



## Article

# Knowledge and Perception of Risk in Pregnancy and Childbirth among Women in Low-Income Communities in Accra

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**Abstract:** Perception and knowledge of risk factors for pregnancy influence health behaviors during pregnancy and childbirth. We used a descriptive qualitative study to examine the perception and knowledge of risk factors in pregnancy and childbirth in low-income urban women in Ghana. Over the course of three-months, 12 focus group discussions and six individual interviews were conducted with 90 participants selected from six communities in the study area. Data were analyzed using inductive-thematic content analysis. Findings revealed that participants had knowledge of some risk factors, although some had superstitious beliefs. Participants viewed pregnancy as an exciting and unique experience, but also challenging, with a host of medical and psychological risks. Pre-existing medical conditions (e.g., diabetes), lack of physical activity, poverty, poor nutrition, and lack of social support were identified as conditions that could lead to negative pregnancy outcomes. Superstitious beliefs such as exposure to “evil eye” during pregnancy, as well as curses and spells, were also identified as risk factors for pregnancy complications. This research has implications for policies and programs to improve pregnancy outcomes for low-income women in Ghana. Thus, we recommend social and economic support programs as well as health education to change misperceptions about pregnancy risk and to support other efforts being made to improve maternal health outcomes.

**Keywords:** perception; knowledge; risk in pregnancy; women; low-income communities



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## 1. Introduction

Risk is defined as a factor that presents eminent danger or increases the probability of experiencing adverse outcomes [1,2]. Perception, on the other hand, refers to a mental image or subjective ideas about a potential occurrence of a phenomenon [3]. The concept of perception is important because it is a driver of health-seeking behavior and the management of health outcomes [4]. Risk perception, therefore, refers to risk interpretations or understanding, as well as subjective judgements about risk [2]. In the field of health, risk perception denotes subjective judgements about the likelihood of negative or adverse outcomes of conditions such as illnesses, injuries, diseases, or death. Perceptions and knowledge about risk are important determinants of health behaviors and risk-related decision-making, such as whether to adopt or not to adopt healthy behaviors and reject or accept a certain level of health risks [2,5].

Risk perception has two dimensions: the cognitive aspect, which relates to how much individuals know and understand risks; and the emotional aspect, which relates to how people feel about themselves and a potential risk [6]. Research on risk perception often begins with the presumption that how people feel about danger is determined by the level of knowledge and certainty they have regarding that risk. This idea is founded on the rational choice model of decision-making, which presents individuals as rational beings who evaluate the possibilities of health outcomes after first estimating the prospective costs and benefits. On the other hand, laypersons usually assess risk by using heuristics (for

example, previous experiences) and other informal ways of thinking [2,7]. This means that, when people are aware of certain risks or potential risks, they tend to believe that those risks could happen more frequently than the risks actually occur, and vice versa. These risk misinterpretations, rooted in heuristics, can cause people to overestimate or underestimate the occurrence and severity of potential health threats [2].

According to Lennon [8], risk perception in pregnancy entails both the objective medical evaluation of risk as well as a subjective, socially constructed risk, guided by a complex web of personal, psychological, and cultural factors. It includes the assessment of the possibility of harm or negative health outcomes to either the mother or the newborn or both. However, sometimes this harm or risk is not related to a particular medical condition; instead, women may see pregnancy and childbirth as inherent risks rather than conditions that cause the risk. In recent years, risk perception and the way risks are construed in pregnancy have received a lot of scholarly attention [8]. This can be explained in part by the growing prevalence of a medicalized perspective on pregnancy and the social pressure placed on women to behave in a way that lessens the perceived risks [8]. Increasingly, medical interventions are seen as both necessary and desirable for successful pregnancies, as the state of pregnancy has become more and more medicalized. Thus, seeking preventive services such as antenatal screening, genetic screening, and testing, as well as health behavior modifications, are considered necessary to reduce any potential risk of pregnancy complications [8,9].

Furthermore, considerable evidence shows that perceptions and understanding (or knowledge) of risk are shaped by many factors, including socio-cultural background [10], levels of literacy [11], and religious or traditional beliefs [11,12]. An individual's knowledge and interpretation of risk is also dependent on their personal life philosophy and previous experience [9]. It has been documented that sometimes women perceive risk in relation to pregnancy from the social perspective, where risk is seen as being influenced by the social, cultural, and political milieu in which they reside [8,9]. Wheeler and colleagues [13], for example, reported women's employment experience during pregnancy as an important factor in determining their perception of risk in pregnancy. Furthermore, other scholars have reported that maternal age [14–16], personal and family history [17], knowledge about pregnancy and childbirth [18], as well as level of risk or complication in pregnancy [19] are important determinants of perception and understanding of risk in pregnancy. These factors can influence opinions, interpretations of and values put on the risks and even benefits associated with pregnancy [12]. In a qualitative study on pregnancy risk perception and preterm birth, Silva and colleagues [17] found that personal negative experiences in previous pregnancies, such as stillbirths, miscarriages, having a preterm birth or neonatal death, informed risk perceptions of the current pregnancy. Women's perception of risk in pregnancy has also been attributed to their knowledge-base of risk [20].

Perception and understanding of risk in pregnancy have the effect of influencing various critical pregnancy and childbirth decisions. They affect decisions such as when and where to seek antenatal care, where to give birth (or choice of maternity site), who supervises the birth and even the mode of delivery [8,21]. Silva and colleagues [17] also argued that a patient's risk perception of health guides his or her decisions on treatment and can further influence health-seeking behavior during serious conditions such as preterm births, one of the most critical potential risks faced during pregnancy. Janson [22], on childbirth decisions and traditional structures in Ghana, explained that women who viewed childbirth as a natural process, and without potential risks or ill health, may consider home delivery as the best option. Traditionally, in Ghanaian society, pregnancy and childbirth are viewed as a vulnerability and potentially dangerous experiences that do not only require biomedical care, but also spiritual intervention. Therefore, many women seek a combination of care: biomedical care, traditional care (which involves the use of herbal medicine) and spiritual support (faith healing and prayer) in the pregnancy period with the hope of averting any perceived or actual health risk to the pregnancy and during childbirth [23]. The focus of this paper, therefore, is to present findings from a study

that investigated women's perception and knowledge of risk in pregnancy and childbirth, and how these affect their maternal healthcare seeking behavior in selected low-income communities in Accra. The implications of the findings for maternal and newborn health policies and programs are discussed.

## 2. Materials and Methods

### 2.1. Study Design

This was a descriptive qualitative study that targeted women in selected low-income communities in Accra, Ghana. The data were gathered over a three-month period through focus group discussions (FGDs) and interviews to examine women's perception and knowledge about risk in pregnancy and childbirth.

### 2.2. Study Area

The study was conducted in the Ashiedu-Keteke sub-metropolitan district in the city of Accra, Ghana's capital. Ashiedu-Keteke is one of the 3 sub-metropolitan districts of Accra Metropolitan City and has some of the poorest communities in the city. Using the Greater Accra region population growth of 3.1%, the sub-metropolis has an estimated population of about 143,990 in 2018 [24]. The sub-metropolis has the Central Business District (CBD), and it is the center of major commercial activities within the city of Accra, with an influx of approximately 2 million people from all parts of the country daily [24]. As the center of commerce, it houses the Markola and Agboghloshie markets, which are two major markets within the Greater Accra region. The population of Ashiedu-Keteke is made up of the indigenous Ga people, who live in the coastal communities along the Gulf of Guinea (the Atlantic Ocean), and other migrant populations, who reside a bit further away from the coast. The main occupation of the indigenous Ga people is fishing; the men do the fishing, and the women smoke the fish for the market. The migrant population engages in small-scale commercial activities, mostly trading.

In terms of health care, the Ussher Polyclinic, the Prince Marie Louise Children's Hospital, and the James Town Maternity are among the major health facilities that provide care to residents in the sub-metropolitan district. Maternal health continues to be a health challenge as Ashiedu-Keteke has one of the poorest maternal health outcomes in Accra and has a persistently high teenage pregnancy rate in the city [25,26]. There is high prevalence of the use of informal maternal health care (traditional birth attendance, faith healing, and prayer) by pregnant women in the area, especially among the teenage and indigenous mothers. From available data, about 40% of pregnant women who reside in the sub-metropolitan district do not seek antenatal care until the second and third trimesters, a situation quite a bit higher than the national average of 36% [27].

### 2.3. Sampling of Participants and Data Collection

Purposive sampling was utilized to select six communities within the study area for the FGDs and individual interviews. Altogether, 90 women between the ages of 17 and 45 years were recruited for 12 focus group discussions, and six individuals were involved in the interviews. For the FGDs, a snowball sampling approach was employed to recruit 84 women who had at least one child. We conducted two FGDs in each of the communities. We divided the women in the FGDs into two age cohorts: those aged 17 to 29 and those aged 30 to 45. Each FGD had an average of seven participants and lasted between 45–60 min. We conducted six FGDs with each age cohort. Additionally, six women with at least one child from each of the six communities (one mother from each community) were interviewed for about 30 min to elicit in-depth perspectives on the subject matter. Two community leaders assisted with the recruitment of the study participants.

The FGDs and individual interviews both used comparable questions, which were framed around our research objectives. We asked participants about their knowledge and risk perceptions with regard to pregnancy and childbirth and how these factors influenced their healthcare seeking decisions and behaviors during pregnancy and childbirth. Both

FGDs and interviews were carried out with the assistance of our two fieldworkers and in two local languages spoken in the study area. The two field assistants were native speakers of the two local languages (Ga and Twi). The FGDs and interviews were audio recorded with the participants' permission.

#### *2.4. Ethical Consideration*

The Human Subject Review Committee of the University of Massachusetts Amherst School of Public Health granted the ethical approval of the research. Additionally, we received authorization from the local health administration in the study area and verbal consent from all study participants prior to their enrollment in the study. Since most of our study participants had only a basic formal education, we only sought verbal consent from them prior to recruitment into the study and assured them that information obtained from the FGDs and interviews would be kept confidential, and only the lead researcher would have access to the raw data. Participation in the study was voluntary, and they had the option of withdrawing at any time.

#### *2.5. Data Analysis*

The data analysis began during the data collection phase and continued following FGDs and interview sessions. With the assistance of our two fieldworkers, audio recordings of both FGDs and interviews were transcribed from the local languages into English. Following transcription, we cross-checked the transcripts to confirm that the responses had been accurately transcribed and translated from the local languages to English. We reviewed the final transcripts in order to determine which words, phrases, and statements were pertinent to our primary research questions and objectives. We classified the data into nine themes using an inductive content analysis approach proposed by Corbin and Strauss [28] and Miles and colleagues [29].

We first identified and cataloged the major concepts and recurring ideas in each interview transcript. Second, we compared and classified the significant concepts and emerging themes from the interview transcripts. We did the same thing with the transcript data from the FGDs; we compared significant concepts and developing themes within and across FGDs. The raw text section containing the essential concepts and ideas were coded manually and classified according to the emergent themes. To ensure the findings' internal validity, we compared and contrasted data segments from the FGDs with the individual interviews [28,29]. In this article, we present data on nine themes that emerged from our analysis.

### **3. Results**

The nine themes were identified as the following factors: first trimester experience; medical conditions; lack of physical activity; antenatal care; lack of social support; poverty and poor nutrition; sleeping posture and hot showers; exposure to certain conditions; and spells and curses.

#### *3.1. First Trimester Experience*

According to most of the participants, pregnancy during the first trimester period is associated with both joy and risk. The participants reported that the usual thought of being pregnant brings "joy" and "hope", but the experience during this period could be challenging for many women. Participants explained that during the first trimester, the pregnant woman is unable to eat, as she experiences general body weakness, morning sickness, fevers, severe headaches, dizziness, heart palpitations, and sleeplessness. Although these are normal, they could pose serious health risks to the woman during this period of the pregnancy. The women described psychological problems such as fears, anxiety, and stress that a woman could experience during early months of the pregnancy. Two participants explained it this way:

“When a woman is pregnant, she does not feel well as she used to be, the whole experience can make you feel sick and you know, this feeling of sickness can last during the whole pregnancy period for many women, the first three months can be hard on you, you become anxious and afraid . . . ” [FGD participant 1]

“In my case, I always felt like I was going to fall down in my early months. But this feeling happens to many pregnant women, so its normal to feel that way because your body is adjusting, it begins to go away after the third months for most pregnant women.” [Interview participant 1]

### 3.2. Medical Conditions

Both FGD and interview participants were of the view that complications could occur in pregnancy when a pregnant woman already has “a pre-existing disease”. They explained that pre-existing diseases or infections such as “malaria”, “diabetes”, candidiasis (“odeepu”) or “HIV” can increase the vulnerability of a pregnant woman. This is because “it is not easy to carry a pregnancy when you are already sick or have a disease.” [Interview participant 2] Having a chronic condition “ . . . like AIDS or sugar disease [diabetes] and becoming pregnant could be challenging as you don’t sit at home. You will need to go to the clinic for regular and proper care.” [FGD participant 2] These medical conditions could expose the woman to the risk of experiencing a difficult pregnancy, labor, and delivery, and could affect the baby’s health as well.

According to the participants in the FGDs, other medical conditions indicating that the pregnant woman is at risk of complications are high blood pressure, swelling in the hands and feet, anemia, and delay in the delivery of the afterbirth or the placenta. Participants also mentioned bleeding during pregnancy and childbirth as a major health risk for the mother and the baby. These views were also expressed by the women in the individual interviews, as exemplified by a personal experience of an interview participant who said:

“I don’t have an easy pregnancy. My second pregnancy was the worst of all. I had swollen feet and hands, and they [nurses] said my blood pressure was going up at some point, and I thought those were not good signs for my pregnancy, especially when they told me my pressure was going high and I had to come in for regular review.” [Interview participant 3]

### 3.3. Lack of Physical Activity

Another risk factor identified was being physically inactive during pregnancy. According to some of the participants, a pregnant woman who is physically inactive or does not exercise could likewise be at risk for a difficult and prolonged labor, as explained in the following statement by an FGD participant.

“You see, there are pregnant women who don’t do any work, they don’t walk, they just sit at one place, and they stop coming to the market. But there are others who work with their pregnancy. They go to the farm and do everything. When you are not active, the baby will not be active. The baby cannot turn or move in the womb, and you will have problem during delivery . . . ” [FGD participant 3]

### 3.4. Antenatal Care

Most of the participants said women who do not seek medical care or attend antenatal clinics could be at risk of pregnancy complications. During the FGDs, participants recounted that a pregnant woman should seek regular health care to prevent potential complications that could affect the pregnancy and to ensure a successful birth. A participant in the FGDs noted, “a situation where the mother failed to seek antenatal screening for early risk detection and treatment, it leads to conditions such as fetal malpresentation or malposition, a critical condition for prolonged labor.” [FGD participant 4]

Similar views were also shared by participants in the interviews, who identified prolonged labor as a risk a pregnant woman could be exposed to during childbirth if she fails to attend an antenatal clinic.

### 3.5. Lack of Social Support

According to the participants, pregnant women who do not have adequate spousal or family support could experience difficult pregnancy and childbirth because pregnancy could be stressful and emotionally demanding. As a result, if the pregnant woman is not adequately supported, it could negatively affect her health and that of the unborn baby. Two FGD participants explained the effect of a lack of social support on pregnancy outcomes in the quotation below.

“I know a young woman that the man who made her pregnant refused to accept the pregnancy. Her parents are not living here [referring to her community] and she does not have any other family member in Accra here. The baby she delivered was very small. You know . . . she didn’t have any support; she was always by herself and only got a little help from neighbors and that affected the baby.” [FGD participant 5]

“Sometimes, these young mothers work long hours. The kayaye [teen girls head porters] who are pregnant . . . they carry heavy loads in the market for people who come to shop or do groceries. They don’t have their families or anybody here to help them . . . It is stressful to do this kind of job when you are pregnant . . . ” [FGD participants 6]

These findings were corroborated by the interview participants who reported a lack of social support for young migrant pregnant women in the study area as a major risk factor for negative pregnancy outcomes. The following remark was made by a participant in support of this assertion, “when you go to the market right now, you see them [young female migrant porters] carrying big bowls full of load for people with their pregnancy. Some of them don’t even know the fathers of their babies, and their parents are not here to help them, and this is not good for the pregnancy.” [Interview participant 4]

### 3.6. Poverty and Poor Nutrition

Poverty emerged as an important risk factor for pregnancy and childbirth complications. Both FGDs and interview participants agreed that poverty could lead to poor nutrition among pregnant women, leading to poor pregnancy outcomes because “a pregnant woman should ensure she eats well, on time, and the right portions”, which is a major problem for some women. According to the participants, some pregnant women “don’t have the money to buy enough food” and that could affect their health and the pregnancy as well. A pregnant participant in one of the FGDs confirmed this and said, “the poor mothers who don’t have families here, their general health begins to become worse after delivery. This is because when they go home, there is nothing there to eat and their babies cannot grow because they don’t feed them well since they themselves don’t eat well”. [FGD Participant 7] According to some participants, the young pregnant migrant mothers who lived in the study area relied on neighbors for meals when they became pregnant. One FGD participant also put it this way:

“ . . . if they don’t get this assistance, they don’t eat. Some pregnant mothers eat small portions of meal in the morning, and they don’t eat until evening because they don’t have families here [Accra] and the men who made them pregnant didn’t accept the pregnancy.” [FGD participant 8]

These findings were supported by some of the interview participants who said that the young pregnant migrant mothers usually worked for long hours, carrying heavy loads to make a living, and to save towards delivery, which exposes them to pregnancy-related risks. The quotation below highlights this issue.

“Oh, when you go there (markets) right now you will see them working in the market, they carry loads in the market. Some sell under the hot sun [and], this is not too good for the pregnancy, but they need the money, so they and their babies can have food to eat the weeks following delivery.” [Interview participant 5]

Furthermore, most of the participants thought that poverty made it difficult for pregnant mothers to attend antenatal clinics and delayed care during labor, exposing the pregnant woman and the baby to life-threatening complications.

### 3.7. *Sleeping Posture and Hot Showers*

Both the FGDs and interview participants agreed that when a pregnant mother sleeps on her back, it can affect the health of the mother and the unborn baby. They explained that when a pregnant mother sleeps on her back, it obstructs the flow of oxygen from the mother to the unborn baby, and this could be fatal for the unborn baby as well as the mother.

“This [sleeping on your back during pregnancy] is not good for your pregnancy . . . when you are pregnant, you don’t sleep on your back. You sleep by your side. People (pregnant women) who sleep on their back can hurt their baby, the baby cannot breathe because air will not flow from you the mother to your baby . . . so they tell us not to sleep on our back. They are not good practice for the baby, so you can kill your baby because the baby cannot get air from your when you sleep on your back . . . ” [FGD participants 9]

Some participants also reported that taking hot water showers and baths could negatively affect the pregnancy. Two participants explained:

“ . . . they say bathing with hot water is not good, warm water is okay . . . hot water is not good for the baby too. It can make the baby temperature go up” [Interview participant 4]

“Bathing with hot water can make you the mother feel hot . . . and you can pass heat on to the baby in your womb, so you don’t take hot showers when you are pregnant.” [FGD participants 10]

### 3.8. *Exposure to Certain Conditions*

One major perceived risk in pregnancy mentioned by the participants is the exposure of the unborn baby to conditions that can cause the child to acquire certain health defects such as cerebral palsy (called “asram” in the local language). This often happens if the pregnant woman does not take “very good care” of herself and her pregnancy. For example, if the pregnant woman does not dress well, she could expose herself and her pregnancy (unborn baby) to individuals with such conditions. This is based on the belief that cerebral palsy is transferrable spiritually from a person who has the condition to the mother, and then to the baby to be born. “Asram” is a spiritual disease that can be passed on through eye contact when a pregnant mother comes into contact with an individual who spreads the disease. One interview participant elaborated on this perception in the following quotation.

“For a disease like asram, when you are pregnant you don’t have to eat everywhere. When some people see the pregnancy, they can transfer the disease to the unborn baby. You have to dress decently, so that you don’t expose yourself and your pregnancy. Some people dress exposing their body when they are pregnant . . . . So when you dress like that and you come across someone with the disease, that individual can transfer the disease to the baby.” [Interview participant 4]

Some participants also reported that cerebral palsy can kill, and that it can only be treated with traditional or herbal medicine. For example, during the FGDs, one mother recounted her experience with “asram”, “it [asram] affected me and my baby, and I was taken to a certain woman for herbal treatment for almost a year before my baby was ok.” [FGD participant 11].



### 3.9. Spells and Curses

Participants also narrated that a woman can be at risk of pregnancy complications and/or even death if she is cursed during pregnancy. According to most FGD participants, when a pregnant woman is disrespectful or often picks quarrels with neighbors, a curse could be cast on her, and this may lead to stillbirth and death during childbirth. This view was confirmed by a participant in the interviews in the following remarks:

“... do you know that evil people can harm your pregnancy? They can cast a curse spell on you and your unborn baby, so the young pregnant women here who like quarreling and fighting, some ended up having a difficulty childbirth.” [Interview participant 4]

This finding was supported by other participants who spoke of some young pregnant mothers visiting spiritual churches to seek protection for fear the effects of curses by people they might have wronged.

“They [young pregnant mothers] go the spiritual churches to pray for successful pregnancy because they are afraid somebody that they have quarreled with or disrespected might have cursed them and the pregnancy.” [FGD participants 12]

## 4. Discussion

Although the findings from this study do not represent the views of all Ghanaian women, they provide some insight into the general perception and knowledge of risk factors for negative pregnancy and childbirth outcomes among women in Ghana. The findings indicated that participants view pregnancy as an exciting and unique experience; however, they acknowledged the risks, both medical and spiritual, associated with it. This perception of risk could serve as a motivation for women to adopt positive health-seeking behaviors such as attending antenatal clinics, exercising, and eating good food during pregnancy. However, this perception of risk can also induce serious emotional experiences such as fear, anxiety, and stress that will require both informal and professional support. On the contrary, it seems that some women in the study area were not adequately receiving this support during pregnancy. This might be one of the reasons why maternal health outcomes in the study area are reported to be poor [26]. The findings of the study are consistent with previous studies where women were found to hold such perceptions of risks [30–32]. Anxiety and fear due to perceived risks in pregnancy and childbirth, such as prolonged and painful labor, lack of social support, as well as economic uncertainty, leading to stress, were identified among women in studies by Erickson et al. [33], Lyberg and Severinson [34], and Saisto and Halmesmaki [35]. Thus, pregnancy risk perceptions among pregnant women can affect their health and health care decisions and treatment options [17].

The findings that women perceived a lack of social support as a risk factor for pregnancy is relevant. As confirmed by previous studies, people with a high quality or quantity of social networks and economic stability have a decreased risk of mortality in comparison with those who have a low quality or quantity of social network engagement and are economically unstable [36–38]. In pregnancy, in particular, Hotelling and colleagues [39] found that women with continuous support, either emotionally or socially, were less likely to have complications in pregnancy that could lead to Caesarean deliveries than those without any support. Likewise, evidence from Ghana indicated that lack of support from friends and extended family, being abandoned by one's husband, and being compelled to live with unfriendly in-laws are risk factors that could expose pregnant women to psychological problems during pregnancy [12].

Several studies have illustrated that poor women are at higher risk of food insufficiency, insecurity, and poor feeding practices, leading to malnutrition and maternal morbidity [40–42]. Poverty hinders access to sufficient and nutritious food, and at the same time, acts as a barrier to accessing quality and timely maternal health care [43,44]. In Kenya, for example, Izugbara and Ngilangwa [45] found that poverty compelled



pregnant women in slums to engage in tedious work for long hours in order to save enough money for delivery, risking their lives. Women in our study shared similar views regarding young migrant pregnant women who carry heavy loads and work longer hours for a living and in preparation for delivery.

The findings showed that participants had knowledge of some common medical risks associated with negative pregnancy outcomes in Ghana. In Ghana, like many other tropical countries, malaria is endemic, and it is known to be a major contributing factor to stillbirths [46,47]. Medical conditions such as diabetes, candidiasis, high blood pressure, HIV, anemia, and delayed placenta as well as lack of physical activity are also risk factors that were identified as dangers to pregnancy and childbirth. These findings are consistent with a study conducted in Kenya where participants identified similar conditions as threats to positive pregnancy outcomes [48].

Our participants had a strong belief in religious-spiritual factors such as curses as risk factors in pregnancy. These beliefs are rooted in the community and are not only widespread among Ghanaians, but also exist in many cultures in sub-Saharan Africa. This belief has an influence on health care choices and decisions during pregnancy and childbirth and motivates most women to resort to herbal medicine, spiritual care (faith healing and prayer), or a combination of medical and traditional treatments during pregnancy [12,49]. In rural Zimbabwe, for example, it has been discovered that women fear being bewitched because they are thought to be vulnerable to witchcraft in the early months of pregnancy. As such, they preferred to seek protection from faith healers who are believed to possess supernatural powers to protect them and their pregnancy [50]. Similar findings have also been observed in studies in Southern America [51] and indigenous Pilipino in Southeast Asia [52]. Interestingly, this notion, according to the authors, is parallel to the biomedical perspective, which describes the early months of pregnancy as the most critical period. Unlike in many western cultures, women in Ghana fully cover their pregnancy during the entire pregnancy period. This practice is believed to protect the pregnancy from a curse, spell, or witchcraft [53].

## 5. Implications

As governments are making efforts to address the challenges of poor maternal health outcomes, the need for research that has practical applications is essential. Our findings revealed many issues that are relevant for maternal and child healthcare policies and programs for low-income women in Ghana. First, the findings suggest that many pregnant women go through psychological issues during pregnancy due to the perceived risks associated with it. Although medical interventions such as antenatal care are important during pregnancy, psychological support is equally important. Pregnancy induces physical and emotional change and increases the risk of mental illness [54]. Psychological support for women during pregnancy is therefore very important for positive outcomes. The Ministry of Health, in consultation with other relevant stakeholders such as the department of Social Welfare, should consider the implementation of social and emotional support programs that can help to alleviate the emotional stress of pregnant women, especially for poor and single women. Counseling units, specifically focusing on pregnant women, could be set up at the maternal and childcare units of health care centers to support women who need help.

Second, the belief that pregnant women could be cursed has implications for safe motherhood policies and programs in Ghana. As the findings indicated, some pregnant women use traditional medical practitioners, including faith healers, due to the belief that they could be cursed. This does not promote safe motherhood practices and should be addressed. Public health education must focus on explaining to women and communities the risk and non-risk factors associated with pregnancy and childbirth, as well as correcting misperceptions that may have a negative impact on pregnancy outcomes.

Third, the impact of poverty was a major risk factor identified by the participants. Current socio-economic conditions in the country are having dire consequences on the poor,

and this could seriously affect Ghana's quest to achieve its Sustainable Development Goal 1. Poverty among women needs serious attention through protective social interventions. The Ministry of Health and Ministry of Gender, Children and Social Protection could partner with community organizations, including churches and other religious groups, to augment government efforts to reduce poverty among deprived communities.

## 6. Conclusions

The findings of the study revealed that low-income urban women in Ghana have a wide range of knowledge and perceptions of risk factors for negative pregnancy and childbirth outcomes. The women viewed pregnancy as a unique experience, but they acknowledged that it could be affected by a host of medical and non-medical issues, which could lead to adverse pregnancy outcomes, including negatively affecting the health of the mother and the baby. Though the study focused on urban women, these risk perceptions and knowledge about pregnancy and childbirth are held by many Ghanaian women. The findings also suggest that despite efforts being made to reduce maternal morbidity and mortality in Ghana, many pregnant women are still at risk of pregnancy-related complications. This study therefore brings to the fore the need to employ multiple approaches to safe motherhood programs—social, economic, religious, and psychological—to help poor pregnant women. While these activities will reduce barriers to quality maternal healthcare, health education should be ramped up to address superstitious beliefs as well as cultural misperceptions about pregnancy risk factors.

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**Informed Consent Statement:** Verbal informed consent was obtained from all subjects involved in the study. Additionally, authorization was granted from the sub metropolitan district health administration to conduct the research.

**Data Availability Statement:** The study data are available upon request from the corresponding author and with approval from the author's institution's Research Ethics Committee.

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## References

1. Rajbanshi, S.; Norhayati, M.N.; Nik Hazlina, N.H. Risk perceptions among high-risk pregnant women in Nepal: A qualitative study. *BMC Pregnancy Childbirth* **2021**, *21*, 539. [CrossRef] [PubMed]
2. Paek, H.; Hove, T. Risk perceptions and risk characteristics. In *Oxford Research Encyclopedia of Communication*; Oxford University Press: Oxford, UK, 2017. [CrossRef]
3. Merriam-Webster Dictionary. Dictionary by Merriam-Webster: America's Most-Trusted Online Dictionary. Available online: <https://www.merriam-webster.com/> (accessed on 2 March 2022).
4. McDonald, S.; Rishby, J.; Li, S.; de Sousa, A.; Dimoska, A.; James, C.; Tate, R.; Togher, L. The influence of attention and arousal on emotion perception in adults with severe traumatic brain injury. *Int. J. Psychophysiol.* **2011**, *82*, 124–131. [CrossRef] [PubMed]
5. Heaman, M.; Gupton, A.; Gregory, D. Factors influencing pregnant women's perceptions of risk. *Am. J. Matern. Child Nurs.* **2004**, *29*, 111–116. [CrossRef] [PubMed]
6. Slovic, P. (Ed.) *The Perception of Risk*; Earthscan: Sterling, VA, USA, 2000.
7. Kahneman, D.; Slovic, P.; Tversky, A. *Judgement under Uncertainty: Heuristics and Biases*; Cambridge University Press: Cambridge, UK, 1982.
8. Lennon, S.L. Risk perception in pregnancy: A concept analysis. *J. Adv. Nurs.* **2016**, *72*, 2016–2029. [CrossRef]

9. Carolan, M.C. Towards understanding the concept of risk for pregnant women: Some nursing and midwifery implications. *J. Clin. Nurs.* **2009**, *18*, 652–658. [CrossRef] [PubMed]
10. Kim, J.S.; Choi, J.S. Middle East respiratory syndrome-related knowledge, preventive behaviours and risk perception among nursing students during outbreak. *J. Clin. Nurs.* **2016**, *25*, 2542–2549. [CrossRef]
11. Agus, Y.; Horiuchi, S.; Porter, S.E. Rural Indonesia women' traditional belief about antenatal care. *BMC Res. Notes* **2012**, *5*, 589. [CrossRef]
12. Dako-Gyeke, P.; Aiken, M.; Aryeetey, R.; Mccough, L.; Adongo, P.B. The influence of socio-cultural interpretations of pregnancy threats on health-seeking behavior among pregnant women in urban Accra, Ghana. *BMC Pregnancy Childbirth* **2013**, *13*, 211. [CrossRef]
13. Wheeler, S.M.; Massengale, K.E.C.; Adewumi, K.; Fitzgerald, T.A.; Dombeck, C.B.; Swezey, T.; Swamy, G.T.; Corneli, A. Pregnancy vs. paycheck: A qualitative study of patient's experience with employment during pregnancy at high risk for preterm birth. *BMC Pregnancy Childbirth* **2020**, *20*, 565. [CrossRef]
14. Bayrampour, H.; Heaman, M.; Duncan, K.A.; Tough, S. Advanced maternal age and risk perception: A qualitative study. *BMC Pregnancy Childbirth* **2012**, *12*, 100. [CrossRef]
15. Radon-Pokracka, M.; Adrianowicz, B.; Plonka, M.; Danil, P.; Nowk, M.; Huras, H. Evaluation of pregnancy outcomes at advanced maternal age. *Maced. J. Med. Sci.* **2019**, *7*, 1951–1956. [CrossRef] [PubMed]
16. Sangrin, S.; Phonkusol, C. Perception of pregnancy risk and related obstetric factors among women of advanced maternal age. *Pac. Rim Int. J. Nurs. Res.* **2021**, *25*, 494–504.
17. Silva, T.V.; Bento, S.F.; Katz, L.; Pacagnella, R.C. "Preterm birth risk, me?" Women risk perception about premature delivery—A qualitative analysis. *BMC Pregnancy Childbirth* **2021**, *21*, 633. [CrossRef] [PubMed]
18. Londeree, J.; Nguyen, N.; Nguyen, L.H.; Tran, D.H.; Gall, M.F. Underestimation of pregnancy risk among women in Vietnam. *BMC Women's Health* **2020**, *20*, 159. [CrossRef]
19. Lee, S. Risk perception in women with high-risk pregnancies. *Br. J. Midwifery* **2014**, *22*, 8–13. [CrossRef]
20. Lee, S.; Holden, D.; Webb, R.; Ayers, S. Pregnancy related risk perception in pregnant women, midwives & doctors: A cross-sectional study. *BMC Pregnancy Childbirth* **2019**, *19*, 335.
21. Regan, M.; McElory, K. Women perceptions of childbirth risk and place of birth. *J. Clin. Ethics* **2013**, *24*, 239–252.
22. Janson, I. Decision making in childbirth: The influence of traditional structures in a Ghanaian village. *Int. Nurs. Rev.* **2006**, *53*, 41–46. [CrossRef]
23. Anafi, P.; Mprah, W.K.; Buchanan, D.R.; Gubrium, A.C.; Faulkingham, R.; Barton-Burke, M. Motivations for preference for non-formal maternal health care in low-income communities in urban Ghana. *Int. J. Health Sci.* **2016**, *4*, 1–10.
24. Accra Metropolitan Assembly. 2022. Available online: <https://ama.gov.gh/> (accessed on 12 August 2022).
25. Brain, L.E.; Zweekhorst, M.B.M.; Amoako-Coleman, M.; Muftugil-Yalcin, S.; Abejirinde, I.O.; Becquet, R.; Buning, T. To keep or not to keep. Decision making in adolescent pregnancy in Jamestown, Ghana. *PLoS ONE* **2019**, *14*, e0221789. [CrossRef]
26. Greater Accra Regional Health Directorate, 2018 Annual Health Reviews. Unpublished Annual Report. Ghana Health Service.
27. Ghana Statistical Service (GSS); Ghana Health Service (GHS); ICF. *Ghana Maternal Health Survey Report 2017*; Ghana Statistical Service; Ghana Ministry of Health: Accra, Ghana; Demographic & Health Survey Program/ICF: Rockville, MD, USA, 2018.
28. Corbin, J.; Strauss, A. *Basics of Qualitative Research*, 3rd ed.; Sage Publications: Los Angeles, CA, USA, 2008.
29. Miles, M.B.; Huberman, A.M.; Saldana, J. *Qualitative Data Analysis. A Method Sourcebook*, 4th ed.; Sage Publications: Los Angeles, CA, USA, 2019.
30. Hadfield, K.; Akyirem, S.; Sartori, L.; Abdul-Latif, A.; Akaateba, D.; Bayrampour, H.; Daly, A.; Hadfield, K.; Abihiro, G.A. Measurement of pregnancy-related anxiety worldwide: A systematic review. *BMC Pregnancy Childbirth* **2022**, *22*, 331. [CrossRef] [PubMed]
31. Bright, K.S.; Premji, S.S. Cross-cultural perspectives of pregnancy-related anxiety. In *Pregnancy-Related Anxiety: Theory, Research and Practice*, 1st ed; Dryer, R., Brunton, R., Eds.; Routledge: London, UK, 2021; pp. 143–157.
32. Rubertsson, C.; Hellstrom, J.; Cross, M.; Sydsjo, G. Anxiety in early pregnancy: Prevalence and contributing factors. *Arch. Women's Ment. Health* **2014**, *17*, 221–228. [CrossRef] [PubMed]
33. Erickson, C.; Westman, G.; Hamberg, K. Experiential factors associated with child-birth related fear in Swedish women and men. A population-based study. *J. Psychosom. Obstet. Gynecol.* **2005**, *26*, 325–329.
34. Lyberg, A.; Severinson, E. Fear of childbirth: Mothers' experiences of team-midwifery care- a follow-up study. *J. Nurs. Manag.* **2010**, *18*, 383–390. [CrossRef]
35. Saisto, T.; Halmesmaki, E. Fear of Childbirth: A Neglected Dilemma. *Acta Obstet. Et Gynecol. Scand.* **2003**, *82*, 201–208. [CrossRef]
36. Ng, F.; Trauer, T.; Dodd, S.; Callaly, T.; Campbell, S.; Berk, M. The validity of the 21-items version of the Depression Anxiety Stress Scales as a routine clinical outcome measure. *Acta Neuropsychiatr.* **2007**, *19*, 304–310. [CrossRef]
37. Richmond, A.M.; Ross, N.A.; Egeland, G.M. Social support and thriving health: A new approach to understanding the health of indigenous Canadians. *Am. J. Public Health* **2007**, *97*, 1827–1833. [CrossRef]
38. Surkan, P.J.; Rådestad, I.; Cnattingius, S.; Steineck, G.; Dickman, P.W. Social support after stillbirth for prevention of maternal depression. *Acta Obstet. Et Gynecol. Scand.* **2009**, *88*, 1358–1364. [CrossRef]
39. Hotelling, B.; Amis, D.; Green, J.; Sakala, C. Care practices that promote normal birth #3: Continuous labor support. *J. Perinat. Educ.* **2004**, *13*, 16–22.

40. Abdu, J.; Kahssay, M.; Gebremedhin, M. Household food insecurity, underweight status, and associated characteristics among women of reproductive age group in Assayita district, Afar regional state, Ethiopia. *J. Environ. Public Health* **2018**, *2018*, 7659204. [CrossRef]
41. Dupuis, S.; Hennink, M.; Wendt, A.S.; Waid, J.L.; Kalam, M.A.; Gabrysch, S.; Sinharoy, S.S. Women's empowerment through homestead food production in rural Bangladesh. *BMC Public Health* **2022**, *22*, 234. [CrossRef] [PubMed]
42. Horwood, C.; Haskins, L.; Hinton, R.; Connolly, C.; Luthuli, S.; Rollins, N. Addressing the interaction between food insecurity, depression risk and informal work: Findings of a cross-sectional survey among informal women workers with young children in South Africa. *BMC Women's Health* **2021**, *21*, 2.
43. Habibov, N.N. On the socio-economic determinants of antenatal care utilization in Azerbaijan: Evidence and policy implications for reforms. *Health Econ. Policy Law* **2010**, *10*, 1–29. [CrossRef]
44. Houweling, T.A.J.; Ronsmans, C.; Campbell, O.M.R.; Kunst, A.E. Huge poor–rich inequalities in maternity care: An international comparative study of maternity and child care in developing countries. *Bull. World Health Organ.* **2007**, *85*, 745–754. [CrossRef]
45. Izugbara, C.O.; Ngilangwe, D. Women, poverty and adverse maternal outcomes in Nairobi, Kenya. *BMC Women's Health* **2010**, *10*, 33. [CrossRef]
46. Chua, M.C.; Ben-Amor, K.; Lay, C.; Neo, A.G.E.; Chiang, W.C.; Rao, R.; Chew, C.; Chaithongwongwatthana, S.; Khemapech, N.; Knol, J.; et al. Effect of symbiotic on the gut microbiota of cesarean delivered infants: A randomized, double-blind, multicenter study. *J. Pediatr. Gastroenterol. Nutr.* **2017**, *65*, 102–106. [CrossRef]
47. Elphinstone, R.E.; Weckman, A.M.; McDonald, C.R.; Tran, V.; Zhong, K.; Mwayiwawo, M.; Kalilani-Phiri, L.; Khairallah, C.; Taylor, S.M.; Meshnick, S.R.; et al. Early malaria infection, dysregulation of angiogenesis, metabolism and inflammation across pregnancy, and risk of preterm birth in Malawi: A cohort study. *PLoS Med.* **2019**, *16*, e1002914. [CrossRef]
48. Magadi, M. Poor pregnancy outcomes among adolescents in South Nyanza region of Kenya. *Afr. J. Reprod. Health* **2006**, *10*, 26–38. [CrossRef]
49. Sackey, B. Faith healing and women's reproductive health. *Res. Rev.* **2002**, *18*, 5–12. [CrossRef]
50. Mathole, T.; Lindmark, G.; Majoko, F.; Ahlberg, B.M. A qualitative study of women's perspectives of antenatal care in a rural area of Zimbabwe. *Midwifery* **2004**, *20*, 122–132. [CrossRef]
51. Jesse, D.E.; Schoneboom, C.; Blanchard, A. The effect of faith or spirituality in pregnancy: A content analysis. *J. Holist. Nurs.* **2007**, *25*, 151–158. [CrossRef] [PubMed]
52. Abad, P.J.B.; Tan, M.L.; Baluyot, M.M.P.; Villa, A.Q.; Talapian, G.L.; Reyes, M.E.; Suarez, R.C.; Sur, A.L.D.; Aldemita, V.D.R.; Padilla, C.D.; et al. Cultural beliefs on diseases causation in the Philippines: Challenges and implications in genetic counseling. *J. Community Genet.* **2014**, *5*, 399–407. [CrossRef] [PubMed]
53. Anafi, P. Understanding Maternal Health Care Seeking Behavior in Low-Income Communities in Accra, Ghana. Ph.D. Thesis, Graduate School of the University of Massachusetts Amherst, Amherst, MA, USA, 2012. Available from Proquest. AAI3518207. Available online: <https://scholarworks.umass.edu/dissertations/AAI3518207> (accessed on 3 August 2022).
54. Bedaso, A.; Adams, J.; Peng, W.; Sibbritt, D. The relationship between social support and mental health problems during pregnancy: A systematic review and meta-analysis. *BMC Reprod. Health* **2021**, *18*, 162. [CrossRef] [PubMed]