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# The tipping point of antenatal engagement: A qualitative grounded theory in Tanzania and Zambia

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ABSTRACT

*Background:* Effective antenatal care is fundamental to the promotion of positive maternal and new-born outcomes. International guidance recommends an initial visit in the first trimester of pregnancy, with a minimum of four antenatal visits in total: the optimum schedule being eight antenatal contacts. In low- and middle-income countries, many women do not access antenatal care until later in pregnancy and few have the recommended number of contacts.

*Aim:* To gain understanding of women's antenatal experiences in Tanzania and Zambia, and the factors that influence antenatal engagement.

*Methods:* The study was underpinned by Strauss's grounded theory methodology. Interviews were conducted with 48 women, 16 partners, 21 health care providers and 11 stakeholders, and analysed using constant comparison.

*Findings:* The core category was 'The tipping point of antenatal engagement', supported by four categories: *awareness of health benefits*, *experiential motivators*, *influential support*, and *environmental challenges*. Although participants recognised the importance of antenatal care to health outcomes, individual motivations and external influences determined attendance or non-attendance. The 'tipping point' for antenatal engagement occurred when women believed that any negative impact could be offset by tangible gain. For some women non-attendance was a conscious decision, for others it was an unchallenged cultural norm.

*Conclusion:* A complex interplay of factors determines antenatal engagement. Short-term modifiable factors to encourage attendance include the development of strategies for increasing respectful care; use of positive women's narratives, and active community engagement. Further research is required to develop innovative, cost-effective care models that improve health literacy and meet women's needs.

## Introduction

Antenatal care has the potential to reduce maternal [1], and neonatal mortality [2] through health promotion, screening and diagnosis, and prevention of complications. Additionally, antenatal care provides an opportunity to promote positive childbirth experiences [4] through the support of women, families, and communities.

The majority of the 2 million stillbirths which occur annually are in low- and middle-income countries, such as sub-Saharan Africa [5]. Half of all stillbirths are estimated to occur in the antepartum period, thus early detection of problems is imperative. Furthermore, the way women experience antenatal care, can have an impact on facility attendance, leading to delays in treatment and subsequent intrapartum stillbirths [6]. Thus, good quality, effective, antenatal care has the potential to reduce both antepartum and intrapartum stillbirths.

Globally, around 87% of pregnant women access antenatal care with a skilled health care provider at least once. However, of these, only 60% of women attend four antenatal care visits, with figures as low as 21% in some sub-Saharan countries [7].

The World Health Organisation's (WHO) latest recommendations [4] are that women receive eight antenatal contacts during their pregnancy. These recommendations move away from a focus on actual visits to a

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more flexible and interactive approach [8], with greater potential to meet individuals' needs. However, because of failing SDG targets, the Every New-born collaboration [9], recently launched new 2030 targets, marking the next step in the global effort to end preventable stillbirths and new-born deaths. One of the four measurable targets is that every woman should have four or more antenatal contacts. The global target is 90% coverage, with national targets aimed at 90% of countries having > 70% coverage and subnational targets aimed at 80% of districts having > 70% coverage [9].

However, effective antenatal care is challenging to deliver in many low-income settings. Long distances to the health facilities, poor road conditions [6,10], lower education and income levels [10–11], socio-cultural beliefs, perceptions of health provider attitudes [6,10,12], and fear of HIV testing [10] are reported as key barriers to ANC utilisation.

In Tanzania, most women attend one ANC visit (98%), however only half (51%) attend four or more [13]. Only 24% of women start ANC before the fourth month of pregnancy and 26% do not seek care until at least the sixth month of pregnancy [13]. Urban women are more likely than rural women to have four or more ANC visits and to seek care early in pregnancy [13]. Tanzanian women experience significant challenges attending ANC including lack of male partner involvement, informal regulations imposed by health providers, disrespectful care, and perceived poor quality of care [14].

Zambia has slightly more women (64%) attending at least four antenatal visits, with only 37% of women attending their first antenatal visit in the first trimester (median gestational age 4.4 months) [15]. In a recent survey in Zambia, a marked difference was observed according to geographic location; less than a third of women in rural Zambia attended four antenatal visits; 53% lower than the national estimates [16]. Recent qualitative research suggests that women residing in rural areas believed that their traditional beliefs would be disrespected by healthcare providers [17] adding to their reluctance to attend. These findings are reinforced by Downe et al's review [18] of 85 qualitative studies, which emphasised the importance of trusting caring relationships between women and healthcare providers for antenatal care uptake.

To meet the targets, as laid down by the Every Newborn Collaboration, [9] one needs to understand the barriers and facilitators within individual contextual settings; this was the premise for this study.

### *Aim*

The purpose of this study was to gain understanding of views and experiences of antenatal care to inform strategies for greater uptake of effective, acceptable antenatal care. This was part of a wider programme of research aimed at the prevention and management of stillbirth in Sub-Saharan Africa

## Method

### *Research design*

A qualitative interview study, informed by a Straussian grounded theory approach [19], and underpinned by Symbolic Interactionism [20] was used. This approach was chosen to support an inductive process aimed at gaining understanding of the impact of the wider social context influencing respondents' views and experiences. The study design enabled the systematic generation of new knowledge aimed at explaining the phenomenon of antenatal care in two low-income countries.

A Community Engagement and Involvement (CEI) group [21] in each country was formed at study outset, prior to protocol completion. The CEI groups, established for the purpose of supporting a large maternal and new-born programme, comprised locally residing parents and health care providers. Members contributed to the study design, consent and recruitment processes, and development of the interview schedule. The CEI Leads also contributed to interpretation of the findings, construction of the recommendations and reviewing drafts of this paper.

### *Ethical considerations*

Ethical approval was obtained from The University of Manchester Research Ethics Committee 3 (reference number 2018-4446-6653), United Kingdom; CUHAS/BMC Joint Ethical and Review Committee, Tanzania (reference number CREC/287/2018) and ERES Converge IRB, Zambia (reference number 2018/June 029). All research participants provided their written (or thumb print) informed consent. The consent was reaffirmed during audio-recording. Confidentiality was assured, and the use of pseudonyms ensured anonymity. A tailored distress policy was available and contained referral pathways and action points, which were triggered by the verbal and non-verbal responses of participants. Contact details of appropriate health professionals and counsellors were available. Respondents were informed that they could refuse to answer any questions and could stop the interview at any time. Hard data was stored in locked cupboards, accessible only to the research team. Electronic data was password protected and kept in encrypted files.

### *Study setting*

The study took place in two low-income settings with high burdens of disease: The Lake Zone in Northern Tanzania and Luapula Province in Northern Zambia. Participants were recruited from different health facility levels: primary (health clinics/dispensaries), secondary (district hospitals), and tertiary (referral facilities). The majority of participants were living in rural or semi-rural locations. In both countries national policy dictates that routine antenatal care should commence in the first trimester and eight contacts with health providers are advised, in accordance with WHO guidelines. [4] In Tanzania women who attend with their partner are usually prioritised in antenatal clinics, and some communities' fine partners for non-attendance. In Zambia, a 'motivational pack' is supplied to women attending in the first trimester of pregnancy, this comprises a wrap, napkin, tablet of bathing soap, small bottle of petroleum jelly and baby powder. In some villages Traditional Leaders have put punitive measures in place to encourage attendance. These include penalties such as cultivating the field for the local Chief, and buying goats, chickens which were then distributed to maternity waiting homes to feed pregnant women.

### *Sample and recruitment*

The sampling strategy adhered to grounded theory principles [19], which included purposive followed by theoretical sampling. Women and partners were recruited within health facilities. The initial approach to participants was made by the clinical team, to establish their willingness to receive study information. After receiving written and verbal information from the study team, potential participants chose whether to opt into the study. Health providers and key stakeholders were recruited through snowballing, using known contacts. An initial purposive sample of 3 participants per country, in each of the following groups were recruited: pregnant women, postnatal women (2–12 weeks post-birth with a live or stillborn baby) to capture their views and experiences of attending antenatal services, male partners of pregnant and postnatal women, to understand their role in their partners' engagement with antenatal care. The health care providers (midwives, ambulance staff, traditional birth attendants, nurses and doctors) were recruited to gauge opinions on wider barriers and facilitators to antenatal service provision; and other key stakeholders (village elders, religious leaders, community members, policy makers) were included to explore wider social-cultural influences to pregnant womens' ANC engagement. All participants were at least 18 years of age and capable of providing informed consent.

After the initial purposive sample, data retrieval was directed by theoretical sampling. Simultaneous data collection and analysis enabled the initial findings to inform the targeting of subsequent participants. Interviews were continued until data saturation was established.

### *Data collection*

Trained research assistants, from the Lugina Africa Midwives Research Network (LAMRN), [22] conducted semi-structured interviews, in local language or English, as appropriate. Participants were interviewed in the home, university office, hospital facility or clinic, according to preference. To enable the contextualisation of findings, questions regarding the characteristics of participants were included within the topic guide. The topic guide received input from the CEI groups and questions were amended for local relevance and understanding. In keeping with grounded theory [19], this guide contained a minimal number of broad, open, questions to promote a respondent-led interview. To increase credibility [23], participants were supported to provide their own narratives, in a way that was most comfortable to them; interviewers were trained to develop rapport with participants, observe interviewee cues/body language, prompt when necessary, and remain silent when appropriate, to facilitate this process. Interviews commenced with opening questions, such as: *'Can you tell me about your pregnancy?'* (Woman) and *'what are your views/experiences of antenatal care?'* (Health provider). Additional, individualised questions were then introduced to explore further the unique accounts provided by participants; to enable deeper explorations. For confirmability, understandings and ideas revealed in initial interviews were followed up with participants in later interviews.

Additionally, the interviewers kept detailed field notes to describe nuances within the interview process and to record non-narrative communications, such as facial expressions, gestures, body movement, other vocalisations (crying, muttering, grunt etc.), and word emphases, to contextualise any interpretations.

### *Data analysis*

The Grounded Theory approach, described by Strauss and Corbin [19], informed data analysis and involved three coding stages: open, axial, and selective. Initial analysis was conducted by one author (RW), developed by three authors (TL, RL, and CK) and confirmed by the remaining authors. Interviews conducted in local language were translated into English to enable discussions by all team members. Translated interviews were and independently back translated and compared to the original text to verify accuracy. The first stage of analysis involved open coding, whereby each complete interview transcript was read for familiarisation. This was followed by line-by-line coding to thoroughly explore all sections of the narratives systematically. This process enabled the analysts to move between the whole transcripts and its parts. The next stage was axial coding, which involved searching for relationships between transcripts, using the constant comparative technique. Next, sub-categories were formed by grouping related codes. These sub-categories were discussed with the whole team and CEI members in several rounds until consensus was reached. The sub-categories, developed through axial coding, supported a core category through selective coding.

As the research team comprised health professionals, with the potential to influence participants and interpretations, reflexivity was important. [24] As such, memos were used throughout data analysis to provide an audit trail of decision-making. Furthermore, at the end of each interview, the researcher would summarise his/her interpretation of the key points provided by the participant and seek their confirmation of accuracy. This process was captured through the audio-recording and acted as a practical and more acceptable way of member checking.

## Findings

### *Demographic background*

In total 96 interviews were conducted, 43 in Tanzania and 53 in Zambia; women and their partners were interviewed separately. We believe data saturation was achieved, as no new information was emerging. Interviews lasted between 20 and 120 min. Participant characteristics can be seen in Table 1. Additionally, 11 influential stakeholders were interviewed: 5 in Zambia (2 female and 3 male) and 6 in Tanzania (all male). Stakeholders comprised religious leaders, village chiefs and policy makers.

### *Core category (Central concept)*

The core category emerged as *The Tipping Point of antenatal engagement* (Fig. 1), describing the intersection of barriers and facilitators. If the barriers outweighed the facilitators, then the 'tipping point' would be in favour of women not engaging with antenatal care. Conversely, if the facilitators outweighed the barriers, then the 'tipping point' would favour antenatal engagement. The core category is supported by four main categories: *Awareness of health benefits*, e*xperiential motivators*, *influential support,* and *environmental challenges,* developed through selective coding. These categories were consistent across countries and confirmed through discussion with wider stakeholders and CEI members. The pivotal balancing model (Fig. 1) displays the conflict between self-motivation (driven largely by awareness of health benefits) and external influences. Motivation only translates into action when women anticipate the experience to be positive and receive adequate support from their partner and community. Thus, the tipping point was the juncture of high self-motivation and positive facilitation alignment. Conversely, negative influences created a barrier with the potential to prevent women from reaching the tipping point and/or preventing continuation of antenatal engagement beyond the initial visit.

Although women generally had some awareness of the potential health benefits gained through antenatal attendance, their past experiences, lack of support and physical locality provided challenges which were sometimes difficult to overcome. These barriers were compounded by participants' sense of cultural propriety, whereby some women felt unable to challenge community norms even if they had strong personal motivations to do so. Thus, the notion that action stems from a deficit between perceived barriers and benefits, when benefits are the greater, as suggested by the Health Belief Model [25], was not always the case, women's personal beliefs and motivations were sometimes subdued by external factors. A theoretical understanding of the facilitators and barriers to attending antenatal clinic, illustrated through the core category (Fig. 1), is detailed in the following four categories. The subheadings highlight the results related to facilitators and barriers; in some cases, the sub-categories describe both.

## Awareness of health benefits

### *Knowing the benefits [facilitators]*

Most women and partners knew that engagement in routine antenatal care was associated with positive outcomes for them and their baby. For some women, this awareness was as a result of receiving repeated health messages; sources of information included social media, radio, community health workers, and community members (village leaders, friends, and family). The belief that attending antenatal care would improve the health of mother and baby was a strong motivator for some women. Specific reasons suggested by participants for antenatal engagement included: 'monitoring the health of the woman and baby'; 'receiving health education such as nutritional advice'; 'screening for problems, e.g., HIV'; and 'obtaining health supplies such as mosquito nets'. The overriding motivator proposed for antenatal attendance was

**Table 1**
Participant characteristics.

| | Tanzania | | | Zambia | | |
|---|---|---|---|---|---|---|
| | Women N = 21 | Partner N = 7 | Health worker N = 9 | Women N = 27 | Partner N = 9 | Heath worker N = 12 |
| Age, median (range) | 21 (18–41) | 32 (26–50) | 38 (25–53) | 24 (18–45) | 31 (25–56) | 49 (33–65) |
| Marital status | | | | | | |
| -Married | 21 | 7 | 8 | 24 | 9 | 10 |
| -Single | 0 | 0 | 1 | 3 | 0 | 1 |
| -Widowed | 0 | 0 | 0 | 0 | 0 | 1 |
| Education | | | | | | |
| -Primary | 5 | 1 | 0 | 9 | 3 | 0 |
| -Secondary | 15 | 6 | 0 | 15 | 4 | 0 |
| -College | 1 | 2 | 0 | 1 | 1 | 0 |
| -Diploma | 0 | 0 | 7 | 1 | 0 | 9 |
| -Degree | 0 | 1 | 1 | 1 | 1 | 3 |
| -Other | 0 | 0 | 1 | 0 | 0 | 1 |
| Religion | | | | | | |
| -Christian | 21 | 7 | 9 | 27 | 26 | 12 |
| -Muslim | 0 | 0 | 0 | 0 | 1 | 0 |
| Sampling group | | | | | | |
| -Live birth | 7 | 4 | | 6 | 3 | |
| -Stillbirth | 10 | 5 | | 13 | 3 | |
| -Near miss | 4 | 1 | | 8 | 3 | |
| Employment | | | | | | |
| -None | 8 | 1 | 0 | 10 | 0 | 0 |
| -Farmer | 1 | 4 | 0 | 4 | 4 | 0 |
| -Shop worker | 3 | 1 | | 5 | 1 | 0 |
| -Tailor | 3 | 0 | 0 | 4 | 0 | 0 |
| -Clerical | 4 | 0 | 0 | 3 | 1 | 0 |
| -Business | 1 | 4 | 0 | 1 | 3 | 0 |
| -Nurse/midwife | 1 | 0 | 4 | 0 | 0 | 7 |
| -TBA/SMAG* | 0 | 0 | 3 | 0 | 0 | 3 |
| -Ambulance driver | 0 | 0 | 2 | 0 | 0 | 2 |

*TBA = Traditional Birth Attendant; SMAG = Safe Motherhood Action Group

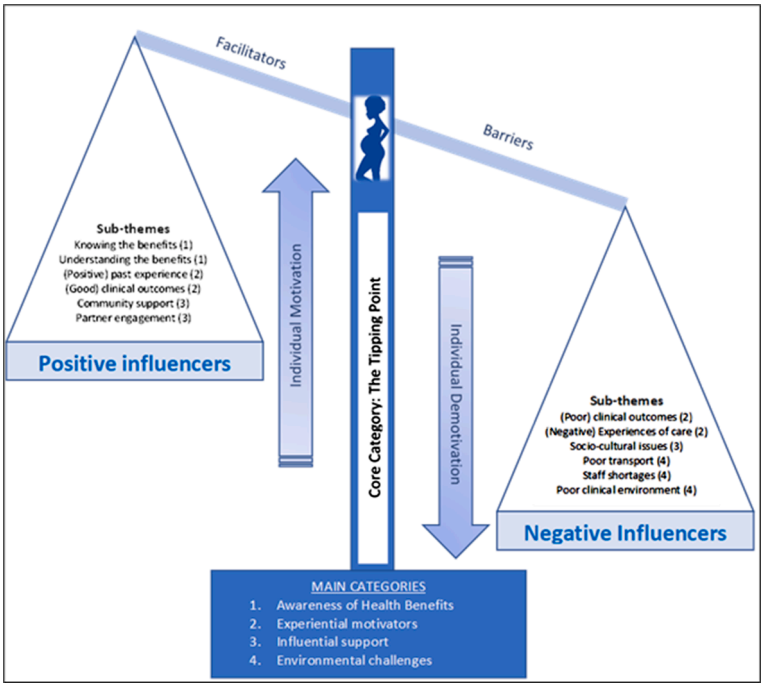


**Fig. 1.** Core category, main category and sub-categories.

protection of the woman's health and that of her unborn baby:

*"I decided to go to the clinic so that I can save my life and the life of the baby in the womb" [Woman, Pregnant, Tanzania]*

Safeguarding the health of the woman and baby was also acknowledged by partners as an important facilitator to antenatal attendance:

*"Antenatal is good so that we know how the baby is growing and how the mother is doing" [Partner, Zambia]*

Some women made comparisons between those who do attend antenatal clinic and those who do not, highlighting the benefits of identifying potential problems and the provision of health education:

*"A mother who goes to the clinic will know her status, the baby's progress in her womb and will know if she has any complications. A mother who stays at home has no idea of her status and that of her baby. She will not know if she has any complications. She does not get any medications or even injections, and she is not taught anything regarding the pregnancy or taking care of her baby" [Woman, Postnatal, Tanzania]*

*Understanding the benefits [barriers]*

Although the women interviewed could all identify some benefits of antenatal care, a few stakeholders suggested that some women do not attend routine antenatal services because of ignorance and lack of education:

*There are people who don't attend antenatal care and they face problems after birth. The main problem to why some attend and some don't is the lack of education. They don't know the importance of attending antenatal care when they are pregnant. [stakeholder Tanzania]*

Whilst being aware of the health benefits of attendance was a motivator for some, this on its own was not always a strong enough facilitator to attendance. Some women and their partners lacked understanding of the benefits of attending routine antenatal clinic appointments, leading to poor engagement with services. The nuanced differences between 'awareness' and 'knowledge' were evident in the data. One partner in Tanzania, for example, discussed the lack of knowledge he and his wife have about antenatal care:

*"We do not know about going to the clinic during and after pregnancies. All we know is farming and eating and leave everything to God" [Partner, Tanzania]*

Similarly, in Zambia, one woman identified the role that ignorance appears to play in poor antenatal engagement:

*"To some women it is ignorance; they do not know the importance of antenatal and the goodness of delivering from the hospital" [Woman, Postnatal, Zambia]*

Thus, whilst awareness of the health benefits of antenatal care was identified as important, this on its own did not appear to be the deciding factor when women considered attendance. The remaining three categories provide data which highlight the most influential factors capable of making a critical difference to women's decision-making.

**Experiential motivators**

Past experiences appeared to play an important role in women's decision-making about attending antenatal services. Women were influenced by their own past experiences and/or the experience communicated to them by other women. One woman who viewed her experiences positively stated:

*"I was motivated a lot and it convinced me to talk to my friends if at all they will become pregnant" [Woman, Postnatal, Tanzania]*

*Clinical outcomes [Facilitators and barriers]*

Women who had positive experiences often felt that they benefitted from attending antenatal clinics and were inspired to encourage others to engage with such services. However, negative past experiences could be either a positive or negative influence on future antenatal attendance. Some women who birthed a stillborn baby or their pregnancy resulted in a near-miss mortality expressed that they would now engage with antenatal services as they believed that their previous decision to forego these sessions could have contributed to their complications. In these instances, the poor outcomes experienced during pregnancy acted as a motivator to antenatal attendance in any future pregnancies. For example, when asked what she would do differently in her pregnancy, one woman who suffered a near-miss mortality discussed the blame she felt for not attending all antenatal sessions:

*"I can also attend all the antenatal visits. I'm also to blame because I was told to go back to be referred for a scan, but I did not go" [Woman, Near-miss, Zambia]*

Similarly, one woman who had birthed a stillborn baby in Tanzania stated that she was motivated to attend clinic to prevent the loss of another baby:

*"I decided to start clinic because I don't want to lose my baby again" [Woman, Stillbirth, Tanzania]*

*Experiences of disrespectful care [Barriers]*

There were several accounts of negative past experiences narrated which appeared to act as a barrier to seeking antenatal services. These accounts tended to relate to disrespectful care from health care providers. One woman discussed the impact that the harsh language used by some nurses has on women's decision-making, arguing that such experiences deter women from seeking future care:

*"For fear of a second reprimand from the nurses they opt to stay home in their next pregnancies" [Woman, Pregnant, Tanzania]*

Care provision acted as both a facilitator and a barrier to antenatal care, specifically in relation to the behaviour of health care providers. Unfriendly attitudes, unfair treatment and poor language used by health care professionals, were commonly experienced by women. One woman illustrated the negative impact of the harsh language often used by nurses:

*"Some nurses shout at patients and use abusive language such that you even fear to approach them. They should be welcoming and approachable" [Woman, Antenatal, Zambia]*

Similarly, the hostile approach of health care providers was also raised as an issue in Tanzania, where one woman stated:

*"If you just look at their faces, you can conclude that this nurse should have been a police [officer] and not a nurse" [Woman, Stillbirth, Tanzania]*

Inequalities in the treatment of women by health care providers was another issue raised. One partner compared the treatment that a woman who was married to a teacher or police officer received compared to a 'village women'. His narratives highlighted inequities in care:

"*That is discrimination…..the nurses are aware that they should not serve people that way…we do not like it. Moreover, we have nowhere to lodge our complaints. I think it is because both [police and teacher] work for the government and we come from the village. The one with better education understands certain things and may take advantage of that. The one who is lesser educated may also assume things and avoid asking questions. It is the nurse and doctor who should treat everyone with equal measure. The*

*leaders and the hospital committee should sit the nurses down and give them a dressing down so that the mothers get services that is rightfully theirs…. Some stay at home. They go back to the traditional healers and avoid coming to the hospital."* [Partner, Tanzania]

The impact of socioeconomic status on care provision was an issue also raised in Zambia, whereby women experienced discrimination because they were unable to wear maternity dresses:

*"They shout at our wives and use abusive language. Some women are sent away when they do not have a maternity dress or looking dirty" [Partner, Zambia]*

However, positive experiences of care were also identified as a facilitator to antenatal attendance. Women were encouraged to attend antenatal services when they were treated by friendly, approachable staff. When one woman was asked what she liked most about attending clinic she highlighted the positive care that she had received:

*"They cared for us well, they taught us what to do in case one is sick and told us to continue with the clinic even after delivery" [Woman, Postnatal, Tanzania]*

Similarly, in Zambia one of the partners interviewed described how his wife felt encouraged by the positive attitude of the nurse attending her during the antenatal period:

*"During antenatal, the nurse was respectful and kind, that alone used to encourage my wife" [Partner, Zambia]*

Respectful care was also recognized as a facilitator to antenatal services by health care providers. When discussing care provision, one health worker in Tanzania discussed the potential impact of using considerate language when treating women:

*"But also, in terms of language, the ability to receive a customer and make him/her feel at home, good and comfort. There are no harassments, harsh language, this may help increase more people coming to seek for services. You must be friendly with your patients" [Health Care Provider, Tanzania]*

This was also the case in Zambia, were health workers considered the importance of being friendly when dealing with patients:

*"As health workers, let us wear a smile on our faces as we attend to our clients" [Health Care Provider, Zambia]*

## Influential support

Support played a significant role in women's ability to attend routine antenatal clinics and is illustrated in three sub-themes: community support, partner engagement and socio-cultural influences. These three factors appeared highly influential in tipping the balance between non-attendance and attendance.

### *Community support [facilitator]*

The role of community was considered particularly important to support the education of women and partners regarding antenatal care. Dissemination of information through the community was deemed important to reach women, especially those who may not otherwise be exposed to such information. The critical role that community members can play in supporting antenatal education was highlighted by one health worker in Zambia who said:

*"Also, our communities need to be sensitized on the importance of our women attending antenatal care, our community leaders, and the church elders, who can help us spread the message about antenatal care. This way, the war might be won but as it is now – the problem persists" [Health Care Provider, Zambia]*

Similar suggestions were made in Tanzania, where the role of community was emphasized as key to increasing awareness of importance:

*"Maybe at community level, if education is provided to the community it can help to disseminate information to mothers on the importance of seeking health services from facilities" [Health Care Provider, Tanzania]*

The significance of the role of support in providing advice on antenatal care is highlighted by a woman in Tanzania, who argues that without supportive guidance, some women will avoid services until birth:

*"You just decide to go or not to go. If you don't have anyone to advise, you may stay at home until the day you give birth if you don't have any problem" [Woman, Postnatal, Tanzania]*

One of the stakeholders emphasized the importance of community involvement, particularly noting the role of the local leader in acting as an intermediary:

*I think we need to work more with the communities. We need to involve the headmen and community-based volunteers to sensitize women on the importance of antenatal. People from the community understand better when the information comes from their local leaders. It becomes easier for women to understand. Men should also be brought on board in antenatal because if a man speaks a woman will follow. [Stakeholder, Zambia]*

### *Partner engagement [barrier and facilitator]*

In patriarchal settings, such as the study sites, male partners often controlled women's antenatal attendance and experiences through management of resources, availability of transport and willingness to attend clinics. As one woman commented:

*"In my place and our tribe even when a woman is pregnant, men are the ones who stay with the money. Most married women in the village depend on their husbands even if women do farm work…. Most husbands do not give their wives adequate funds….."* [Woman, near-miss, Tanzania]

Despite increasing expectations, from communities, of partner engagement, some men failed to engage, despite penalties for non-attendance, whereas for others, this was the catalyst for men to support their partners attendance. In both settings regulations have been introduced to ensure that partners attend clinic with their wives to encourage support and increase partner education. One woman discusses the benefits of attending antenatal clinic with a partner, highlighting the advantage of sharing the experience and learning antenatal care together:

*"So when you are tested together there are many other things you are told together and it helps them to understand the pregnant mothers. So next time the pregnant mother explains to him the requirements he will easily understand. If he is presents at the clinic the nurses will teach him and he will be aware of what is important" [Woman, Postnatal, Tanzania]*

However, although partner engagement acted as a facilitator to some, it acted as a barrier for women without a partner or women whose partners were not willing or able to attend with them. The requirement that these women must provide a local government letter prior to attending antenatal clinic presented a further barrier. Such practical hinderances associated with the requirement for partners to accompany women are discussed by one stakeholder in Tanzania:

*"There are others who become pregnant and then men run away. When she goes to attend clinic, she is told to go with her partner. When her*

*partner is not there, she is told to get a letter of introduction from the village leader so that she gets the service" [Stakeholder, Tanzania]*

Women who do not attend clinic with a partner are also at a distinct disadvantage, as those who attend with their partner are usually given priority. This can discourage women who attend alone, acting as barrier to future engagement. One partner who attended clinic with his wife described the exclusion that women without partners face at the clinic:

*"…from what I saw at the antenatal clinic, women who come with their partners are seen first, then those without partners are seen last. This can discourage women without partners to come for antenatal. They looked to be segregated" [Partner, Zambia]*

*Socio-cultural and political influences [facilitators and barriers]*

It was identified that many cultural and traditional beliefs act as barriers to antenatal attendance. The notion that women are safer remaining in their community; dominant opinions from influential community elders; and fears related to witchcraft hindered positive antenatal engagement, for some.

In Zambia, the role of elders in the community often delayed antenatal care. The cultural belief is that women should only attend for antenatal services once their pregnancy has been identified by an elder. This can delay access to care if the elder fails to recognise the pregnancy during the appropriate antenatal period. One health care professional discussed this tradition:

*"For others, we have a culture in Zambia where an elderly person has to advise and inform you that you are pregnant. That is when you can start antenatal" [Health Care Professional, Zambia]*

Furthermore, in Zambian culture it is often believed that once a pregnancy is known to the community, the baby could be vulnerable to witchcraft. Antenatal care could be delayed for this reason:

*"Some women have grown up with a traditional mind-set which prevents them from attending antenatal especially in their first three months. This is because they believe that when most people from the village know of their pregnancy, witches may take advantage and remove the baby from the womb for rituals" [Stakeholder, Zambia]*

Another cultural barrier to timely access to care is the belief that pregnant women should not be touched by a woman who has never been pregnant. One health care professional in Zambia expressed how this belief can result in women delaying access to care in certain clinics because they do not want to be treated by younger health workers:

*"The community believes that if a woman has never been pregnant before, they are not supposed to touch someone pregnant." [Health Care Professional, Zambia]*

In Tanzania, cultural traditions which favour home births can also hinder antenatal care. Often, elder family members urge women to continue these traditions. One health care professional stated:

*"Some are prevented to attend by husbands and or old parents who say for example, we have delivered you all without clinics why now you want to go for clinics?" [Health Care Professional, Tanzania]*

Financial penalties were recognized as an incentive to attend antenatal clinics in both Tanzania and Zambia. One woman in Tanzania said that she attended appointments with her husband to avoid such fines:

*"Yes every place I attended with him. Because these days one is fined for not going with a husband or partner" [Woman, Postnatal, Tanzania]*

Similar financial incentives were imposed to encourage antenatal attendance in Zambia:

*"If you miss antenatal care, you have to take a chicken to the village headman. Delivery from home, you take a goat. You miss antenatal twice, its k50 ($5) and a goat is k300 ($30)" [Stakeholder, Zambia]*

A further village headman suggested harsher punitive measure, including removing families from the village:

*"… sometimes we need to use force for women to go to the clinic, I also chase the women and their families from my village if she delivers from the village…"* [Stakeholder, Zambia]

Whilst these punishments could incentivise some women to attend antenatal care, for others who may need additional support to encourage attendance, these financial penalties could further marginalize these women.

**Environmental challenges**

Regardless of initial motivation to attend, prominent environmental challenges including transport, staff shortages and clinic environment, sometimes hindered this.

*Poor transport [barriers]*

Transport was identified as a key barrier to antenatal attendance. Often women had no access to transport. Those who did have access often did not have enough money to secure the transport. Many women also lived too far away from health facilities to be able to walk, especially those living in rural areas. These issues are summarized by a health care professional in Zambia who says:

*"In my view, mothers miss antenatal services because of long distances to the health facility. This is because facilities are few and far from the villages. Also, poverty is commonplace, as such many women lack transport money" [Health Care Professional, Zambia]*

One suggestion to improve the issue of transport was to increase the number of health facilities in rural areas to limit the distance for women living further away:

*"I think the government should increase health facilities, so that all people will be near to health facility" [Health Care Provider, Tanzania]*

*Staff shortages [barriers]*

Staff shortages were a common issue raised by women. Staff shortages meant that women had to wait for long periods of time before being seen by a health care professional. The time-consuming nature of clinic visits often influenced women's decisions about attending for antenatal services, especially as some women had competing commitments e.g., childcare. Additionally, as nurses frequently had so many women to attend to, some women felt like their appointment was negatively impacted:

*"There are many things a mother would want to tell the nurse but once you get at the health centre as much as you want to share your predicament with the nurse you find that she has no time since the patients [are] way too many and they all want the services." [Woman, Postnatal, Tanzania]*

This was also a barrier to antenatal attendance for some partners, who were discouraged by the long-waiting times at clinics:

*"Shortage of staff at the facility. There are things I would want to ask about my partner but because I know that I would probably not be attended in good time it makes me lazy to even go there. Long waiting hours because of inadequate staffing is also a problem" [Partner, Zambia]*

A further barrier recognized is that some local health facilities are not staffed throughout the full week. In some cases, women would be tasked with travelling long distances to the nearest hospital if their local dispensary were closed:

> *"… if a person gets sick over the weekend, she is advised to go to the hospital which is far and transport is an issue" [Stakeholder, Tanzania]*

*Clinic environment [barrier]*

The environment of the clinic deterred some women from attending antenatal clinics, particularly related to hygiene and comfort. One pregnant woman highlighted the current hygiene issues at the hospital she was attending:

> *"Because right now the hospital environment is dirty, we see blood all over the bed sheets, the mosquito nets are dirty, and the environment in general is not clean" [Woman, Pregnant, Tanzania]*

Comfort was another barrier related to the clinic environment. Suggestions to encourage attendance included proving a 'comfortable environment, adequate seating for women and partners, and less congestion'. Often, women travelled for miles and were then expected to stand for long periods of time whilst waiting to receive antenatal services. Furthermore, in some clinics, women were also forced to wait outside of the facility due to lack of space, without shelter from the sun or rain:

> *"The women sit outside and are just called one by one by the nurse in a room for examination because the rooms are so small… just think what happens during rainy season" [Health Care Provider, Zambia]*

It appeared, from some of the narratives, that women became demotivated to attend clinic after experiencing sub-standard conditions:

> *"She went every once in a while, but she did not attend all her appointments… The doctors wanted to see her every month to know her progress but she would go after 3 – 4 months. You know the hospital is far…. and when you get to the hospital they are slow and you stay hungry for almost the whole day. With all these troubles it is best to stay at home".* [Partner, Tanzania]

## Discussion

Analysis of antenatal attendance in this study resulted in the core category, *The tipping point of antenatal engagement*. This was best illustrated using a pivotal balancing model (Fig. 1), adapted from that previously used when looking at decision-making related to HIV testing in pregnancy [26] and experiences of pregnant women in prison [27]. Like these earlier studies, it appeared that women balanced different sources of information and experiences, weighing up what was within and outside of their control prior to engagement with health services. The tipping point differed between individuals, influenced by the level of self-motivation and degree of external influential factors (positive or negative). How women experienced care, the level of positive support they received, and how comfortable they felt in the clinic, determined initial and subsequent antenatal visits. Within this study, participants all had some awareness of the health benefits of antenatal attendance, however this knowledge alone was not usually sufficient to inspire action; receiving didactic messages informing them they should attend did not automatically translate into an understanding of the supporting rationale for attendance nor the health system processes.

Our data suggests that health literacy, as defined by the World Health Organisation [28], was an underlying issue. WHO define health literacy as "The personal characteristics and social resources needed for individuals and communities to access, understand, appraise and use information and services to make decisions about health." Considering Nutbeam's [29] three level's of health literacy, most women in this study had a 'functional' level of literacy, with the ability to know the potential risks of not attending for antenatal care and a willingness to adhere to policy directives (e.g. having a partner in attendance). However, they appeared less likely to reach the 'iterative' level and be able to act independently to make decisions, unless they had the support from others to do so, accessing services was challenging in a patriarchal community whereby women were particularly dependent on resources (transport and money) and partner support. We found no evidence in our data that women reached the 'critical' health literacy level of analysing and challenging the status quo, this appeared partly because of cultural propriety but as suggested by others [30], for some this was also likely to be due to unfamiliarity with the health environment and systems. Women's cultural beliefs would undoubtedly impact on the choices they made, but are also likely to influence how they receive and interpret health messages. Being able to ask questions and communicate effectively when dissatisfied with a health service requires negotiation skills recognised in those with high health literacy. Furthermore, the lack of relational care and perceptions of discriminative behaviour amongst health providers provide additional barriers to navigating antenatal care, particularly for those with low health literacy.

For some women, antenatal attendance was heavily influenced by their past experiences. According to the Health Belief Model [25], individual decisions regarding engagement with preventive health actions, such as routine antenatal clinic attendance, is motivated by past experiences of individuals' perceived benefits or threats [31]. Whilst some participants described being motivated to attend the clinic to prevent harm to their babies, others failed to attend, or attended less frequently, due to negative prior experiences such as being disrespected by healthcare providers and/or not receiving preventive treatment and counselling. These findings are consistent with other studies, which showed that timing of the initial visit [32] and number of subsequent visits [33] are influenced by earlier experiences. Conversely, some women were encouraged to re-attend when their experience was good. Importantly, our findings highlight wide dissemination of experiences by women, amongst their communities. Thus, women's accounts of their experience can either motivate or deter others from attending.

Unlike others [34–35], we found little evidence, from women, of lack of awareness of the benefits of antenatal care, on its own, as being a reason for non-attendance, despite this being proposed by healthcare providers and stakeholders as an influential factor. Like others [18] we found that women and partners were discouraged from attendance when they perceived they would receive sub-standard care. Thus, our findings support the notion that knowledge alone was often insufficient as a motivator to antenatal engagement, particularly beyond the first visit. We found that a woman's first encounter at an antenatal clinic was pivotal to their future health-seeking behaviour, with care provision having the potential to be a barrier or a facilitator.

Our data demonstrated that community members and male partners could be a positive or negative influence on women's antenatal engagement, tipping the balance between attendance and non-attendance. Some women valued local laws that stated that male partners should escort women to antenatal clinic. The main advantages noted included couple-testing of HIV, having a priority position in clinic waiting rooms, and being able to learn about the pregnancy together. However, as found in other studies [36] this deterred women without partners or whose partners were absent, because of the longer waiting times.

Inadequate resources have been extensively reported as a deterrent to antenatal care, [18] and our study was no different. Inadequate means of transporting women, poor staffing leading to prolonged waiting times; and uncomfortable clinic rooms were clearly articulated. These factors provoked a feeling of neglect amongst some women and partners, particularly when they were left without shade or refreshments for long periods of time. Providing 'care' under such conditions represents a juxtaposition between encouraging and deterring antenatal attendance.

## Implications

This study has highlighted the fact that whilst awareness of health benefits is important, particularly for initial antenatal engagement, continued antenatal engagement is reliant on many other factors. Like others [18] we found that personal experiences influence future behaviour, thus health facilities should be encouraged to provide a welcoming and comfortable environment. Although additional resources are clearly needed, small low-cost environmental changes, such as providing shading for waiting women, could have great impact. Midwives should be encouraged to reflect on the challenges faced by the women who may wish to attend antenatal clinic but are not supported to do so. Instead of scolding women for late or non-attendance, midwives should learn to appreciate that first impressions could influence future attendance and should be encouraged to provide relational care. Using women's narratives is one way of influencing empathic behaviour.

Maintaining antenatal engagement relies on community and partner support, therefore their inclusion in antenatal programmes and research projects is pivotal. Nevertheless, women also need to be empowered to develop their own individual antenatal care plans. The Women's Health Empowerment Model (WHEM) [37] provides a potential framework in which to do this. This framework provides a pro-active solution-based approach, which could improve antenatal attendance and support women's empowerment during pregnancy.

Whilst national policies encouraged antenatal attendance, through financial incentives and punitive measure, these would have little impact on the quality of antenatal care received. Thus, an increase in antenatal numbers is not a sufficient measure of success. Indeed, one could argue that good quality, respectful care, would be the greatest incentive to women, urging policy makers to redirect their efforts to improve care provision. Furthermore, further research is required on the impact of health literacy on the quality of antenatal care. Effective women-provider interactions are a crucial element of women's experiences and can determine long-term engagement with health services; health literacy is a key contributor to this. Health literacy is pivotal to reducing health inequalities, improving outcomes for the most vulnerable [28], and enhancing quality of care [38], but remains a significant challenge in many LMICs. A recent systematic review [39] of health literacy interventions, including 23 papers, found that all of the health literacy interventions were, to some extent, effective and significantly improved the knowledge and awareness of the population. However, only 3 of the included papers [39], two in Ghana and one in India, reported interventions to improve antenatal care; one of which was specific to anaemia. None of the studies took place in Tanzania or Zambia. Health literacy has the power to motivate women to initiate changes in antenatal services at an individual and collective level and should be explored further in the evaluation of antenatal care models.

## Strengths and limitations

We included a relatively large sample of participants, from two different countries, providing important understanding of the barriers and facilitators of antenatal care from different perspectives. As this study was part of a larger programme of work, which focussed on stillbirth, the sample had a disproportionate number of parents who had experienced a stillbirth, either in a previous pregnancy or the index pregnancy. Nevertheless, these women represent those with a high risk of further complications and thus are those who would benefit greatly from antenatal attendance. We did not collect detailed data on participants' antenatal behaviour, such as gestation at first booking and number of antenatal visits. This information would have enabled better contextualisation of the findings. We do know, however, that all of the participants attended antenatal clinic at least once, but active recruitment of non-attenders would have added a further dimension to this study. Although we have discussed self-motivation, we made no attempt to quantify this; this could form the basis of future studies.

## Conclusion

Whilst most countries report antenatal figures in terms of percentages of attendees and number of visits, the quality of antenatal care (including respectful care) receives less attention. We found that a complex interplay of factors determines women's ongoing antenatal engagement; the first experience being a tipping point to continuation. Short-term modifiable factors to encourage attendance include the development of strategies for increasing respectful care; use of positive women's narratives, and active community engagement. Further research is required to develop innovative, cost-effective care models that improve health literacy and are co-designed with women.

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## CRediT authorship contribution statement

**Rose Laisser:** Investigation, Data curation, Methodology, Validation , Writing – review & editing. **Rebecca Woods:. Carol Bedwell:. Chowa Kasengele:. Livuka Nsemwa:. Debora Kimaro:. Flora Kuzenza:. Kutemba Lyangenda:Happiness Shayo:. Khuzuet Tuwele:. Sabina Wakasiaka:. Prisca Ringia:. Tina Lavender**.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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