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Challenges and Strategies for Providing Effective Antenatal Education Services in Oman's Public Healthcare System

Perspectives of service providers and pregnant women

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Abstract

Objectives: Globally, maternal mortality is considered a critical healthcare issue because statistics consistently show that many avoidable deaths and injuries occur during pregnancy and childbirth. The aim of this research was to explore the challenges to quality antenatal education from the perspective of both the service providers and the pregnant women. ***Methods:*** This qualitative study was carried out on 30 participants who were selected using purposive sampling technique. Data was collected through in-depth interviews and field notes and analyzed manually using thematic analysis. ***Results:*** The service providers identified their challenges as lack of consultation room and designated space for health education, work overload, time constraints, under-staffing, lack of educational materials, language barriers, lack of authority and negative attitude. The pregnant women identified lack of focus on women's needs, superficial antenatal education, overcrowding, lack of educational facilities, use of medical jargon and unprofessional staff attitude towards women as key barriers to quality service. The remedies included improved staffing levels, designated space for antenatal education, expanded educational activities,

continuing education for caregivers, establishing midwife-led units, focused antenatal education and improved communication between providers and the users. ***Conclusion:*** Based on the results, both health care service providers and pregnant women experienced significant barriers that hindered them from providing and accessing quality antenatal education services respectively. Therefore, policymakers, health planners and hospital administrators should remove these barriers and integrate some of the recommendations to promote better health outcomes.
Keywords: Antenatal Education; Challenges; Strategies; Health Care Providers; Pregnant Women; Oman.

Advances in knowledge

- This study helped to explore the challenges faced by health care providers and pregnant women while providing and receiving antenatal education. Identifying this will help to design cost effective corrective strategies to lower maternal and fetal healthcare costs.
- The study revealed the existence of disparity in adherence to MOH National Guidelines regarding antenatal education. This finding implies the need for wider dissemination of the guidelines to streamline the provision of recommended antenatal education services across all the healthcare setting in Oman.

Application to patient care

- Pregnant women trust and value the information provided by healthcare providers. Healthcare providers should provide adequate, consistent, and comprehensive antenatal education for pregnant women in every antenatal visit. This ensures better understanding of vital information by pregnant women, resulting in positive maternal and fetal outcomes.

Introduction

Globally, maternal mortality has been considered a critical healthcare issue because statistics consistently show that avoidable deaths and injury occur during pregnancy and childbirth.[1] As further evidence of the extent of this problem, (World Health Organization) WHO, (United Nations International Children's Emergency Fund) UNICEF, (United Nations Population Fund) UNFPA, World Bank Group and the United Nations Population Division reported in their study that in 2017 alone, up to 295,000 women died during pregnancy until delivery across the world.[2] These deaths have been attributed to preventable complications, and would be stopped if women have access to

relatively basic maternal health education services to recognize the danger signs and act accordingly.[3,4]

Several studies suggest that low levels of awareness of danger signs of pregnancy and delivery contribute to high maternal mortality ratios globally.[5] To address these challenges, the United Nation through the Sustainable Development Goal (SDG 3) directed member countries to improve maternal health through working to reduce Maternal Mortality Rate (MMR) to less than 70 per 100,000 live births by 2030.[6,7,8]

In Oman, like other developing countries, there have been both positive and negative changes in significant health indicators like the Infant Mortality Rate (IMR), Low Birth weight (LBW), and poor breastfeeding practices. For instance, in 2016, the Infant mortality rate was 5.3 per 1,000 live births; in 2020, it increased to 7.6, and in 2021 further increased to 8.1 (MOH, 2021).[9] There was an increase in the number of Low birth weight (LBW) babies, from 11.3% in 2019 to 12% in 2021 (MOH, 2021).[9] Similarly, in 2019, Maternal Mortality Rate (MMR) was 14.1 (per 100.000 live births), and the unwelcoming increase in 2020 to 29.4 and 42.5 in 2021.[9] Such gaps indicate the existence of challenges in the system.

Another significant maternal health indicator is that in the last five years, the number of pregnant women attending the antenatal clinic in the first trimester reduced nearly by 10,000 from 2016 to 2019.[10] These statistics indicate the existence of significant problems occurring during the antenatal period and emphasize the need to understand the contributing factors to devise corrective strategies to reduce maternal and infant mortality and morbidity rate especially in developing countries.[11] An important ingredient in addressing the gaps in antenatal care is the central role played by healthcare workers, who provide the necessary information to make pregnancy and childbirth a positive experience for the fetus, the pregnant women and her family.

Whereas the Ministry of Health in Oman, has made impressive steps to build a robust health infrastructure across the country, promoting greater access in health care delivery to ensure that all pregnant women receive quality healthcare services during antenatal visits, however some challenges continue to hamper this success.[12]. In order to succeed in their mission of addressing

the healthcare needs of pregnant women, providers of antenatal education services must build professional relationships, exchange information and involve the women in decision-making.[13.14]

This research reports the challenges experienced by healthcare providers and pregnant women while delivering and receiving antenatal education services including some remedial strategies.

Methodology

Research Design

The study utilized a generic qualitative research approach using semi-structured in-depth interviews guided by open-ended questions. Generic qualitative research approach is guided by the naturalistic paradigm and utilizes different principles and practices from various qualitative traditions and theories. The naturalistic framework was chosen because it allows the researcher to explore poorly understood phenomena by generating rich data directly from concerned individuals to make logical conclusions.[16] This research approach resulted in a deeper understanding of the challenges experienced by healthcare providers that negatively impacted their service provision.

Study Setting

This study was conducted in 9 outpatient antenatal clinics located in the public Health centers of Muscat Governorate, Oman. These outpatient antenatal clinics provide health care services to both low and high-risk pregnant women.

Study Sample and Sampling Method

A purposive non-probability sampling technique was used to identify participants who had experience working in these units. These were health care providers who educated pregnant women and pregnant women who received the antenatal education.

The healthcare providers included Doctors, Midwives, Nurses, and Health Educators (Both Omani and Non-Omani) who had worked in the antenatal clinics for a minimum of 12 months. The pregnant women had to be attending antenatal care services in one of the institutions, had to be over 30 weeks of gestation, aged above 18 years, Omani and willing to participate in one- on-one in depth interview with the research team.

The number of participants, both providers and users of the antenatal education services was determined by the stage at which data saturation was reached.[15] In this study, data saturation occurred after a total of 17 healthcare providers and 13 pregnant women were interviewed.[16,17.]

Ethical Considerations

The researchers obtained ethical clearance and study approval from the relevant institutions and the Ministry of Health. Each participant was asked to sign an informed consent form after determining that they had understood the nature and purpose of the study. Prior to the data collection, all the participants were informed that they had the right to withdraw from the study at any stage either from individual questions or from the entire study without any consequences. The anonymity of participants and confidentiality of their data were upheld and preserved. Each interview was conducted individually in a private and quiet room in the respective clinics. To ensure anonymity, codes were used instead of names and digital copies of the interview data were kept under password protection, with access only to the research team. In addition, the physical copies of the interview data are carefully stored in an office and will be destroyed after 3 years.

Data Collection

The research data was generated using a semi-structured in-depth interview guide up to the point of data saturation, resulting in a total of 30 participants.[15] The participants were informed that the interview sessions would last between 45 to 60 minutes or until such time that the participants answered all the questions. The researcher started the interview with casual conversation to set the stage for the participants to be ready for the interview. The questions were developed by the research team and validated by both subject and research experts. The open-ended questions were aimed at their personal experiences, including their thoughts, feelings, views, and perspectives regarding antenatal service, both as a provider and user. To get more detailed information, follow-up questions were asked to encourage the participants to explain more by using probes and silence.

13 pregnant women participated in the study aged between 23 to 39 years. All of them were educated. The interview guide for the key informants consists of 7major questions with some probing questions. The researcher used communication skills that enabled her to interact sensitively with each participant during the interview by asking, maintaining proper eye contact,

listening attentively, observing, showing respect and interest in what they were saying, and asking prop questions when needed. These strategies encouraged and motivated the participants to express themselves more and control the flow of the interview. The researcher found no difficulty communicating with all participants.

Sample Questions:

For Service providers

- What specific education do you give to prepare the women for a safe pregnancy?
- What challenges do you experience in providing antenatal education?

Probe question:

- *What barriers hinder you from being an effective antenatal educator?*
- *How do these barriers affect your role as an antenatal educator?*
- *Which strategies would be useful in mitigating these barriers?*

For Pregnant Women

- What challenges did you face during antenatal education sessions?
- What specific actions would help to resolve each challenge?

Probe question:

- *Tell me if you had all your questions answered, if not? What went wrong?*
- *Tell me more about the other barriers or challenges that you encountered?*
- *From your point of view, what strategies would be useful in mitigating these barriers?*

The researchers ensured that the study had rigor by meeting the gold standard articulated by Lincoln and Guba (1985) consisting of five critical elements of credibility, dependability, transferability, trustworthiness, and confirmability.[18] To ensure data quality, all the 30 in depth interviews were digitally audio-recorded and transcribed verbatim to preserve the data integrity.

Data Analysis

Data analysis occurred concurrently with data collection. The researchers analyzed the data set manually using the thematic analysis framework through the process of reflexive 'immersion and crystallization'.[19.] The "immersion" phase started off with each researcher by reading and rereading and examining portions of the data in detail, followed by suspending the process of examining or reading the research data to reflect on the analysis experience. This phase then led to the second, "crystallization phase", which is characterized by the researchers identifying and refining the themes. This two-step sequential data analysis process creates rich, trustworthy, sensitive, and insightful research findings, hence its popularity among qualitative researchers.[20]

Results

Demographic characteristics

A total of 30 participants voluntarily participated in the study, 17 healthcare providers (Doctors 5, Midwives 5, Nurses 5, and Health Educators 2) and 13 pregnant women. The healthcare providers had between 5 and 20 years of clinical experience in antenatal clinics. The pregnant women were aged between 23-39 years; were 30 to 37 weeks of gestation and had between 1 to 6 children. All the pregnant women had either primary, secondary or college level education, with 9 formally employed while 4 were housewives.

Part 1 A- Challenges Experienced by Service Providers

Lack of Consultation Room

The first challenge reported is the lack of a separate room for performing individual assessments of pregnant women. Several healthcare workers reported the shared examination rooms as a major challenge noting that it negatively affected the pregnant women's ability to discuss sensitive issues of concern with their healthcare providers, fearing they might be overheard by others:

> *"The patient doesn't feel comfortable…she might have a lot to discuss with her care providers. But privacy issues are compromised here…" (HCP-DR#1).*
>
> *"There is no privacy… we are seeing and talking with the women in the same room where another doctor is seeing another woman" (HCP-MW#1).*

Lack of Designated Space for Health Education

A second challenge that hindered provision of quality antenatal education services is the lack of designated and private space for providing education:

"We do not have room to separate pregnant women and provide education session for them" (HCP-MW#4)

"We need a proper place …. unfortunately, we have one office, and 2 colleagues share the same office…Women don't feel comfortable …." (HCP-EDU#1)

"The room is really not suitable… sometimes because of disturbance I will forget to provide education to the women. I cannot close the door, when I close it, the other patient keeps knocking the door, so I decided to leave the door open" (HCP-SN#3)

Work Overload

Another significant challenge is increased work overload due to high patient numbers and multiple responsibilities:

"We have a lot of patients… this is an issue that prevents us from providing the optimal type of care in general…" (HCP-DR#1)

"Also, the patient list is long causing you to rush" (HCP-SN#4)

"…. the clinic is very busy and there's more workload…we are seeing overbooked cases. …with this, of course is difficult to provide elaborative education to the women" (HCP-DR#5)

In relation to multiple assignments, the providers reported being assigned multiple tasks, which hindered them from providing effective education:

"Usually,as a doctor we are doing multiple tasks, we are the one collecting blood for investigation, doing ultrasound scan, and talking to the patient and giving advice…a lot of things we are doing… we are in a rush" (HCP-DR#1)

"A lot of documentation, which consumes the time we register in the system, in the book and the green card, etc. I feel if there was less registration [documentation] I might get time so I can provide education…" (HCP-SN#5)

"My role here is to give education to all patients in the health centre including school students, and those with chronic diseases, not just pregnant women" (HCP-EDU#2)

Lack of Time

The lack of time was another obstacle faced in providing antenatal education to pregnant women:

"No time for education, we really need time and honestly I feel that the women need a lot of education as part of their care, lack of time is the biggest challenge…." (HCP-SN#5)

"...for proper counseling she [patient] needs at least 30 minutes along with examining her and documenting the care, we are seeing lots of patients per day, so we don't have much time for education and counseling" (HCP-DR#4)

"No time to talk to them or to educate them but we give tips and if she has any question, we'll try to answer them but as a routine to teach them, no time to stay with the patient explaining to her about her condition" (HCP-MW#4)

Under-Staffing

Another major challenge experienced by healthcare providers is the shortage of staff in the antenatal clinics:

"We are only 2 staff in the clinic, we have a lot of things to do, but we try our best... we see what they [pregnant women] know and what they don't know and based on that we give the [missing] education…" (HCP-SN#1)

"The problem is we have one doctor, and she has to finish 14 patients …, that is why there's no time to sit and give time for patient education." (HCP-SN#3)

Another aspect of the staff shortage reported was the non-availability of a midwife in these antenatal clinics.

"I don't have a midwife here... she could help somehow if we work together, and I guess she can help a lot in this part as well" (HCP-DR#5)

"We do not have a midwife in our institution and me as a nurse I did not have any [midwifery] course …except[from] my experience working in an ANC clinic. I learn things from daily work and self-learning…" (HCP-SN#4)

Lack of Educational Materials

The non-availability of teaching resources and materials was also cited as these participants noted:

"We are not provided with the educational resources and materials such as recorded videos to provide the education, only we are depending on the leaflets and we try to give education when they ask us…" (HCP-MW#5)

"We do not have leaflets for all educational topics, that is why we sometimes ask them to read more on the internet…" (HCP-SN#3)

Lack of Authority and Recognition

In addition to other barriers, several midwives particularly emphasized the persistent challenge of disempowerment by the healthcare system in relation to their limited prescribed scope of practice in the antenatal clinics:

"I feel the midwife has the capability to provide antenatal education comprehensively if she was given the support [read permission] to do that by the necessary authorities" (HCP-MW#1)

"I am here as a general nurse not as a midwife, although my certificate is in midwifery... in the clinic my responsibility is just to inform the doctors. ...We are not authorized to give education regarding complications of pregnancy. (HCP-MW#4)

Identifying valuable educational sessions

An important challenge experienced by health workers is reluctance of some women to focus on the available health education opportunities. This challenge was reported mainly as reluctance of some pregnant women to planned educational sessions as herein reported:

"…[some pregnant women]…are not interested, and they don't ask… even if we tell something they will not show the interest to learn or to know" (HCP-DR#4)

"Also some women who have previous experience, for example with diabetes, will tell that I already know what to eat and what to do from my previous experience... she will not come even if the services are available. I wish the women take it seriously..." (HCP-EDU#1)

This meant that the health care professional had to shoulder the additional burden of constantly finding out the desired educational needs of the women. This resulted in an additional workload for HCP's.

Part 1B- Challenges Experienced by Pregnant Women

Lack of Focus on Women' Actual Needs and superficial Education

A major challenge experienced by pregnant women in this study was that lack of focus of antenatal education on the actual needs of pregnant women:

> *"Every pregnant woman should receive education …even me when I will come for my second pregnancy, I believe I might need education in many things, each pregnancy is unique, it should not be treated as she knows from her previous experience" (P.W#1)*
>
> *"Unfortunately, she explained without details… the patient comes out of the [antenatal] clinic with questions in her mind. As that was my first childbirth, that situation caused me fear and phobia…" (P.W#4)*

In addition, some women felt that the healthcare providers gave them answers that did not address their needs. They perceived this as providing them with superficial education:

> *"We see that the pregnant woman is not aware of the problem and the doctor gives her superficial information about treatment and the risks and consequences. The medical staff must ask and discuss the problems and symptoms with the pregnant woman in [more] detail" (P.W#7)*
>
> *"We also need those [HCPs] to focus more on educating us about childbirth, the postpartum stage and how to deal with a nursing baby" (P.W#9)*
>
> *"We wish the medical staff would pay more attention to education… they only pay attention to routine examinations of pregnant women…" (P.W#12)*
>
> *"They are not focusing on educating the pregnant women. If the pregnant woman is educated and aware of these topics, she would be able to deal with every symptom and problem that happens with her" (P.W#13)*

Overcrowding in the Antenatal Clinic

Another hindrance is the large number of patients resulting in overcrowding in the clinics:

> *"Another big problem is the overcrowded clinic and the large number of pregnant women who visit the clinic. Sometimes I find six patients with me in the same room to do blood pressure examinations. So, you find the nurse is trying to finish off the patients and just leave". (P.W#4)*

In further agreement, another participant reiterated that:

> *"The problem in the institution is the limited number of employees. Every day, they receive from 20-30 pregnant women. This is difficult … [and] over the health workers' capacity. They cannot make lectures or provide [quality] antenatal educational services for all the women here" (P.W#5)*

Lack of Educational Resources

Another persistent challenge mentioned by most pregnant women is the lack of resources required for effective teaching sessions:

"We need more educational services… The medical staff is only depending on leaflets...they are not using a variety of methods... How can they guarantee pregnant women will read these leaflets to get the information? (P.W#11)

Use of Medical Jargons

This use of unfamiliar language during sessions limited women's understanding of the content:

> "*Among the challenges I face as a pregnant woman is the medical staff's use of terms that I do not understand. Although I'm a nurse, there are some terms I do not understand especially that I do not work in maternity department" (P.W#7)*

Part 2 A- Strategies to Improve Antenatal Education Services

The providers suggested the following strategies to improve antenatal education services:

Staffing the Antenatal Clinic with Midwives

Some providers recommended staffing antenatal clinics with midwives as a strategy to help improve the provision of antenatal educational services:

"...we should also have specialized staff mainly midwives so that they can give more, since they are more familiar with these topics that need to be discussed with pregnant women, and they can give better services" (HCP-SN#1)

"[It is] very important to have a midwife...she will help to make my life easy. She knows what to do without coming back to me. A midwife is very important to be available in each health center…" (HCP-DR#1)

"If we have a midwife, she can help a lot… she can do abdominal palpation, checking the foetal heart rate, providing health education, if she is available, I feel the burden will be divided and the workload will be divided between us…" (HCP-DR#2)

"The midwife will help a lot…and she will be more interested to prepare the women for delivery and even she can explain to the doctors here about the management of different stages of labour" (HCP-DR#3)

Designated Space for Antenatal Education

Another recommendation is having a designated room provided to the clients:

"We need a proper place to educate mothers because education is an essential part of antenatal care" (HCP-MW#3)

"One of the solutions is to provide room for counseling" (HCP-EDU#2)

Improving Staffing Levels

Some healthcare providers further recommended increasing the number of clinical staff:

"If we increase the number of staff will help to improve the quality of our service" (HCP-DR#5)

"If they can give enough staff that will help a lot in this area" (HCP-NS#1)

"They need to provide more educators to the [antenatal] clinics" (HCP-EDU#1)

Expansion of Educational Activities and Methods

Expanding and ensuring diversity in the educational activities and methods is another strategy to improve provision of educational service to the users:

"We [currently use] leaflets and posters. …[but] we need various educational materials, such as figurine and manikins…to explain and deliver the information clearly…, the illustrations attract more attention" (HCP-EDU#2)

"Maybe we can make audio-visual aids will really help to attract especially the new generation of the young and even the multigravida mothers" (HCP-DR#5)

"Put a schedule for nurses to prepare a topic for the pregnant women, and we can cooperate with other healthcare providers like physiotherapist, dietitian to provide teaching session for the pregnant women, it will be fair enough for the pregnant women to provide them with schedule with different educational classes" (HCP-MW#4)

In terms of the scheduled teaching sessions, a midwife recommended that:

"I think we should schedule teaching session for pregnant women at least weekly" (HCP-MW#1)

Continuing Professional Development programs

Participants also suggested continuing professional development through courses and workshops:

"[we] need courses related to antenatal education because there are many methods, we can learn to provide better services… and if the educator is trained then more topics can be included in education… it will be perfect" (HCP-MW#2)

"...workshops are needed and training for the staff to improve because not all are familiar with the educational topics… sometime new staff need somebody to follow with…., the idea of training will be good for us to learn, refresh and update our knowledge…" (HCP-SN#4)

"Providing training courses for the physician, nurses and educators especially about the topics related labour and birth, exercises contraceptive…etc , will be very helpful to improve" (HCP-DR#5)

Dedicated staff for Antenatal Education

An important strategy suggested by a midwife to improve the provision of ANE services involves hiring a dedicated staff for provision of education.

"I will suggest assigning a staff, whose role is to educate the women only, that really will help a lot …even a simple advice you will give it might stick with her [PW] mind and it will

help to change a lot of behaviours. As a midwife we try our best to benefit the women with the information we gained from midwifery program… education should be something regularly provided to the women in all aspect of care for the pregnant women and s… not wait for the complication to occur to provide the education". (HCP-MW#5)

Provision of Hotline for Urgent Clarification

An innovative strategy suggested is providing a hotline for pregnant women to enable them call and inquire about key questions that need to be answered instantly by healthcare providers:

"...they need a hotline to answer inquiries… I believe some of the questions might not come during the visit; when she will go home some questions might arise and then she wonders what to do…" (HCP-MW#2)

Establishment of Midwife-led Care units

Another recommendation is the establishment of midwifery-led care units across the country:

"In the midwife-led clinic we have sufficient time to discuss and provide individualized care… the women will be seen by the same midwife, so it helps in strengthening the trust relationship… Also, she will feel more comfortable to discuss and express [herself] rather than be seen by different providers during each visit…" (HCP-MW#2)

Mass Education through social media

The use of social media to pass educational messages was also recommended to be used since social media is widely accepted by many people as this participant affirms:

"Like in TV, structured education can be displayed in TV so people can see and follow because I feel through social media the idea of [antenatal] education will be more accepted by people" (HCP-SN#4)

Part 2 B- Recommendations from Pregnant Women

The pregnant women suggested the following ways to improve antenatal education services:

Focused Antenatal Education

The women suggest the need for focused and regular antenatal education throughout pregnancy:

"The pregnant woman should get education before going through the experience of childbirth… she might go too late…, also they should focus more on the proper method of pushing while giving birth…." (P.W#10)

"They need to give us information about childbirth and the child. In the first trimester, they are supposed to give us information about the correct meals, medicine, exercises, and positions of sleeping and the movement of the pregnant woman for safe pregnancy". (P.W#9)

"The staff in antenatal clinic should give pregnant women at the beginning of their pregnancy a lecture on how to deal with the symptoms of pregnancy and the complications that they may be exposed to,…we need more focus from the medical staff … educate them about pregnancy…as a very sensitive and important stage" (P.W#4)

"They [HCPs] are supposed to tell us that at the first stage of pregnancy, avoid this type of food, and in the second stage, certain types that you avoid or take…also they should educate us about the movement and physical activity in the pregnancy either as routine or daily, especially if the pregnant women have problems during pregnancy" (P.W#8)

Innovative Educational Activities

Some pregnant women suggested introduction of various educational activities in the clinics:

"We do not need only routine visits and check-ups; we need education about all related care. I suggest conducting educational lectures… and to discuss the experiences of other mothers. Also the available posters and brochures should be reviewed and updated … (P.W#2)

"Make a group and give education, and sometime in same group some women might have the experience so other women will benefit from each other's experience" (P.W#3)

"We also wish there to have an awareness video for the pregnant woman to benefit from and to understand and comprehend the information more" (P.W#7)

Dedicated Staff for Antenatal Education

In addition, some pregnant women recommended hiring a dedicated staff:

"It would be beneficial if we have a specialist nurse in the health institution for the antenatal educational services" (P.W#13)

"I feel the nurses are busy., so better employ somebody to provide the teaching and education…, so this person will listen to the woman, answer all her questions, reassure her and make her feel supported…" (P.W#1)

"I belief that a nurse or a specialist in antenatal educational services must provide the pregnant women with all information needed" (P.W#2)

Provide a dedicated Space for Education

Similar to providers, the users also suggested a dedicated office for education and counseling:

"an education office can be set up for pregnant women. This will result in more caring, … they will open their hearts to express their feelings, needs and inquiries. This will help to answer questions in their mind …" (P.W#2)

Improved Communication

Another recommendation to improve antenatal services is minimizing the use of medical jargon:

"The first thing is to make sure that the pregnant woman understands all that the doctor says to her, so they need to avoid using difficult terms" (P.W#7).

Discussion

The study identified many factors that negatively impacted the provision and receiving of antenatal education services in the selected health facilities in Oman. These findings are comparable to those of previous studies conducted in Oman by Al Maqbali (2018) who found that pregnant women appeared disempowered and seemed to lack control over the care they received.[14] As a result the women felt that their needs were not satisfied since a significant discrepancy existed between what they expected and needed and the actual care and information they received during antenatal visits.

Similarly, in Iran, Javanmardi, et al., (2019) in a study on the challenges women experience to access health information during pregnancy, found that there was insufficient interaction between women and healthcare providers. In addition, there was also failure to access various information resources from the health facilities.[21] The authors recommended that policymakers and health planners should remove the barriers that interfere with delivery of quality health information during pregnancy. A study conducted in Addis Ababa in Ethiopia on antenatal care and health

education also identified similar challenges. The challenges included but were not limited to the shortage of staff, lack of time, lack of training, negative staff attitude, negative cultural beliefs and practices, and lack of incentives for providers. As reported in the current study, these barriers hindered effective antenatal education service provision in the selected health facilities.[5]

In terms of how these challenges might be mitigated, both healthcare providers and pregnant women provided some suggestions about who, where, when and how to improve the current antenatal education services. The rationale for these strategies is that when such gaps are addressed, they result in improved antenatal education services, which in turn creates positive impact on obstetrical outcomes, such as reducing low-birthweight, prematurity and promoting exclusive breastfeeding among other positive outcomes for baby, mother and family.[22,23]

The most prominent suggestions from both groups included the need for proper designated space for antenatal education, dedicated staff for antenatal education, innovative educational activities and facilities and provision of tailor-made training for healthcare providers. These recommendations are consistent with those documented in Woldeyohannes and Modiba's (2020) study in Ethiopia which advocated for ongoing education for healthcare givers, assignment of dedicated staff to provide antenatal education services, and reducing the patient numbers per day.[5]

Another recommendation that has received attention in previous studies is the midwife-led antenatal clinics. A classical Cochrane Collaborative study found that pregnant women who received prenatal, intrapartum, and postnatal care primarily from a midwife were less likely to deliver prematurely while requiring fewer medical interventions, compared with women cared for by obstetricians or family physicians.[24] The study found that midwife-led care resulted in fewer epidurals, fewer episiotomies, lower odds of premature delivery and greater odds of spontaneous vaginal birth and overall better pregnancy experience. This finding is consistent with WHO (2016), ICM (2018) and NICE (2019) recommendation, which state that midwife-led care is the safest approach of care for healthy pregnant women, who have no immediate danger signs.[25,26,27]

In addition, several other studies argue that midwife-led-care is associated with increased empowerment and confidence in the pregnant women's ability to give birth without the need for

medical and obstetric intervention. According to International Confederation of Midwives (ICM) (2018), a midwife-led- care means that the midwife is the lead health-care professional who is responsible for the planning, organizing and delivering of care to a woman from the initial booking of antenatal care until the postpartum period.[26] The women in these studies also reported developing the ability to recognize the danger signs in pregnancy, which helped them to abstain from risky behaviors and reduced complications associated with pregnancy and childbirth resulting in positive outcomes.[28,29] In recent times, this model has received further support in 2020 with the World Health Organization advocating for investment in such midwifery models of care to provide high-certainty and evidence-based care. This strategy would improve maternity care by integrating such care into existing healthcare systems, thereby helping to transform maternal health globally.[30]

Moreover, these proposed strategies align with the antenatal care recommendations stated by Queensland Health, Australia (2018), which requires antenatal education to equip pregnant women with balanced information, including information about pregnancy, birth and possible complexities and transition to the postnatal period. In addition, the strategy recommends a dedicated health educator who should be adequately trained and prepared to provide antenatal education based on the principle of adult learning (Queensland Health, 2018).[31] Further, in Ireland, the National Women, and Infant Health Program (2020) states that providers of antenatal education should be supported with the most up to date educational materials. This support should include innovative audio-visual aids to provide evidence-based information to the parents. Besides, these providers should be granted protected time to engage in continuous professional development programs to improve their skills and understanding of adult learning, group facilitation, and evidence-based practice among others. The program further recommends conducting the antenatal education in a safe, clean and well-equipped physical environment to enhance each pregnant woman's active participation so as to adequately meet their learning needs.

Conclusion

The study identified that healthcare providers and pregnant women experienced many challenges while providing and receiving antenatal education services. As a result of the barriers, significant deficiencies exist in the quality and quantity of antenatal education services provided to pregnant women related to pregnancy, labor and birth, postpartum and newborn care. The findings also

clearly indicate that these antenatal educational services are not provided uniformly and adequately to all pregnant women. As a remedy, it is recommended that there should be designated spaces, dedicated staff, innovative educational activities, and creation of awareness about the actual scope of midwifery practice among healthcare providers and the public. Finally it is also recommended that midwife-led antenatal clinics should be established to provide comprehensive maternity services in line with the current recommendation of the World health organization.

Conflicts of Interest

The authors declare no conflict of interests.

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Authors' Contribution

MYKA conceptualized the idea, involved in data collection. VS and GAM contributed to the design and analysis and drafting of the manuscript. VS and GAM supervised the study. All authors approved the final version of the manuscript.

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References

1. World Health Organization (2021). New global targets to prevent maternal deaths. https://www.who.int/news/item/05-10-2021-new-global-targets-to-prevent-maternal-deaths.
2. WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division. Maternal mortality: Levels and trends 2000 to 2017. Geneva: 2019. (https://www.who.int/reproductivehealth/publications/maternalmortality-2000-2017/en/).
3. Ahmad D, Mohanty I, Hazra A, Niyonsenga T. (2021). The knowledge of danger signs of obstetric complications among women in rural India: evaluating an integrated microfinance

and health literacy program. BMC Pregnancy Childbirth 2021; 21:79. doi: https://10.1186/s12884-021-03563-5.

4. Feroz A, Perveen S, Aftab W. Role of mHealth applications for improving antenatal and postnatal care in low and middle income countries: a systematic review. *BMC health services research 2017; 17*:1- 704. https://doi.org/10.1186/s12913-017-2664-7.
5. Wulandaria RD, Laksonob AD. (2020). Education as predictor of the knowledge of pregnancy danger signs in Rural Indonesia. International Journal of Innovation, Creativity and Change 2020; *13:*1-10.1037- 1051.
6. Kruk ME, Chukwuma A, Mbaruku G, Leslie HH. (2017). Variation in quality of primary-care services in Kenya, Malawi, Namibia, Rwanda, Senegal, Uganda and the United Republic of Tanzania. *Bulletin of the World Health Organization 2017*; *95:*6-408. https://dx.doi.org/10.2471%2FBLT.16.175869.
7. Ononokpono DN, Baffour B, Richardson A. (2020) Mapping maternal healthcare access in selected west african countries. *Etude de la Population Africaine 2020*; 34 :1-5082-5105. https://dx.doi.org/10.11564/34-1-1495.
8. United Nations Sustainable Development Goal 3: Ensure healthy lives and promote well-being for all at all ages. NewYork: 2022. https://www.un.org/sustainabledevelopment/health/
9. Ministry of Health (2021). Annual Health Report https://www.moh.gov.om/en/web/statistics/-/-2-10
10. Ministry of Health (2019). Annual Health Report. https://www.moh.gov.om/en/web/statistics/annual-reports .
11. Karlsen S, Say L, Souza JP. *et al*. The relationship between maternal education and mortality among women giving birth in health care institutions: Analysis of the cross sectional WHO Global Survey on Maternal and Perinatal Health. *BMC Public Health* 2011; 11:606. https://doi.org/10.1186/1471-2458-11-606.
12. Halim LB, Alajmi F, & Al Lamki S. (2018). Ensuring universal access to primary health care in Oman 2018. Primary Health Care Performance Initiative.https://improvingphc.org/ensuring-universal-access-primary-health-care-oman .
13. Dong K, Jameel B, Gagliardi AR. (2022). How is patient-centred care conceptualized in obstetrical health? comparison of themes from concept analyses in obstetrical health- and patient-centred care. Health Expect 2022; 25:3-823-839. doi: 10.1111/hex.13434.

14. Al Maqbali F. (2018). *Navigating Antenatal Care in Oman: A Grounded Theory of Women's and Healthcare Professionals' Experiences*. PhD Thesis, 2019, The University of Manchester, UK. ProQuest Dissertations Publishing, 27775318.
15. Etikan I, Musa SA, Alkassim RS. Comparison of convenience sampling and purposive sampling. *American journal of theoretical and applied statistics 2016*; *5*:1-1-4. doi: 10.11648/j.ajtas.20160501.11
16. Bradshaw, C., Atkinson, S., & Doody, O. (2017). Employing a qualitative description approach in health care research. *Global qualitative nursing research*, *4*, 2333393617742282. https://doi.org/10.1177%2F2333393617742282
17. Moser A & Korstjens I. 2018. Series: Practical guidance to qualitative research. Part 3: Sampling, data collection and analysis. Eur J Gen Pract 2018; 24:1-9-18. doi: 10.1080/13814788.2017.1375091.
18. Lincoln Y. Guba EG. (1985). Naturalistic inquiry. Newbury Park, CA: Sage
19. Borkan JM. (2021). Immersion–Crystallization: a valuable analytic tool for healthcare research. Family Practice 2021; 39: 785–789. https://doi.org/10.1093/fampra/cmab158.
20. Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. International journal of qualitative methods, 16(1), 1609406917733847.
21. Javanmardi M, Noroozi M, Mostafavi F, Ashrafi-Rizi H (2019). Challenges to access health information during pregnancy in Iran: a qualitative study from the perspective of pregnant women, midwives and obstetricians. Reproductive health 2019;16:1-1-7. https://doi.org/10.1186/s12978-019-0789-3.
22. Silva EPD, Lima RTD, Osorio MM. (2016). Impact of educational strategies in low-risk prenatal care: systematic review of randomized clinical trials. *Ciência & Saúde Coletiva 2016*;*21*:2935-2948. https://doi.org/10.1590/1413-81232015219.01602015.
23. Maastrup R, Rom AL, Walloee S, Sandfeld HB, Kronborg H. Improved exclusive breastfeeding rates in preterm infants after a neonatal nurse training program focusing on six breastfeeding-supportive clinical practices. PLOS ONE 2021; 16:2-e0245273. https://doi.org/10.1371/journal.pone.0245273.

24. Potera C. Evidence supports midwife-led care models: fewer premature births, epidurals, and episiotomies; greater patient satisfaction. Am J Nurs 2013;113:11-15. doi: 10.1097/01.NAJ.0000437097.53361.dd. PMID: 24149253.
25. World Health Organization. Standards for improving quality of maternal and new born care in health facilities 2016. Retrieve from https://apps.who.int/iris/bitstream/handle/10665/249155/9789241511216-per.pdf.
26. International Confederation of Midwives. Philosophy and Model of Midwifery Care 2018. https://www.internationalmidwives.org/assets/files/definitionsfiles/eng-philosophy-and-model-of-midwifery-
27. National Institute for national and Care Excellent. Antenatal care for uncomplicated pregnancies. Clinical guideline 2020. https://www.nice.org.uk/terms-and-conditions#notice-of rights.
28. Voon, S. T., Lay, J. T. S., San, W. T. W., Shorey, S., & Lin, S. K. S. (2017). Comparison of midwife-led care and obstetrician-led care on maternal and neonatal outcomes in Singapore: A retrospective cohort study. *Midwifery*, *53*, 71-79.https://doi.org/10.1016/j.midw.2017.07.010

29. Sandall, J., Soltani, H., Gates, S., Shennan, A., & Devane, D. (2016). Midwife-led continuity models versus other models of care for childbearing women. *Cochrane database of systematic reviews*, (4).https://doi.org/10.1002/14651858.CD004667.pub5
30. Edmonds JK, Ivanof J, & Kafulafula U. Midwife Led Units: Transforming Maternity Care Globally. Annals of global health 2020; 86:1. https://dx.doi.org/10.5334%2Faogh.2794
31. The Queensland Health. (2018). Recommendations for antenatal education Content, development and delivery. https://clinicalexcellence.qld.gov.au/priority-areas/service-improvement/maternity-service-improvement.