

## **Challenges Facing Pregnant and Postpartum Women**

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## **ABSTRACT:**

This study investigates the challenges pregnant women face within the Central Virginia Health District. Ten focus group discussions were conducted across multiple localities within the CVHD. Results indicated that while most women sought prenatal care during their first trimester, a few women failed to seek care until the second and third trimesters, with one not seeking care at all. Eight themes emerged from the participant women during the focus group discussions. The themes include the following: fear of not being heard or understood, fear of child-related complications during and after pregnancy, the utility of exercise and staying physically active to stay healthy while pregnant, the immediate family as the most significant support system for mothers while they are pregnant, the use of the internet or social media to find answers to questions related to sexual and reproductive health, the influence the doctor has about what a woman should and should not do while pregnant, the desire that women have to be better prepared by having an overall understanding of motherhood, and various negative feelings that pregnant women have towards healthcare personnel and various medical treatments. The findings advocate for a multifaceted approach prioritizing patient autonomy, shared decision-making, and developing supportive programs to assist/prepare women during pregnancy. By addressing these challenges, this study aims to reduce challenges/issues faced by pregnant mothers to advance both their and their family's well-being.

**KEYWORDS:** Prenatal care, Pregnancy, Motherhood, Reproductive health, Social media, Patient autonomy, Support system, Doctor, Healthcare personnel, Treatment

## **INTRODUCTION:**

In 2017, there were about 800 daily maternal deaths, with a high proportion originating in developing nations and rural areas (Shallo et al., 2022). Additionally, over 60% of these mortalities were located in Sub-Saharan Africa and were scored as preventable if the proper resources and services were available (Shallo et al., 2022; Elkafrawi et al., 2020; Adu et al., 2021). The three most apparent causes of the mortalities were the result of obstetric hemorrhage, hypertensive disorders, and sepsis, all of which require a larger number of medical personnel to mitigate (Adu et al., 2021).<sup>6</sup> While there has been an overall increase in maternal mortality rates (MMRs) in the past three years, there was a steady decrease in MMRs in urban areas worldwide from 1999 to 2017 (Rossen et al., 2022). However, this same trend was not seen in the US, especially among non-Hispanic white women (although rates among African American women persist greater) (Rossen et al., 2022). Evidence suggests that MMRs have increased approximately two-fold in the United States from 1999 to 2018, with a higher burden placed on women in rural areas (Singh et al., 2020). Some studies have also examined the precision of mortality statistics, specifically regarding maternal mortality. One study carried out in Scotland found that MMRs were underreported due to a large number of doctors writing down the particular cause of death and not linking it to overarching maternal causes (Reid et al., 2018).

Further, the variation in maternal mortality is drastic in the US when comparing racial/ethnic differences, with Chinese women possessing the lowest MMRs (7.0 per 100,000 live births) and African American women with the highest (48.2 per 100,000 live births; Singh et al., 2020). Additionally, Caucasian women who failed to achieve a high school diploma were almost five times more likely to experience maternal mortality compared to women who were college graduates (Singh et al., 2020). Finally, one of the predominant reasons for the increase in

maternal mortality may be the recent rise in maternal age among mothers (Bornstein et al., 2020). For the past three decades, the age at which women start having children has steadily increased (Bornstein et al., 2020). It is well documented that associated morbidity and mortality steadily increase with maternal age, which may be likely to be one of the leading causes of all-cause maternal morbidity and mortality increases in the United States in recent history (Bornstein et al., 2020). Associated with increased MMRs in the US is the elevated proportions of poor cardiovascular health among older, pregnant women, including hypertensive disorders of pregnancy, chronic hypertension, and diabetes mellitus (Bornstein et al., 2020).

While examining the MMRs is essential, there also exists a plethora of challenges faced by mothers within our health district. Women struggle financially, mentally, and physically before and after pregnancy, with some mothers having to face the challenges alone. This study aims to identify women's challenges within our health district to better understand which resources/interventions would best address these issues.

## **METHODOLOGY:**

To better understand the challenges and concerns women experience within our health district, a series of questions were crafted that touched on various factors that could impact a woman's experience during and after pregnancy (table 1). These questions were asked in several focus group discussions throughout multiple localities, including Amherst, Appomattox, Bedford, Campbell County, and Lynchburg City. Two separate focus groups were held for each locality, and each focus group consisted of a minimum of six participants and a maximum of ten participants.

Each focus group discussion was recorded via a voice recorder and given to a data analyst for subsequent transcription. NVivo transcription was used to transcribe the audio from the focus group discussion, and the data analyst manually made several corrections to the final transcripts. Once the transcripts were finalized, they were uploaded into NVivo 14.23.2 for qualitative data analysis. While carrying out the qualitative data analysis, a thematic approach was used with the coding process that followed a latent approach (looking into the underlying meaning of what was being expressed by the focus group participants/mothers). Thematic analysis follows a six-step process: reviewing the data, creating initial codes, exploring themes, reviewing themes, describing themes, and creating a final report. Additionally, the first question asked during the focus groups dealt with when the women each sought prenatal care during their pregnancy. The proportion of women who said first trimester, second trimester, third trimester, or never was calculated and visualized using SAS software. Lastly, participants were asked to answer a variety of questions related to their experience as well as their demographic makeup. Proportions were calculated and put into table format (see appendix).

## **RESULTS:**

Participants were asked to provide demographic information as well as details about their pregnancy and birth experiences. Based on the number of responses, most participants identified as White/Caucasian, with the second largest group identifying as Black or African American (table 2). Regarding age, approximately 30% of participants were between 18 and 24 years old, 57% were aged 25 to 34, and 14% were between 35 and 44 years old (table 3). Most participants resided in Lynchburg, while Appomattox had the fewest participants (table 4). Of the 81 participants, 83% reported having a primary care provider (table 5). In terms of prenatal care, women were asked about the types of services they utilized during their pregnancies. The most

common responses were OB/GYN care, WIC services, and group medical practices (table 6). Participants were also asked about the causes of pregnancy loss, if applicable. Of the 30 responses received, 50% cited first trimester miscarriage as the cause of loss. Other reported causes included chemical pregnancy, ectopic pregnancy, abortion, and stillbirth (table 7). Finally, of the responses received, 27.06% of women said they experienced some type of pregnancy loss.

Women were also asked about the most significant challenges they faced regarding access to maternal and child health services. The most common response, cited 22 times, was the lack of transportation to facilities offering care. The second most frequent issue, mentioned 21 times, was the unavailability of appointments at medical offices. Participants reported that these offices lacked open slots or failed to answer calls or return messages. Finally, 14 participants identified cost—particularly the expense of health insurance—as the primary barrier to seeking care. Additionally, many women identified poor diet as the primary barrier to their and their families' health, a concern expressed in 19 instances. The reasons behind their tendency to opt for unhealthy food choices included the convenience of processed foods, personal cravings, the high cost of nutritious options, and the lack of access to local markets or diverse food selections.

At the start of each focus group, women were asked at what point during their pregnancy did they seek prenatal care. In total, 94 answers were given on when a woman sought prenatal care (with some mothers answering multiple times because of having multiple births). There were 81 instances where a mother sought prenatal care during her first trimester, 11 cases where a woman sought prenatal care for her second trimester, one instance where a woman sought prenatal care during her third trimester, and on instances where a woman was unable to seek prenatal care at all (Figure 1 and 2). It is important to note that it was often the case that women

did not seek prenatal care until their second trimester due solely to the fact that they were unaware of being pregnant in the first place.

### **Fears, concerns, and challenges**

#### Not being heard or understood:

A significant theme expressed by many of the participants was the fear or concern of not being understood by others. Many of the women stated that they felt like they were not being heard during and even after their pregnancy. Further, women felt this lack of understanding was significant among medical professionals (e.g., doctors, nurses, OBGYN), family members, individuals from work, and the larger society. One participant shared her experience, particularly in a work setting; she stated the following:

For me, it was like battling the conditions while working, like having to fight with my boss about like being outside in the heat, [they] would give me so much pushback about, you know, well if you need this, you need a doctor's note, if you need this, you need a doctor's note. Having to go back and forth with [them], like when it got later into my pregnancy and going into summertime it was a lot more difficult just having to navigate like what I needed for my pregnancy.

#### Fear of child-related complications during and after pregnancy:

Women commonly relayed several shared fears specifically connected to child-related complications. The range of severity of these concerns was vast, ranging from minor complications such as allergies to extreme complications related to infant loss. While many of the answers given by the mothers were related to the period during pregnancy (e.g., miscarriage, stillborn, poor development), many revolved around those that could happen after birth (e.g.,

childhood sicknesses, SIDS, allergies). One of the participant mothers expressed her concern about a perceived increase in child-sickness prevalence; she stated the following: “I’ve heard there’s an uprising in (disease of interest) in babies. My friend her baby was a month old and was diagnosed with spinal meningitis. And the doctor said he’s seen more cases this year than he’s seen in quite some time.”

### **How women stay healthy while pregnant**

#### Exercising or staying physically active:

When the participants were asked how they stayed healthy while pregnant, the most common answers given were exercising, staying active, or getting out. Specific examples include walking, swimming, and visiting local parks to enjoy the outdoor environment. While a few women voiced that eating healthy and staying hydrated was essential for staying healthy, comparatively, participating in some sort of physical activity was stated over a three-fold magnitude. The most common form of exercise promoted by women was walking. One of the women shared the following, “I walked a lot during my pregnancy. So that’s pretty much what I did. And I have a neighbor, she just recently had a baby, and she was walking a lot. So, I think that’s the main thing that they advise for women to do is like walk, and yeah stay active.”

### **Where women find support**

#### Immediate family:

During the focus groups, women were asked where they found support both during and after their pregnancy. While many support groups and resources were revealed (e.g., friends, partners, healthcare personnel, pregnancy centers), the woman’s family was the most common answer. Family was over two times higher than the second leading theme within this subgroup



(friends/acquaintances). While several women noted the extended family as a support, most answers concerned the woman's immediate family. The three most common answers were the parents of the pregnant mother, the mother's husband, and even the mother's other children. One of the mothers discusses her family's support, saying, "Yeah, I'd say my parents, my mom was a huge, huge supporter. And my husband too, but my mom is like my biggest supporter."

### **How women get questions answered related to sexual and reproductive health**

#### Internet or social media:

Women were asked where they were most likely to go or who they were most likely to ask whenever they had a question related to sexual or reproductive health. Many stated that they were likely to reach out to some type of medical professional (doctor, doula, midwife); however, most women asserted that they were much more likely to find answers to various questions online. Women found answers to questions on sexual and reproductive health via search engines (specifically Google), social media (Facebook, TikTok, Instagram), or some form of online mom group. A few mothers also stated that these questions could be answered through different online pregnancy apps. One participant gave her opinion on the convenience of social media and its utility in answering questions. The participant stated, "It's hard to get out of the house with kids and to like, meet other women that you feel comfortable around. And I guess that reaching out on social media is like just kind of more of a... you don't know them, but that doesn't really matter. Because you still can get their input or their opinion on whatever it is that you're seeking out."

### **Who makes decisions about what a woman should do while pregnant**

#### The doctor:

Participants were asked who could decide what a woman should or should not do while pregnant. While most women stated that it was the woman's choice, the second most common answer given was that it was the doctor's choice in what a woman should and should not do. While some of these women said that the doctor should only make suggestions, many clearly expressed that the doctor could decide for the mother. One of the mothers in the focus groups gave a brief answer regarding this topic; she said, "Your doctor or your health care provider, a provider or somewhere like that. If they tell you don't do something, then don't do it if you're pregnant."

### **What women wished they were better prepared for in motherhood**

#### An overall understanding of motherhood:

When women were asked what they wished they were better prepared for before motherhood, several answers were conveyed, including breastfeeding, child allergies, and even dealing with past traumatic experiences. However, many women did not identify specific areas of motherhood that they wished they were better prepared for; instead, most said they simply wanted a better overall understanding of motherhood. Many women stated that they were naïve to the basics of properly caring for a child and wished they had more guidance beforehand. While some said that a woman could never be prepared entirely for motherhood, many said having resources that reviewed the foundations of motherhood/child-rearing would have been helpful. One of the participants explained the difficulty of understanding the abundance of information on pregnancy and parenting. She states, "I feel like I'm not totally prepared for any one thing. I just had like as much information as I could find about a million little things. But I don't really feel like I totally know any of them. Maybe you don't ever feel like you actually totally understand the whole thing."

## **Other**

### Negative feelings towards healthcare personnel and medical treatment:

One of the most common concerns spoken by women during the focus groups was the negative or stressful feelings felt toward medical professionals and treatment. Many explained that they were uncomfortable with treatments such as Pitocin given during delivery or new vaccines given during their child's years of infancy. However, these concerns were not as frequently stated compared to the number of women testifying that they felt pressured by a doctor or other medical professional to undergo specific procedures or take particular medicines. Many women said that they felt like they didn't have a 'choice' during their pregnancy and felt incredibly pressured much of the time. Many of the women said that this substantially increased anxiousness during their delivery, causing the process of giving birth to be significantly more challenging. One mother shared her experience of giving birth at one of the local hospitals. She expressed the following:

Instead of making the decision for you, with my first one, the induction I had was pretty much forced upon me because I had high blood pressure before I got pregnant. But while I was pregnant, my blood pressure stayed perfect. So I was like, I don't want to do it. And they were like, well, they pretty much scared me into doing it with my first one. And they tried to do it with this one, but thankfully, she decided she wanted to come on her own(so they did not do the induction).

## **DISCUSSION:**

The results show that most women in this study sought prenatal care early in their pregnancies, with 81 out of 94 responses indicating care during the first trimester. This is

encouraging, as early prenatal care is essential for the health of both mothers and babies.

However, the 11 cases of women seeking care in the second trimester and the single case in the third trimester raise concerns. Many women mentioned not realizing they were pregnant in the first trimester, highlighting a need for better education about early pregnancy signs and the importance of starting prenatal care early.

Further, the single instance of a woman not seeking care points to possible barriers, such as financial issues or lack of access to healthcare. Addressing these barriers is crucial to ensuring all women can access the necessary care. Overall, while most women did seek early prenatal care, the cases of delayed care indicate a need for ongoing education and support. Future efforts should focus on helping women recognize pregnancy early and understand the importance of starting prenatal care as soon as possible.

The focus groups revealed the experience of pregnant women feeling unheard in various social, work, and healthcare-related contexts. This theme shows the need for an improved understanding among healthcare professionals, employers, and the broader society. Many women expressed frustration and isolation when their needs were not adequately recognized or accommodated. The example of a participant struggling to negotiate necessary adjustments at work shows where a lack of awareness and sensitivity can worsen the challenges faced by pregnant women. This dynamic often leads to a feeling of being disregarded, which can have adverse effects on one's overall mental and even physical well-being during pregnancy. Moreover, the hesitance of some medical professionals to properly engage with patients' concerns on various issues (such as treatment) can contribute to feelings of inconfidence.

Additionally, the participants highlighted the significant fears that women face regarding child-related complications both during and after pregnancy. The women expressed a wide range of concerns, from relatively minor issues like allergies to severe worries about miscarriage or infant loss. Notably, many mothers were particularly apprehensive about complications that could arise after birth, such as Sudden Infant Death Syndrome (SIDS) and other childhood illnesses. Also, remarks about a perceived increase in childhood diseases, such as spinal meningitis, illustrate how shared narratives can amplify fears. This shows the importance of providing accurate, evidence-based information to expectant and new mothers to help alleviate anxiety. Healthcare providers might consider addressing these fears directly in prenatal and postnatal consultations to develop a more supportive environment for parents.

Additionally, the study explored how women maintain their health during pregnancy, revealing that physical activity was prioritized over diet in terms of perceived importance. The overwhelming emphasis on exercise, mainly walking, suggests that many women recognize the benefits of staying active for both their physical and mental well-being. This view from the participants is consistent with health professionals' recommendations for regular physical activity during pregnancy (Gascoigne et al., 2023). Encouraging outdoor activities, such as walking in parks, contributes to physical health and provides emotional benefits by allowing mothers to connect with nature and their communities (Gascoigne et al., 2023).

The women in the focus groups also highlighted the immediate family's pivotal role in supporting women during and after pregnancy. The responses from women indicate that parents and partners are the most significant sources of assistance and support, far outweighing friends and healthcare personnel. This reliance on family suggests that emotional bonds and familiarity

play a critical role in the support women seek during this period of life. Additionally, while extended family members contributed to their overall support, the focus on immediate family indicates that women prioritize those with whom they share close interactions. This finding underscores the potential for interventions to enhance maternal support by involving family members and acknowledging their role in promoting the welfare of expectant mothers.

The results indicate that women primarily seek answers to sexual and reproductive health questions through online platforms rather than traditional medical sources. While many still value input from healthcare professionals, such as doctors and midwives, the convenience of the internet and social media plays a significant role in their information-seeking behavior. Social media and online communities provide accessible spaces for women to connect and share experiences, which can be particularly beneficial for those with children who may find it challenging to engage in face-to-face interactions or to those who are timid to ask more personal questions in an in-person space. This trend underscores the growing importance of digital resources in health education. It suggests that healthcare providers should consider incorporating these platforms into their outreach strategies to effectively meet women's needs for reliable information.

In examining who should make decisions regarding a woman's choices/actions during pregnancy, responses from participants reveal a complex interplay between personal preference and medical authority. While the majority of women asserted that the ultimate decision lies with the woman herself, a significant number indicated that doctors should have some authority in this process. Some participants believed that doctors should primarily offer suggestions rather than make definitive choices for the mother. However, others felt that medical professionals could

dictate certain behaviors, emphasizing the importance of following their guidance. This dual perspective underscores the need for a collaborative approach for the mother during this time and the need to balance the pregnant woman's autonomy with the expertise of healthcare providers.

The results show that many women wish they had a better overall understanding of motherhood instead of focusing on specific challenges. This desire for an overall understanding of motherhood reflects a strong need for basic parenting knowledge, as many participants felt overwhelmed by the large amount of information available on various topics. The difficulty in sorting through this information can lead to feelings of confusion and inadequacy.

While participants acknowledged that complete preparedness for motherhood might not be entirely possible, they expressed that having resources covering child-rearing basics would have been helpful. This points to a gap in support for expectant mothers, highlighting the need for more transparent and accessible educational materials. The desire for a better understanding emphasizes the importance of preparing women for the complexities of motherhood, including both expected and unexpected situations. These insights suggest that developing supportive programs and materials focusing on comprehensive education and emotional readiness could help new mothers feel more confident before and during motherhood.

The focus groups' findings reveal a significant concern among women regarding their experiences with medical professionals during pregnancy and childbirth. A prevalent theme was the feeling of pressure and lack of agency, negatively impacting the mother's confidence. Further, the mothers expressed discomfort with medical treatment/interventions, indicating a need for better communication regarding the necessity of such medical interventions. The shared experiences show how coercive practices among various medical personnel can lead to a sense of

fear and helplessness, suggesting a need for more collaborative approaches that prioritize patient autonomy.

Moreover, the anxiety stemming from these interactions may seem to add more stress during the birthing experience. Increased stress during delivery can have significant implications for mothers and infants, underscoring the importance of addressing emotional health alongside physical care. Healthcare providers should encourage open dialogue and shared decision-making to enhance expectant mothers' experience during and after pregnancy. Educating patients about treatment options and fostering an environment that welcomes questions can empower women during their care.

## **CONCLUSION:**

In conclusion, this study highlights the multifaceted challenges pregnant women face, revealing significant gaps in healthcare access, emotional support, and maternal education. While most participants sought prenatal care in the first trimester, the instances of delayed care underscore the need for improved awareness regarding early pregnancy signs and the importance of timely healthcare engagement. The feelings of being unheard and misunderstood within various social and healthcare contexts further complicate the experiences of these women, emphasizing the necessity for greater sensitivity and communication from healthcare providers and employers.

Participants expressed various fears surrounding child-related complications, indicating a need for accurate information and support systems that address these anxieties. The emphasis on physical activity over dietary considerations highlights an area for potential health education



improvements, where both aspects should be integrated into maternal health programs. The importance of immediate family as a support system reveals the need for community involvement in maternal health initiatives, suggesting that interventions should utilize familial networks to provide support. The findings further reveal a growing reliance on digital platforms for information related to sexual and reproductive health, signaling a historic shift in how women seek guidance. This trend calls for healthcare providers to adapt their outreach strategies to include these online resources, ensuring women have access to reliable information.

Lastly, the expressed desire for a comprehensive understanding of motherhood points to a crucial gap in maternal education. Developing resources that provide foundational knowledge and emotional readiness could empower women, enabling them to navigate the complexities of motherhood with greater confidence. It is essential to foster collaborative relationships between healthcare providers and patients, prioritizing patient autonomy and shared decision-making to better the maternal experience. By addressing these challenges and implementing supportive measures, we can work towards reducing maternal mortality rates and improving the health outcomes for women and their families.

## **LIMITATIONS:**

Although thematic analysis offers valuable insights into the relationships and themes relevant to the research questions, it does have certain limitations. One notable constraint is the potential for personal biases to influence the identification of themes, as the coding process can differ based on the analyst's perspective. The focus group participants were also self-selected, which may introduce voluntary response bias. While it is challenging to mitigate self-selection, future studies should aim to recruit a more representative sample of mothers.

Moreover, a significant concern is the presence of group response bias, which occurs when participants' collective attitudes or behaviors shape individual responses. This often led participants to conform to perceived group norms instead of voicing their authentic opinions. For instance, discussions frequently gravitated toward the first topic raised by a participant. Future research should consider implementing individual interviews, allowing participants to respond to the same set of questions without the influence of group dynamics.

## APPENDIX

**Table 1: Focus Group Questions**

Questions asked during focus group discussions
1. At what point in your pregnancy did you seek prenatal care?
2. What fears or concerns do women in your community have about their pregnancies?
3. What are the biggest health concerns for mothers and children in your community?
4. What do women in your community do to stay healthy while pregnant?
5. Where did you find support during pregnancy? If you had a support system during your pregnancy, who did this include?
6. When women you know have a question related to sexual and reproductive health, how do they usually get this question answered? Where do they feel comfortable going to?
7. Who makes decisions about what a women should or should not do while pregnant?
8. What is something that you wish you were better prepared for in motherhood?

**Table 2: Self-Reported Race/Ethnicity Based on Received Responses**

Race	Percent
White/Caucasian	52
Black/African American	36
Asian	1
More than one race	7
Other	4

**Table 3: Self-Reported Race/Ethnicity Based on Received Responses**

Age Group	Percent
18 - 24	30
25 - 34	57
35 - 44	13

**Table 4: Self-Reported County Based on Received Responses**

County	Percent
Lynchburg	34
Bedford	22
Campbell	18
Amherst	17
Appomattox	9

**Table 5: Self-Reported Provider Status Based on Received Responses**

Provider Status	Percent
Yes	83
No	17

**Table 6: Self-Reported Prenatal Care Utilization Based on Received Responses**

Prenatal Care	Percent
OB/GYNs	32
WIC	24
Group Medical Practice	19
Certified Nurse-Midwives	7
Solo Medical Practice	4
Other	14

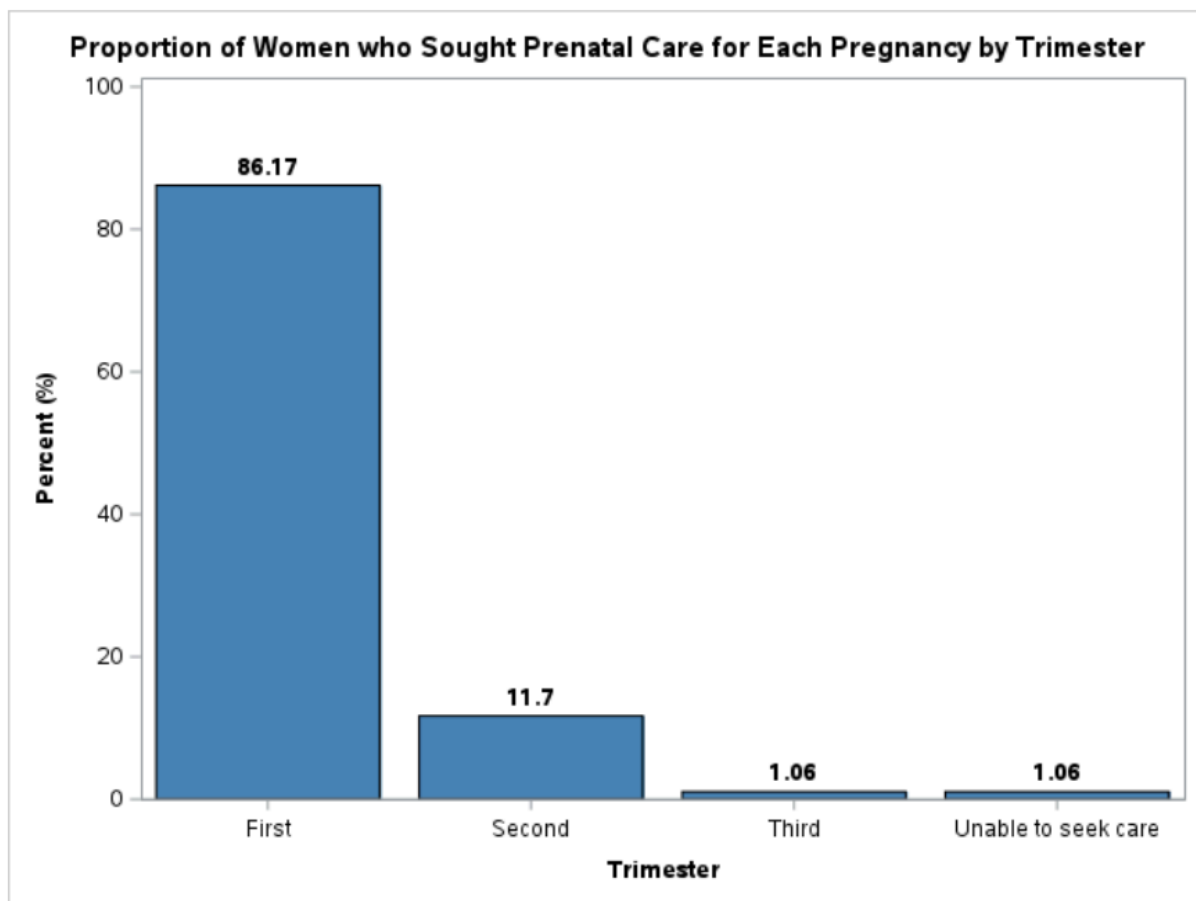
**Table 7: Self-Reported Pregnancy Loss Based on Received Responses**

Pregnancy Loss	Percent
First trimester miscarriage	50
Chemical pregnancy	13
Ectopic pregnancy	10
Abortion	7
Stillbirth	3
Other	17

**Figure 1: Response Count of When Women Sought Prenatal Care while Pregnant**

Trimester	Count
First	81
Second	11
Third	1
Unable to seek care	1

**Figure 2: Proportion of Pregnant Women who Sought Prenatal Care**



## References

- Shallo, S. A., Daba, D. B., & Abubekar, A. (2022). Demand–supply-side barriers affecting maternal health service utilization among rural women of West Shoa Zone, Oromia, Ethiopia: A qualitative study. *PLOS ONE*, 17(9).  
<https://doi.org/10.1371/journal.pone.0274018>
- Elkafrawi, D., Sisti, G., Araj, S., Khoury, A., Miller, J., & Rodriguez Echevarria, B. (2020). Risk factors for neonatal/maternal morbidity and mortality in African American women with placental abruption. *Medicina*, 56(4), 174. <https://doi.org/10.3390/medicina56040174>
- Rossen, L. M., Ahrens, K. A., Womack, L. S., Uddin, S. F., & Branum, A. M. (2022). Rural-urban differences in maternal mortality trends in the United States, 1999–2017: Accounting for the impact of the pregnancy status checkbox. *American Journal of Epidemiology*, 191(6), 1030–1039. <https://doi.org/10.1093/aje/kwab300>
- Adu, J., Mulay, S., & Owusu, M. F. (2021). Reducing maternal and child mortality in rural Ghana. *Pan African Medical Journal*, 39.  
<https://doi.org/10.11604/pamj.2021.39.263.30593>
- Reid, A., & Garrett, E. (2018). Medical provision and urban-rural differences in maternal mortality in late nineteenth century Scotland. *Social Science & Medicine*, 201, 35–43. <https://doi.org/10.1016/j.socscimed.2018.01.028>
- Singh, G. K. (2020). Trends and social inequalities in maternal mortality in the United States, 1969-2018. *International Journal of Maternal and Child Health and AIDS (IJMA)*, 10(1), 29–42. <https://doi.org/10.21106/ijma.444>

Bornstein, E., Eliner, Y., Chervenak, F. A., & Grünebaum, A. (2020). Concerning trends in maternal risk factors in the United States: 1989–2018. *EClinicalMedicine*, 29–30, 100657. <https://doi.org/10.1016/j.eclinm.2020.100657>

Gascoigne, E. L., Webster, C. M., Honart, A. W., Wang, P., Smith-Ryan, A., & Manuck, T. A. (2023). Physical activity and pregnancy outcomes: An expert review. *American Journal of Obstetrics and Gynecology MFM*, 5(1), 100758. <https://doi.org/10.1016/j.ajogmf.2022.100758>