


Management of Pregnancy in Mining Areas in Burkina Faso: Perception of Women's Professional Risks and the Role of Communities, and Development of Prevention Strategies

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Abstract

Objective: Women of childbearing age in the mining sector in Burkina Faso engage in various activities that expose them to professional risks affecting their pregnancies. This study aims to analyze their perceptions of these risks and the role of communities in managing their pregnancies. **Methodology:** The research is a qualitative exploratory study, using a case-study approach with purposive sampling. Data were collected through interviews, non-participant observations, and document review among 14 artisanal miners. The thematic analysis based on the Braun and Clarke approach was applied, and data were manually analyzed. **Results:** Fourteen artisanal miners (ages 18 to 34; mean age: 24.57 years with a work experience of 2 to 10 years; mean work experience: 5.57 years) participated in the study, including 11 non-educated women. Activities were performed using rudimentary tools in an unhealthy and hazardous environment without protective measures. The majority (85.71%, or 12 women) perceived some risks associated with their work, both for themselves and their babies. As a result, they developed personal initiatives such as reducing the pace of work and resting when tired. However, they noted low community involvement, which had negative health and occupational consequences. **Conclusion:** Sensitization interventions targeting women and

communities are needed to improve pregnancy management in this hazardous workplace environment.

Keywords

Perception of Professional Risks, Community Participation, Prevention Strategies, Pregnancy Management, Burkina Faso

1. Introduction

Artisanal and Small-Scale Mining (EMAPE) plays a crucial economic role in many developing countries, including Burkina Faso, where it provides income for millions of people, including a significant proportion of women. Despite its economic benefits, EMAPE is associated with considerable health and environmental risks, particularly for vulnerable groups such as pregnant women and expectant mothers. These risks include chronic exposure to toxic chemicals like mercury, poor working conditions, and physical and psychological violence [1]. However, knowledge about the management of pregnancies in these hostile environments remains limited, highlighting a significant gap in scientific literature.

In 2017, EMAPE accounted for 17% - 20% of global gold production and employed between 14 - 19 million people, including 4 - 5 million women and children [1] [2]. These figures underscore the importance of the sector, both economically and socially, although it remains a significant source of mercury exposure, a neurotoxin known for its harmful effects on human health [3]. To reduce these impacts, the Minamata Convention, adopted in 2013 and came into effect in 2017, aims to limit the use of mercury, with particular attention given to vulnerable groups such as pregnant women [3].

In Africa, EMAPE has experienced exponential growth since the early 2000s, employing over 8 million artisanal miners, including around 40% - 50% who are women. The proportions vary by country: in Tanzania, 40% of miners are women, while in Zimbabwe, it's 50%. In Senegal, EMAPE employs approximately 31,000 people, with nearly half being women [4]. These figures demonstrate that women play a crucial role in this sector, often seeking alternative sources of income due to climate and economic pressures [5] [6].

In Burkina Faso, artisanal gold mining has a long history but experienced rapid growth in the past two decades, commonly referred to as the "gold rush" [7]. The number of mining sites increased from 10 in 2003 to approximately 700 in 2018. Additionally, the active workforce grew to around 1.2 million people, with 45% being women [7]. Women actively participate in all stages of the supply chain, including the most dangerous ones, while facing physical, chemical, and psychological risks exacerbated by poor working conditions and limited access to information [8] [9].

In 2017, the World Health Organization (WHO) reported that many health

problems associated with work and environment are linked to artisanal gold mining in a context marked by low perception of risks among miners themselves [2]. Furthermore, organizations such as Artisanal Gold Council (AGC), United Nations Development Programme (UNDP), and World Wildlife Fund (WWF) emphasize that this situation is aggravated by the lack of community involvement in risk management on mining sites [10]. This leads to multiple violations of workers' rights, particularly women during pregnancy on artisanal gold mining sites. Given this context of vulnerability, it becomes crucial to analyze women's perceptions regarding exposure to professional risks and the role of communities in managing pregnancies in this environment. Such an analysis will help identify strategies implemented by artisans to minimize these risks, especially those with adverse effects on reproductive health.

2. Methodology

2.1. Study Site

The study was conducted in the Southwest region, one of the thirteen (13) regions that make up Burkina Faso. This region covers an area of 16,318 km², which is approximately 6% of the national territory. Artisanal gold mining has experienced significant growth in this region, affecting almost all four urban and twenty-four rural communities. For example, according to the official map from June 2022, there were over three hundred clandestine sites and eighty active sites, out of which only seven (7) were officially registered at the mining cadaster. The artisanal gold mine site in Diarkadougou is located approximately forty kilometers from Diébougou, the capital of the province. Its economy mainly relies on agriculture, livestock farming, artisanal gold mining, and transfrontier trade. The artisanal gold mine in Diarkadougou has been operational for about ten years and hosts an estimated population of three thousand people, including miners, collectors of gold, service providers, and indigenous communities. Women represent 20% to 30% of this population and primarily participate in the processing of minerals and small-scale trade. A health center and social promotion center (CSPS) was inaugurated in 2018 and serves the residents, falling under the jurisdiction of the Diébougou district sanitary office.

2.2. Study Type

The study was a qualitative case study with an exploratory aim, using several units of analysis according to Yin's typology [11]. According to him, qualitative studies are suitable for researching social phenomena that are difficult to quantify and can be used to explain, describe or explore events or phenomena in their real context. Qualitative methods are particularly appropriate for exploring social phenomena in their natural environment and answering questions such as "why" and "how". The study focused on women of childbearing age working at the site, evaluating their perceptions of exposure to risks and community participation in pregnancy management, as well as developing prevention strategies to address

these threats.

2.3. Study Population

The target population included women of childbearing age who were actively involved in mining activities on the site. All women of childbearing age, active on the site and available during the data collection period, and who gave informed consent to participate in the study were included. The study population consisted of breastfeeding artisanal miners (Artisanes Minières Allaitantes AMA) and pregnant artisanal miners (Artisanes Minières Enceintes AME).

2.4. Sampling and Sample Size

A purposive sampling method was used to select cases that could provide relevant information on exposure levels, perceptions, and community participation in pregnancy management at mining sites. This type of sampling allows for a diverse range of perspectives on the central themes of the study, including exposure levels, risk perceptions, and community involvement in managing pregnancy during mining activities. The sample was designed to obtain greater diversity in data sources. A sociodemographic questionnaire was used to ensure this diversity. For internal diversification, we considered criteria such as age, level of education, marital status, duration of employment, number of living and deceased children, and abortion history. External diversification involved considering the participant's sex. The sample consisted of women who met the inclusion criteria. The final sample was determined by saturation during data collection. Saturation was achieved after 14 interviews because at this point, the information collected began to repeat itself, and there were no new insights in the participants' discourse.

2.5. Data Collection and Analysis

The data collection method involved semi-structured interviews (interview guide), conducted with artisanal miners to collect in-depth information; non-participant observation (observation grid) to describe the working conditions, tools and products used, as well as protective equipment seen; and document review (journal of field notes and analytical checklist pretested) by analyzing medical records and relevant NGO reports. Data collection took place from April 9th to 30th, 2022 in French and national languages (Mooré and Dioula), with audio recordings of interviews after obtaining consent from participants. Interviews were conducted at the Centre for Health and Social Promotion (CSPS) on the "Yaar" market site and on gold mining sites. Observations complemented the data to capture the context of work. The collected data were transcribed and analyzed thematically according to Braun and Clarke [12]. Emergent themes were organized using an analytical matrix. The triangulation of sources of data was carried out to strengthen validity.

Ethical Considerations

The study was approved by the Research Ethics Committee of Burkina Faso

(Decision No. 2022-03-065). Informed consent was obtained, and data were collected in complete confidentiality. Data retention period was set at 12 months.

3. Results

3.1. Demographic Characteristics of Participants

A total of fourteen (14) participants, all artisanal miners, participated in the study, with five Artisanas Minières Enceintes (AME) and nine Artisanas Minières Allaitantes (AMA). The age range of participants was between 18 and 34 years old, with an average of 24.57 years. Participants' professional experience in the mining industry ranged from two to ten years, with an average of 5.57 years. All participants were married. In terms of their maternal history, three had a history of spontaneous abortion, one was facing a threat of abortion during the interview, and another had lost two babies, one on the day of birth and the other 48 hours after. In terms of education level, eleven were non-schooled (NS), one attended the École Coranique (EC), one had a primary school level (PR) and one had a secondary school level (SE). In terms of work organization, six were independent, while eight worked alongside their husbands (**Table 1**).

Table 1. Socio-demographic characteristics.

Code surveyed	Age (Year)	Professional experience on site	Education level
AME1	29	10	Out of School (OOS)
AME2	18	02	Out of School (OOS)
AMA1	21	05	Out of School (OOS)
AME3	34	08	Out of School (OOS)
AMA2	19	03	Out of School (OOS)
AMA3	30	07	Out of School (OOS)
AMA4	19	10	Grade 8
AME4	18	02	Grade 3
AMA5	20	04	Koranic school
AMA6	30	05	Out of School (OOS)
AMA7	30	05	Out of School (OOS)
AMA8	29	02	Out of School (OOS)
AMA9	23	10	Out of School (OOS)
AME5	24	05	Out of School (OOS)

Source: Results of survey conducted from April 9th to 30th, 2022.

3.2. Description of Work Activities

Artisanal miners participate in all aspects of gold mining, including exploration, extraction, crushing, transportation, sorting, processing and commercialization. These activities expose them to various health risks.

The following quotes illustrate the different stages of these activities: “*We dig up the soil from the pits and then wash it. If you want, you can go down into a pit and take out some soil for washing. If not, we ask people to help us.*” (AME4-18-PR)

The following statements were always made in the same sense, using these terms:

[...] *some send soil to me, and I stay on top for washing. If something comes up or the soil is collected we remain there, otherwise we change location. These are men who do it. I only deal with washing. There are others who handle lifting the soil* (AME5-24-OOS).

Another artisan advanced that:

When we wake up in the morning, we go into the bush to find gold, as it is far from the village, we have always been afraid of being attacked. Gold is found in “Kûg-gaase” (stones), so men dig and wash them to remove the gold. We, since we cannot dig, collect what they have washed, put it into plates. We wash to remove the gold that is inside. By God’s grace, you can find a little bit. That’s how we work (AMA3-30-OOS).

The observation showed that artisanal miners used all tools as if they were hammers or chisels, picks, shovels, pots, bars of ore, wooden scales, plastic bags, barrels, carpets, basins, and soap. These three extracts from verbatims corroborate the observation: “*Our work tools are the picks and shovels. So we use them to collect ‘Bûka’ (earth) in the plates. There are two plates, the big one and the small one.*” (AMA3-30-OOS)

One other added: “*We work with hammers, barrels, carpets, and water.*” (AME2-18-OOS) The interviewee (AMA9-23-OOS) said: “We work with hammers, chisels, and basins.”

Regarding the working environment, some women described the environmental realities they faced. For example, the interviewee (AMA1-29-OOS) stated: “There may be diseases; we know that when washing, there may be diseases, especially when it’s a new site, it’s dust, noise, and fights.” The sites were impractical and unhealthy. “There are holes, if a woman falls into one, it will create problems for her.” (AMA8-29-OOS) “Yes, there really is too much of that hole. You just have to be careful not to fall in it, otherwise it’s not good.” (AMA7-30-OOS) The lack of potable water forced miners to drink surface waters and unprotected wells. This was evident in these quotes: “The water there makes you tired. If you want to urinate, it hurts you. Yes, if you just drink, it hurts you.” (AMA4-19-SE) Another woman claimed that “The water there is not clean. Often there are impuri-

ties in it. It can create problems but if you don't do it, you'll get sick. Any disease.” (AME4-18-PR)

In addition to these verbatims, our observations showed that at the mining sites, the working environment was filled with galleries, mud, non-potable water, and sometimes disputes between artisanal miners. At the Yaar site, the environment was filled with dust, noise from machines, mud, galleries, stagnant polluted water, and garbage. Most of the artisanal miners, especially migrants, lived on the treatment sites for mineral ores (**Photo 1**).



Source: Field investigation, April 2022.

Photo 1. View of artisanal miners at work.

Perception of Risks in Women's Occupational Exposures

The perception of risks is a crucial factor in the apprehension of risks associated with work conditions and environment. Most artisanal miners have indicated varying degrees of awareness about the risks related to their professional activities and their potential effects on their health and that of their babies. For example, one artisanal miner stated: “*As this is a job of 'Bûka' (earth), it can create many problems for the fetus inside. The dust we inhale creates problems within us. It's because we don't know what we are doing except that with this work we create problems, and for ourselves and for the fetus...*” (AME3-34-OOS)

Another artisanal miner stated experiencing abdominal pains and digestive issues due to their work environment: “*When I work, I have a stomachache... The noise, yes it hurts us but we just pay attention. The dust makes me nauseous.*” (AME2-18-OOS) This miner perceived risks of abortion and miscarriage, stating that “*If you're pregnant and want to do this job, it can harm the pregnancy because it's too hard.*” (AMA8-29-OOS) Another artisanal miner stated: “*Mostly it's not good for our health but we have nothing else to do. Even this child, I had him and continued working until delivery and it was an operation*” (AME1-29-OOS), indicating potential complications during labor which they experienced.

For some participants, however, their work was perceived as a risk-free activity for pregnancy: The statements of (AMA2-19-OOS) suggested this: “*Nothing can harm, you just have to work a little bit to avoid suffering on the day of delivery. It's not sitting without doing anything that causes fatigue. Noise and dust from the site don't cause anything.*” (AMA6-30-OOS) also supported this viewpoint:

“We don’t think there’s anything dangerous that can happen to pregnancy. We just come to work.”

Thus, it was noted that there were sometimes differences in perceptions about exposure to professional risks that could impact the management of pregnancy.

Actions taken to protect pregnancy

A majority of artisanal miners (9 out of 12 female miners who perceived the risks) have adopted certain strategies to preserve their health and that of their baby, such as reducing their work rhythm or establishing periods of rest. The testimonies gathered from this artisanal miner attest to this: “At least once you know you’re pregnant, you can’t work the same way anymore, so you start taking it easy a little bit. Sometimes you can still work until you drop, but as soon as you’re pregnant, you take a break and then pick up where you left off.” (AMA1-21-OOS) Another one says: “During pregnancy, we worked, but when you notice that you’re tired, you rest. If the work is hard, you know something could happen to you. You can feel that part of your body hurts, so at that moment you leave the work and rest.” (AMA3-30-OOS) However, for some participants, a lack of resources and inadequate protection led to resignation and absolute trust in divine will: “We have no other choice but to keep working, God protects us.” (AMA8-29-OOS)

3.3. Prenatal Care

Prenatal care is essential for detecting complications during pregnancy and ensuring the well-being of both mother and baby. A majority of artisanal miners reported regularly consulting healthcare facilities: “When I found out I was pregnant, I went straight to make the consultations and every month I made a consultation.” (AME3-34-OOS) However, some miners did not follow recommended prenatal care schedules due to various obstacles such as limited access to healthcare services and poor organization of consultations. The delay in prenatal care was noted among several participants, some having started consultations too late, which is clearly reflected in the testimonies and consultation records (AMA8-29-OOS). One participant declared: “I want to start this month” (AME4-18-PR), although she was four months pregnant and had not yet begun receiving prenatal care. She had a history of threatened miscarriage. Another (AMA9-23-OOS) told us about her experiences during pregnancy: “I consulted at least five times, but sometimes you can go, and they’ll tell you there are no consultations today. They’ll tell you to come back tomorrow and when you come back tomorrow, you won’t have it.” She gave birth without prenatal care according to our investigations.

Search for healthcare in case of health problems

When artisanal miners face health problems, most have expressed their desire to consult healthcare facilities, which reflects their awareness of the dangers associated with their health during pregnancy. Some have described having to seek medical attention due to health issues. The AMA4-19-SC participant stated: “It was my back that tired me out. I came to the hospital here and they gave me an

injection, and since then it's been over." During childbirth, her baby also experienced palpitations, and she was sent to the hospital for further treatment (**AMA4-19-SC**). The responses reflect the miners' understanding of the consequences of health problems on pregnancy and their willingness to seek medical attention if necessary. Despite feeling limited by their working conditions, they recognize the importance of maintaining their health during pregnancy.

3.4. Perception of Community Participation in Pregnancy Management in Artisanal Mining Communities

Pregnancy requires support and sharing of experiences from the surrounding environment. The involvement of partners, family members, colleagues, healthcare professionals, NGOs, and OSC plays a crucial role in managing pregnancy.

Support from partners for health problems related to pregnancy

Support from partners is a fundamental element in managing pregnancy, especially for women who are pregnant and working in precarious environments such as artisanal mining. A small number of men (five) advised their pregnant wives to stop work on the site. However, most remained indifferent. The support varied from strong, where some husbands firmly recommended stopping work to preserve the health of the pregnant wife, to a certain degree of indifference, where some partners did not provide specific recommendations. An analysis of verbatims revealed different forms of support or indifference, as shown by the testimony of (**AME2-18-OOS**) who said: "He told me to rest and stop working." Similarly, this woman: "He told me that if it's pregnancy, you have to stop work here. The work is hard..." However, other women refused to stop working, citing economic reasons and conjugal support. For example, (**AME5-24-OOS**) said: "Even if he doesn't accept it, we'll figure out how to do it. We'll work a little bit here and there. Sometimes when you ask and he says no, you can't force him because you see that the work is difficult." On the other hand, some partners remained indifferent to the working conditions, as shown by the testimony of (**AME7-30-OOS**): "He didn't say anything. (Laughs) He didn't say not to work." Our field observations confirmed that pregnant women often continued to work on the site despite their pregnancy, which could have a negative impact on the outcome of their pregnancy.

Support from family during pregnancy

The majority of participants reported living only with their husband and young children on the site, with little or no support from their families to manage their pregnancies. One participant explained: "We are not here with the family; it's just my husband and me. Even our children aren't here because it's dangerous. When the child grows up, he goes home, and we stay here to work." (**AME1-29-OOS**) Two others said respectively: "I am not with other members of the family. It's just me and my husband" (**AME2-18-OOS**) and "I live alone with my husband here" (**AMA9-23-OOS**). However, some participants recognized receiving support from their families on site, especially from their in-laws, such as help buying baby

clothes and other necessities for childbirth.

3.5. Support from Colleagues During Pregnancy

The support of colleagues at the workplace was generally absent or limited, according to the testimonies. Most participants worked individually, which reflects a lack of solidarity. One participant said: “Everyone stays on their own side, there’s no help.” (AMA3-30-OOS) However, some artisans highlighted more marked efforts of solidarity, such as exchanging advice or helping with lighter tasks. “M’bon! Some women help us. When they see that you can’t do it, for example if they see that you can’t pull water, if they see that you can’t pull, they come and pull for you so you can wash too.” (AMA9-23-OOS)

3.6. The Role of Healthcare Professionals in Managing Pregnancy

The actions of healthcare professionals, especially during prenatal consultations, are crucial for the management of pregnancy among artisanal miners. Almost all participants recognized the support provided by healthcare agents, who provided care, medication and advice to prevent complications related to pregnancy. Testimonies from (AME3-34-OOS) and (AMA1-21-OOS) highlight the importance of free access to health services and medications, as well as the need for regular consultations to ensure the health of mothers and future children.

3.7. Actions of NGOs and OSC in Managing Pregnancy

Despite the presence of various healthcare organizations, no artisanal miner reported receiving specific support from NGOs or OSC on site at Diarkadougou. The testimonies collected emphasized the absence of interventions or programs specifically designed for this vulnerable population. For example: “I haven’t seen anyone come to work with us yet to exchange ideas about our health.” (AME3-34-OOS) This raised questions about the effectiveness of actions by these partners in the local context.

4. Discussion

The sociodemographic characteristics of the participants reflected significant vulnerabilities rooted in their dual roles as workers and caregivers, highlighting a precarious balance between survival needs and family responsibilities. Most participants were young women aged 18 to 34 years old, who took care of children. Reproductive health vulnerabilities were evident, with three participants reporting miscarriages and others describing traumatic childbirth experiences, further exacerbating their precarious situation.

The exposure of artisanal miners to professional risks significantly influences their perception and management of pregnancy. Several studies have shown that workers in the artisanal mining sector are exposed to poor working conditions, marked by prolonged exposure to chemicals, dust, and heavy physical loads, increasing the risk of obstetric complications [13] [14]. In our study, most artisanal

miners surveyed recognized the risks to their own health and that of the fetus, including diffuse pain, digestive problems, increased risk of abortion, and complicated deliveries. These perceptions align with those of Ouédraogo [15], who found in a rural community that women were afraid of mining due to its perceived danger and incompatibility with pregnancy. An study conducted in the Democratic Republic of Congo by Mbambi and Kankolo [16] also confirms that miners are aware of the negative impacts on their reproductive health. However, our results differ from those of Roamba [17], who found that a majority of women surveyed were completely unaware of the risks associated with professional exposure in Bouroum. This discrepancy could be explained by differences in sensitization and access to health information according to geographical and socio-economic contexts.

In the face of these risk perceptions, our results show that nine out of twelve conscious miners adopt strategies to protect their health and that of the fetus. These strategies include reducing workload, taking breaks when tired, and in some cases temporarily stopping activity. These behaviors align with those observed by Ouédraogo [5], who found that pregnancy required artisanal miners to interrupt their activities. This trend is also confirmed by these authors [18] who studied the working conditions of pregnant women in artisanal mines in Tanzania and noted a reduction in activity as pregnancy progressed.

Another key aspect of managing pregnancy in this context is access to prenatal care (PNC). In our study, out of 14 artisanal miners, 12 had at least one consultation. However, none were able to follow the recommended eight contacts by WHO. This finding is similar to that of Ouédraogo [15], who observed an irregular follow-up of prenatal care among artisanal miners. The low adherence to the follow-up schedule can be explained by economic constraints, workload and lack of adapted medical infrastructure. On the other hand, Kossixavi *et al.* [19] reported better compliance with prenatal consultations in another population of female miners, suggesting that access to healthcare services and sensitization campaigns may play a determinant role in adopting prenatal care.

Beyond prenatal care, managing complications is a critical issue. Our results show that artisanal miners generally turn to healthcare facilities in case of health problems, behavior already noted by Ouédraogo [15], who observed that women miners often consulted late at hospitals due to financial and organizational constraints. This trend is reinforced by an ANEEMAS study [20] conducted in the Southwest region of Burkina Faso, which indicates that 83% of artisanal mine workers, including 29% women, use healthcare facilities when sick. This tendency can be explained in part by the proximity of some mines to healthcare infrastructure, compared to more isolated areas where access is limited.

Therefore, although artisanal miners develop strategies for protection and have access to prenatal and curative care, the challenges related to poverty, working conditions and access to healthcare services remain significant. Increased sensitization and improved healthcare infrastructure near mining sites could help better manage maternal and infant health risks in this high-risk sector.

The support of the spouse plays a crucial role in protecting pregnant women from difficult working conditions. Our results show that some spouses recommend stopping work during pregnancy, which contradicts Ouédraogo's observation [5] about frequent abandonment of pregnant women on mining sites. Although family is generally an important source of support during maternity [21], our data reveal that most artisanal miners manage their pregnancies alone, often far from their families due to migration limiting familial assistance [10]. Solidarity among colleagues remains weak, with each miner having to meet their own needs. However, a form of solidarity is manifested through the transmission of taboos and advice related to pregnancy [5]. Healthcare professionals also play a crucial role in following pregnancies. Our results show that the existence of a healthcare center near the site facilitates access to prenatal care and free medications, contributing to reducing maternal-fetal mortality. However, other contexts, such as in RDC, reveal significant barriers to accessing healthcare due to distance and limited infrastructure [16]. NGOs and OSC seem to be poorly involved in managing pregnancies on mining sites, limiting access to support initiatives. This result is confirmed by ANEEMAS [20] which found a lack of community health actions, promoting self-medication and obstetric complications. It should be noted that the security context, as well as the strengthening of State control over the legality of associations, have constituted a brake on the interventions of NGOs. However, positive initiatives exist elsewhere, such as the Association of Women Miners in Burkina Faso (AFEMIB), which accompanies women to alternative economic opportunities [22].

5. Conclusion

This study analyzed the perceptions of artisanal miners regarding professional risks and community management during pregnancy in mining environments. The results show that most artisanal miners recognize some dangers associated with their work for both their health and that of the fetus, although some consider it beneficial. In response to these risks, some adopt strategies such as reducing workload or resting, while others continue working until delivery. Frequent attendance at healthcare centers for prenatal care is relatively common, but adherence to recommended schedules remains insufficient.

Community participation in the management of pregnancy on mining sites is limited. Few spouses encourage women to stop working during pregnancy, and familial support is often absent due to distance. Colleague solidarity remains weak. Furthermore, no NGO/OSC action has been reported for accompanying pregnant women on mining sites. However, access to healthcare centers and the free nature of services are effective for artisanal miners at the site, although they use them sparingly.

These results highlight the urgency of implementing measures to improve the health and safety of pregnant women working in mining sites. Among these actions, it is essential to strengthen awareness of professional risks, particularly ob-

stetric risks, improve access to prenatal care, train artisanal miners on income-generating activities to encourage preventive withdrawal from work during pregnancy, reinforce community involvement in implementing safety measures, and develop health policies adapted to the needs of artisanal miners. Collaboration between different actors involved in sexual and reproductive health is indispensable for an appropriate management of pregnancy in mining environments, contributing to better health outcomes for pregnant women and reducing associated complications.

Although this study provides a basis for reflection on the management of pregnancy and health promotion among women in mining sites, it presents some limitations. The qualitative nature of the approach relies on perceptions and testimonies from artisans, which may limit generalization of results. Additionally, the study has focused exclusively on women, excluding other key actors in the mining industry. However, future research will specifically examine the perspectives of male partners and community leaders. This would facilitate the design of interventions to address low community engagement, which has been identified as a major problem.

However, the methodology employed allows for a deep understanding of the dynamics at play and opens up avenues for future research. It would be relevant to expand investigations to artisanal miners, community leaders and religious figures, as well as healthcare professionals, in order to propose more adapted and targeted interventions for optimal management of pregnancies in mining environments.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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