feeling sick*” [31]. Likewise, a study in Northern Ghana it was highlighted that no visible signs of pregnancy such as no sickness can contribute to delayed or lack of ANC [32]. The authors conclude female education, intensification of health promotion activities by health workers, non-governmental organisations, community and religious leaders to sensitise communities on the benefits of initiating ANC at the onset of pregnancy is required in order to improve first trimester ANC attendance [32]. Therefore, promotion and investment in female education within the districts of Surabaya should be considered to improve the early recognition of pregnancy and early uptake of ANC.

For this study population, the importance of ANC was widely acknowledged by the pregnant women and midwives. Several of the expectant mothers shared their opinions with a general consensus of wanting to “*know my baby is healthy and developing*” (FGD5-P2). In a study investigating enablers and barriers to ANC service use in India, it was demonstrated that understanding the importance of ANC was essential for uptake of this service [33]. Further, the authors suggest community health education on the importance of ANC in increasing ANC uptake to achieve sufficient ANC coverage (minimum 4 visits) [33]. Despite the shared understandings of the importance of ANC, a common view reported by the pregnant women was a fear of receiving a negative diagnosis upon their first visit at the community health facility. Several of the women explained for themselves and their neighbours that they were often afraid to be diagnosed with a problem in their pregnancies. For example, one mother explained, “*I am afraid at the community health facility if it does not give me an excellent service. But the service is ok, but I am more concerned if there is something wrong with my baby.*” (FGD1-P4)

“...There was a mother who felt scared to check from the first time she knew she was pregnant to 9 months of pregnancy; she never went to the health facility... her condition became critical in labour. Fortunately, both mother and baby were okay.” (FGD3-P2)

It is well documented in research within the United States identified reasons for avoiding the doctor includes fear of having a serious illness [34]. Separately, other women shared in this current study that they were fearful of contracting an infection whilst at the community health facility. Consequently, focus should be placed within the community by the Surabaya City Health Office on ensuring mothers’ feel comfortable and supported to seek ANC without fear of negative diagnosis or contracting infections.

Affordability of ANC

In a South Sudan study examining barriers to utilisation of ANC, having a low income and not being able to afford health care was found to discourage uptake of ANC services [34]. However, the majority of women within the current study population held Badan Penyelenggara Jaminan Sosial Kesehatan (BPJS), which administers the Indonesian national health insurance. As a result, the ANC services are free to the women holding BPJS making ANC affordable for this study population. Similarly, for those who do not have BPJS it was shared that the services were perceived inexpensive, so there was no financial problem in accessing ANC, “*I choose this community health facility, because the community health facility is cheap*” (FGD1-P5). However, it is well recognised in the literature within low-middle income countries the challenge financial constraints impose on ANC uptake [33, 35]. Therefore, while for this study population there was a consensus that ANC was affordable, this needs to be continued to be considered in future health promotion interventions as the finding cannot be generalised for the whole of Surabaya and Indonesia.

Cultural and Social Dynamics

Myths associated with pregnancy

The beliefs, attitudes and behaviours of pregnant women could strongly shape whether a mother chose to attend ANC for a minimum of 4 visits, and more generally, could also shape pregnancy outcomes. The results of this study show that nearly all the participants had a personal belief about pregnancy or shared the views of others when considering when they could come to the community health facility and when they could safely leave the house. It emerged from this study there was often a delayed initiation of ANC due to upholding beliefs.

"I came to community health facility for the first time in the fifth month... The reason I only came in the fifth month is because I had nausea before, and I was told (by my family) that the nausea should end first before I can go to the community health facility." (FGD1-P6)

In South Africa one it was demonstrated of the well documented risk factors for late uptake of ANC is cultural beliefs [36]. One of the midwives commented on the importance of health promotion and education to debunk myths within the community.

"It is pivotal (for pregnant women to feel safe). Most of people in this area are middle-to-low-income and have a low level of education. So, they have to be taken care of. If not, they will easily believe in myths..." (MW3-P2)

Influence of family and friends

In a Balinese study on pregnant women, the findings showed that pregnant women tend to take advice from their family without question because they trusted them [37]. Further, several admitted they followed their family's advice so they would be happy with them [37]. Within this study, several women commented that their husbands had recommended the community health facility for them. Alternatively, a friend or family member had suggested the facility, "*My husband recommends this community health facility for me. I have heard from my family and friends to come here*" (FGD1-P1). Certainly, husbands' involvement in ANC was regarded as *pivotal* by one of the midwives to ensure everyone was well informed.

"It is pivotal (*for both pregnant woman and father of baby to attend the visits*) in order for the information to be known by the pregnant woman but also by her husband. Perhaps, the husband has something they want to share with the midwife. So, there is a good communication between everyone." (MW3-P2)

Certainly, male partner participation in ANC is vital to bettering maternal and neonatal birth outcomes [38]. Whilst it was showed within Ethiopia women who reported at least one ANC visit with their husbands were 6.27 times more likely to use skilled birth attendants in comparison to their counterparts who attended ANC alone [39]. Likewise, a separate study showed a significance for women whose partners attended ANC in receiving urine and blood tests and counselling regarding pregnancy complications compared to those who attended alone [40]. As previously established, husbands can play a pivotal role in decision making within a home, and therefore participation in ANC is vital if pregnant women are to fully utilise and benefit from the offered services. Therefore, involving husbands within community based educational programs on the importance of ANC should be considered to improve overall rates of ANC uptake.

Lastly, a qualitative study within the UK investigating understanding delayed access to ANC reported that women postponed ANC uptake to avoid negative family reactions on how they might cope with the birth of another child [41]. Within this study, it was discussed the shame felt by the pregnant women from the community if the pregnancy was too close to a previously born child. Certainly, the participants shared that not seeking ANC or slow uptake of ANC was often shaped by this shame experienced, "*So when she (neighbour) went to give birth, she had only checked her pregnancy once. 1 month before giving birth. Sometimes it is a shame, when the pregnancy is too close to the first child*" (FGD2-P4).

This research displayed the importance of husbands, family and friends in pregnancy and decision-making regarding pregnancy. Efforts to increase ANC uptake and decrease negative pregnancy outcomes in Surabaya could include community level health promotion and education directed towards husbands, family and friends. Whilst importance should be placed in the empowerment of women to ensure pregnant mothers are confident in controlling and making decisions surrounding their own health alongside their child's and not a reliance on husbands, family or friends. Indeed, through supporting the empowerment of women in Surabaya may lead to improvements in their health. This is supported by a review on women's empowerment related to pregnancy and childbirth, which demonstrated a link between the empowerment of women, improved health, particularly in areas where disparities are highest such as maternal mortality [42].

Community and Health Care Conditions

Availability of Services

The participants in this study expressed their concern over the limited waiting seats within the community health facility. This often resulted in the pregnant women having to “*wait by standing*”, and several suggested the installation of additional seats would facilitate a more comfortable waiting area.

These long waiting times at community health facilities have been highlighted in other Indonesian studies. In particular, one study explained that the long waiting times made the facilities less convenient and limited the enjoyment of the service [43]. In addition, in some cases it can act a barrier to service uptake with participants of this study choosing to leave the clinic or attend a private hospital rather than queuing at the community health facility [43]. This was similar to the participants in this present study, where one woman commented, “*I went to a midwife clinic (private) for my first pregnancy because I did not need to wait*” (FGD4-P1).”

Despite the long waiting times, the participants of this study commented on the effectiveness of the online booking system and the ability to book through WhatsApp streaming processes, “*Nowadays, we can register it by online. The registration is fast, but the queue is long. The service sometimes does not match to the time written as it is sometimes delayed*” (FGD4-P5). A mixed-methods evaluation of e-booking in medical practices showed that the majority of patients appreciate the system due to the flexibility and time savings associated [44]. In addition, the system’s automated reminders helped significantly in reducing the number of missed appointments [44]. Such technology could be considered to be used in Surabaya in order to inform patients on waiting times, and if a delay in their appointment is going to occur to reduce long waiting times and improve overall comfort of attending ANC appointments.

In addition, participants commented that due to the high number of patients at the community health facilities, their consults would often be short, and participants felt they were unable to receive all the information they required, “*I think they should add more professionals because there are a lot of patients, so we need more time with the professional to consult more*” (FGD1-P5). Certainly, qualitative research on women’s and care providers’ perspectives of quality prenatal care across Canada indicated that more time spent between the patient and health care professional often can facilitate a relationship-centred model of care [45]. It was demonstrated that this can be effective in improving patient satisfaction with care and ultimately reducing negative birth outcomes [45]. Indeed, it was shown that women often desire longer appointments in order to feel more comfortable with the visit and not rushed on receiving information surrounding any concerns [45].

Whilst research on accessing emergency maternal care in Indonesia reported that being able to access a community health facility is influenced by available transport [46]. Within this study, transportation was not considered a factor in shaping uptake of ANC, “*For the access, especially transportation, this place is very easy to access. For the road is good as well, because the road here has been paved all*” (MW5-P5). As recent Indonesian research indicates place of residence as an influencing factor in the uptake of ANC services it was important to highlight whether the community facility was close in proximity to the participants [15]. There was a general consensus that the distance to the community health facility was not an influencing factor shaping uptake of ANC for this study population due to the close proximity. Several women shared that the facilities could easily be accessed by walking or riding their scooters in less than 10 minutes, and many would come to the facility for reasons other than their pregnancy.

Patient-practitioner rapport

A qualitative study conducted in Malawi on the patient-provider relationship and ANC uptake showed that the patient-provider relationship appears to have a large impact on ANC participation [47]. Further, the results of the study suggest the attitudes of the health care provider can influence uptake of ANC and improving the patient-provider relationship may increase ANC attendance and consequently decrease pregnancy complications [47]. Within this present study, the patients highlighted the importance of satisfaction between the patient and the health care providers. Namely, the quality and friendliness of service delivered, alongside feeling like enough information was shared, “*The doctor is pleasant, he asks, “What do you feel? What’s the complaint?” It is nice for someone to care like that*” (FGD2-P6).

In particular, one of the pregnant women who was previously receiving ANC from her local hospital exclaimed that she changed health care providers and health facilities due to the perceived negative treatment from her doctor where she felt she was more

of an annoyance, “*Sometimes there are doctors who care, sometimes there are people who are too annoyed by their patients*” (FGD2-P6). Whilst none of the other participants highlighted any negative patient-provider relationship interactions as a reason influencing their uptake of ANC, many believed it was a reason shaping the uptake of ANC within their communities.

In addition, a study exploring the provision and uptake of routine ANC services in low and middle income countries reported that perceived poor quality of ANC can influence uptake of services [48]. Within the present study, rumours associated with community health facility staff being inadequate were influencing the pregnant women in the area accessing that facility. One of the midwives explained that it was a reason why women in the area chose not to come to the facility, as they believed the staff were “*not good*”. Conversely, one midwife explained that several patients come to their community health facility due to the open community and closeness with the patients. Certainly, continuing to improve the (perception of) quality of the ANC delivered within the communities could improve ANC uptake and patient satisfaction. Lastly, the findings of the present study suggest future research could be directed towards the quality of the ANC being delivered to continue to understand why ANC coverage is high, yet the MR also remains high.

Midwife perceptions on no-shows

In some cases, the midwives shared that it is because the pregnant women are afraid to be referred to the hospital if it is a high-risk pregnancy. For some, it is believed that being referred to hospital means they will need to undergo a caesarean section at childbirth which raises feelings of apprehension. Certainly, this indicates the urgent need of health promotion and educational interventions directed towards mothers to address these concerns.

Lastly, in order to ensure pregnant women are attending ANC for the entirety of their pregnancies, the community health facility midwives arrange routine appointments and utilise the volunteer health workers within the communities. Indeed, the volunteer health workers seem to be crucial in shaping uptake of ANC and ensuring return visits.

“We, as a midwife, arrange the schedule for the upcoming antenatal visit routinely. So, they have already known when they have to come back. In addition, I also have *kaders* as my extension to follow up the condition of pregnant woman and remind them to come to the community health facility.” (MW2-P1)

Limitations of the Study

Despite the study following a strict protocol, there were a number of contextual factors which may limit the results. For example, for several of the FGDs for a period of time the chief of the community health facility and the associated midwives would sit in on the discussions. Although after time these health professionals would leave, the beginning of the FGDs results could have been impacted by these personnel being present. In addition, in one FGD, a husband was present due to cultural factors and this could have again altered the results of the study. Further, the set-up of two of the FGDs were not welcoming due to the participants being seated in rows and microphones needed to hear what each participant was saying. Indeed, under reporting is a distinct possibility within this setting also due to potential recall bias or the sensitive nature of the questions. In addition, due to the FGD and semi-structured interviews being carried out in Bahasa Indonesia and the principal investigator not fluent in this language, the study relied on translations to English. At times, meanings can be lost in translation and therefore interpretation of the results in English could miss the true meaning. In order to overcome this limitation, translations were checked by a minimum of 2 individuals, and the qualitative data was reviewed by the corresponding author fluent in both languages to ensure no meaning was lost in translation. Finally, the findings of the study are limited to a small sample in the city and urban areas of Surabaya and those attending ANC services in community health facilities therefore, the findings should not be considered generalisable to the broader population.

Conclusion

The findings suggest limited pregnancy knowledge in some women and strong myths associated with pregnancy shaping the uptake of ANC. Further, efforts to debunk myths at the community level are essential due to the importance placed in these myths by communities. Whilst, the strong beliefs and attitudes towards pregnancy held by husbands, families and friends can

strongly influence the pregnant woman's ideas on pregnancy and ANC uptake, it is vital to encourage the involvement of husbands, families and friends in any current and future maternal and infant health promotion and educational campaigns to support positive outcomes in pregnancy. A pressing finding of the present study suggests feeling comfortable with the quality of care and receiving a friendly, trustworthy service from the practitioners at the community health facility is essential in shaping ANC uptake. Certainly, professional development opportunities offered by the Health Office inclusive of all health workers involved in maternal and child health (community facility based, private, and volunteer) could continue to increase the quality standard and friendliness of service delivered. Indeed, Community Health Facilities should consider installing more waiting area seats and utilising mobile technology to inform patients on waiting times due to the participants in this present study agreeing on the limited availability of seats in the waiting area and lengthy queue waiting times.

As this research draws a focus on improving ANC uptake to a minimum of 4 visits, the findings of the present study suggest future research should be directed towards the quality of ANC being delivered at both community health facilities and private midwife practices. The impressive ANC coverage (minimum 4 visits) yet high maternal MR also supports this suggestion and indicates further research is required to the standard of ANC being delivered. As the findings suggest many women attend both community health facilities and private midwife practices, this research urgently needs to target both services to improve the maternal health in Surabaya and across Indonesia.

Table 3: Demographics of Study Sample in FGD (n=61)

Age	Number of Participants (N)	%
18-24	4	6.6
25-29	6	9.8
30-34	4	6.6
35+	7	11.5
Unknown	40	65.5
Total	61	100
Pregnancy Number at time of FGD	Number of Participants (N)	%
1 (first pregnancy)	8	13.1
2	16	26.3
3	6	9.8
4	7	11.5
5+	2	3.3
Has been pregnant before	11	18.0
Unknown	11	18.0
Total	61	100
Marital/Relationship Status	Number of Participants (N)	%
Married	49	80.3
Unknown	12	19.7
Total	61	100
Highest Level of Education	Number of Participants (N)	%
Elementary	10	16.4
Junior High	11	18.0
Senior High School	26	42.6
Diploma	2	3.3
Bachelor	1	1.7
Unknown	11	18.0
Total	61	100
Employment Status	Number of Participants (N)	%
Not Working	37	60.6
Employed Part Time	2	3.3
Employed Full Time	3	4.9
Self-Employed	1	1.7
Other (Homemaker)	2	3.3
Unknown	16	26.2

Total	61	100
Monthly Household Income (IDR)	Number of Participants (N)	%
<500,000	1	1.7
500,000 - 1,000,000	4	6.6
1,000,001 - 2,000,000	12	19.7
2,000,001 - 3,000,000	9	14.7
3,000,001 - 4,000,000	9	14.7
4,000,001 - 6,000,000	4	6.6
Unknown	22	36.0
Total	61	100

Table 4: Summary of categories, themes, sub-themes and associated quotes shaping uptake of ANC

Individual Circumstances		
Perceptions	Perceived knowledge of pregnancy	“They (<i>pregnant women</i>) think that pregnancy is the normal process. So, they have in their mind that it is okay if they do not go to the health facility.” (MW5-P3)
		“I didn’t realise. One day my body was not feeling well, only in the third month I started to feel nauseous. I did a check-up at the Hospital and turns out I am 3 months pregnant. *Imitates talking to the doctor* “Really doctor? I’m old already, I am 40 years old”. (FGD2-P1)
		“First time I came to midwife when my pregnancy had been 3 months. I did not realise that I was pregnant already because there is no symptom like dizziness or nausea.” (FGD5-P1)
	Perceived importance of antenatal care	“It is important to go to community health facility, because I want to know not only my pregnancy, but the nutrition needs and dietary habits whilst I am pregnant.” (FGD1-P3) “To know my baby is healthy and developing” (FGD5-P2)
	Fears associated with attending community health facility	“... There was a mother who felt scared to check from the first time she knew she was pregnant to 9 months of pregnancy; she never went to the health facility... her condition became critical in labour. Fortunately, both mother and baby were okay.” (FGD3-P2) “I had a fear for the first time I came to community health facility... I was afraid to be diagnosed with a problem in my pregnancy. I was afraid to find out.” (FGD1-P4) “I am afraid at the community health facility if it does not give me an excellent service. But the service is ok, but I am more concerned if there is something wrong with my baby.” (FGD1-P4)
Affordability of ANC		“I choose this community health facility, because the community health facility is cheap.” (FGD1-P5) “There is no problem with accessibility or transportation or cost because if they have a national identity or health insurance it is all free.” (MW1-P3)
Cultural and Social Dynamics		
Myths associated with pregnancy		“I came to community health facility for the first time in the fifth month... The reason I only came in the fifth month is because I had nausea before, and I was told (<i>by my family</i>) that the nausea should end first before I can go to the community health facility.” (FGD1-P6) “It is pivotal (for pregnant women to feel safe). Most of people in this area are middle-to-low-income and have a low level of education. So, they have to be taken care of. If not, they will easily believe in myths...” (MW3-P2)
Influence of family and friends	Decision Making	“My husband recommends this community health facility for me. I have heard from my family and friends to come here.” (FGD1-P1)
	Attendance within ANC	“Most of them are accompanied by friend, their mother, or their husband.” (MW4-P3) “It is pivotal (for both pregnant woman and father of baby to attend the visits) in order for the information to be known by the pregnant woman but also by her husband. Perhaps, the husband has something they want to share with the midwife. So, there is a good communication between everyone.” (MW3-P2)
	Shame from the community	“When she (<i>neighbour</i>) went to give birth, she had only checked her pregnancy once. 1 month before giving birth. Sometimes it is a shame, when the pregnancy is too close to the first child.” (FGD2-P4)
Community and Health Care Conditions		
Availability of services	Waiting Area	“They need to add more seats, as sometimes I have to stand up. There are a lot of pregnant women that wait by standing.” (FGD1-P5)
	Timely Services	“I went to a midwife clinic for my first pregnancy because I did not need to wait.” (FGD4-P1) “I think they should add more professionals because there are a lot of patients, so we need more time with the professional to consult more.” (FGD1-P5)

	Online Bookings	"Nowadays, we can register it by online. The registration is fast, but the queue is long. The service sometimes does not match to the time written as it is sometimes delayed." (FGD4-P5)
	Variety of services offered	"In the first visit, a pregnant woman will get a general health check and laboratory examination or complete blood examination, regarding to HIV, Hepatitis B, and others...If there are problems or risks, the pregnant woman will be referred." (MW3-P1)
Getting to the Facility	Transport	"For the access, especially transportation, this place is very easy to access. For the road is good as well, because the road here has been paved all." (MW5-P5)
	Closeness of the facility	"I choose here (<i>community health facility</i>), because it's nearby." (FGD4-P2)
Patient-practitioner rapport		<p>"The service is excellent and efficient– the same as in the hospital. The quality of health service is good and the midwives here are good as we know them from our previous pregnancies." (FGD1-P5)</p> <p>"Sometimes there are doctors who care, sometimes there are people who are too annoyed by their patients." (FGD2-P6)</p> <p>"The doctor is pleasant, he asks, "What do you feel? What's the complaint?" It is nice for someone to care like that..." (FGD2-P6)</p> <p>"There is a rumour at this public health facility that the staff are not good, which is why some women choose to not come here, I have sacrificed a lot to improve the coverage of pregnant women to come here." (MW5-P6)</p>
Midwife Perceptions on No-Shows		<p>"The reason (<i>pregnant women drop off for appointments</i>) are they are afraid when they are referred to the hospital, or they go back to their hometown or their family who can help them to take care of their baby." (MW5-P5)</p> <p>"Commonly, they (<i>pregnant women</i>) come back to here because they know the process, and they're familiar with the staff so they feel comfortable to come back." (MW1-P3)</p> <p>"We, as a midwife, arrange the schedule for the upcoming antenatal visit routinely. So, they have already known when they have to come back. In addition, I also have kaders as my extension to follow up the condition of pregnant woman and remind them to come to the community health facility." (MW2-P1)</p>

Abbreviations

ANC: Antenatal Care; MMR: Maternal Mortality Ratio; FGD: Focus Group Discussion; SSI: Semi Structured Interviews; WHO: World Health Organisation; AIHW: Australian Institute of Health and Welfare; UNICEF: the United Nations Children's Fund; SDG: Sustainable Development Goal.

Declarations

Ethics approval and consent to participate

Ethics approval was obtained from Griffith University Human Research Ethics Committee (GU ref no: 2019/424). Ethics approval was obtained from the University of Airlangga. All participants gave informed, written and signed consent.

Consent for publication

Not applicable.

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

Funding

The Ministry of Research, Technology and Higher Education (MRTHE) in Indonesia provided funding towards data collection. Griffith University (GU) provided funding towards participant tokens of appreciation. MRTHE & GU had no role in study design, interpretation of data and writing of the manuscript.

Authors' contributions

LJ conceptualised and designed the study and research questions, assisted in data collection, data analysis and initial interpretation, and drafted the manuscript. ND carried out data collection and was a supervisor of the project. NW and NH were supervisors of the project and assisted in overall study design and research questions. ND, NW and NH reviewed and revised the analysed data and manuscript. All authors read and approved the final manuscript.

Acknowledgements

We thank Ibu Ratna Wulandari and Bapak Ilham Akhsanu Ridlo for their contribution to data collection. We also acknowledge Hilda Izzaty, Erin Sebtiarini, Arintika Chorunnisa Islami, Dwi Ratna Paramitha, Arini Novianty and Tita Rismayanti for their assistance in the translation of the data. Finally, we would like to express our gratitude to all participants within this study.

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