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Research Article

Examining Ghanaian Midwives' Health Education Facebook Posts on Prenatal/Antenatal Care

Rachel G. A. Thompson,[1] **Ebenezer Agbaglo**,[2] **Jerry John Ouner**,[3] **Tricia Thompson**,[4] **and Julene K. Johnson**[5]

[1]*Language Center, College of Humanities, University of Ghana, Accra, Ghana*
[2]*Department of English and Communication, Faculty of Humanities, The Hong Kong Polytechnic University, Hong Kong SAR, China*
[3]*Family Health Care Nursing Department, School of Nursing, University of California, San Francisco, California, USA*
[4]*Research Department, Africa Interdisciplinary Research Institute, Accra, Ghana*
[5]*Institute for Health and Aging, School of Nursing, University of California, San Francisco, California, USA*

Correspondence should be addressed to Rachel G. A. Thompson; rthompson@ug.edu.gh

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Social media have become an important site for the dissemination of health information by health professionals, especially midwives who use them to debunk myths, empower women with knowledge, address common concerns, and foster a sense of community among pregnant women and new mothers. The present study examined the pregnancy-related health information posted by three Ghanaian midwives on their Facebook pages. First, the midwives recommended some specific diets believed to contain nutrients important to the health of pregnant women and their unborn babies. Second, they encouraged sex during pregnancy, unless there is any medical condition that prohibits it. Third, the midwives cautioned against the use of herbal medicine whose dosage has not been prescribed and whose efficacy has not been confirmed by medical experts. The midwives also emphasized that it is essential for every pregnant woman to have a support person who will remind her of crucial information and check on her to ensure that she is in good health. Finally, they provided information on sleep and physical activity, where they commented particularly on sleep posture of the pregnant woman and the importance of exercise to her health and that of the unborn baby. Overall, these findings foreground topical areas for health campaigns and interventions on maternal health in Ghana and serve as a catalyst for further research in this area.

1. Introduction

Research shows that dissemination of health information through social media by healthcare providers is increasing [1]. Health information shared on social media is accessible to a wider audience as it is often simplified by the healthcare providers. Users can connect, engage, and find a wide range of evidence-based information for free on mobile devices if they have access to the internet [2]. While there is evidence that social media facilitates rapid knowledge sharing between the general public and health practitioners, there is also evidence that due to the lack of gatekeeping on many social media platforms, there is room for the spread of misinformation [3–5].

The most popular social media platform where people seek and share information is Facebook [6]. Various healthcare providers including midwives reach out to a larger audience and provide evidence-based health information through Facebook [7]. As an open social media platform with an extensive user-base and user-friendly interface, Facebook offers midwives a unique opportunity to connect with expecting mothers. They are able to share valuable insights on prenatal care, childbirth, breastfeeding, postpartum recovery, and other relevant topics through posts of text, images and videos, live sessions, and other interactive discussions. The midwives debunk myths, empower women with knowledge, address common concerns, and foster

a sense of community among pregnant women and new mothers [8].

The World Health Organization (WHO) recommends that pregnant women worldwide should have access to prenatal care [9]. Apart from medical screening and necessary vaccinations, prenatal care sessions provide adequate information and advice for healthy lifestyles during pregnancy. Globally, Ghana is one of the countries in sub-Saharan Africa with high maternal mortality rates [10]. The Ministry of Health and Ghana Health Service has developed policy guidelines to ensure universal access to education, increase universal access to family planning and reproductive and sexual health services, and lower the rates of infant, child, and maternal deaths in Ghana in an effort to meet Sustainable Development Goal (SDG) target 3.1 by 2030 [11].

A policy that has been implemented since 2000 is the Community-Based Health Planning and Services (CHPSs) initiative [12, 13]. The CHPS program aims to fulfill the then-millennium development goals 4 and 5 targets, which are now the SDG 3, by providing easy access to mother and child health services in every community in Ghana, including remote ones. CHPS centers serve as the initial point of contact for basic healthcare services in various locations. These institutions employ community health nurses with specialized training and a foundational understanding of obstetrics. According to Nyonator et al. [14], they check expectant mothers, offer prenatal care, aid with birthing, and refer women to advanced healthcare centers when needed.

Also introduced in 2008 was the "Free" Maternal Healthcare Policy (FMHCP). Under this policy, all pregnant women in Ghana must enroll free of charge in the national health insurance plan (NHIS). NHIS-accredited healthcare facilities offer complete maternal healthcare services to enrolled pregnant women at no cost, including follow-up treatment for up to 90 days following delivery [15]. All three maternal health indicators—antenatal care (ANC), facility-based delivery, and postnatal care—have improved since the NHIS began, despite differences in maternal health services and the financial burden on families [11]. According to Abuosi et al. [16], there has been a rise in the proportion of women in Ghana who have accessed antenatal services during their first trimester and have received at least four prenatal care checkups from trained health professionals. These findings are consistent with standard prenatal care guidelines recommended by the WHO [9].

Another emerging innovation for easy access to health information, especially among the educated, is social media. Previous studies in Ghana have revealed that Ghanaians from diverse socioeconomic backgrounds with a smartphone use the internet for different purposes [17, 18]. Sasu [19] reported that in January 2021, the number of internet users in Ghana reached a total of 15.7 million, representing half of the population at the time. She added that as of May 2023, there was an estimated number of 8.7 million Facebook users in the country. The use of social media to search for medical information or for specific health purposes including health campaigns, health interventions, and medical education is not a new phenomenon [20, 21]. However, existing studies have mainly focused on developed countries, with little research work done in Africa. This study contributes to filling this knowledge gap by providing fresh insights to realize the potential of social media in midwifery care in sub-Saharan Africa. Specifically, it aims at examining the content of health information disseminated by professional Ghanaian midwives to pregnant women on Facebook.

2. Methodology

2.1. Data Collection and Management. We performed a thorough search on Facebook to locate community pages that featured posts on pregnant and postpartum women that were openly accessible (such as texts, photographs, videos, and links to articles). The inclusion requirements were satisfied by active community pages with at least 30 text postings from licensed midwives over the course of the previous 365 days. Between 2019 and 2021, three Facebook community pages were established and hosted by Ghanaian midwives. These community pages had a combined following of over 30,000. As a best practice, efforts were made to pseudonymize the account information of these community pages, even though the content on them is accessible to the public. Thus, Afi, Adwoa, and Jane are used in place of the real names of the midwives in the running text and extracts.

We collected all text posts that appeared on these three pages between January 1, 2021, and February 2, 2024. The three community pages contributed a total of 378 text posts. They were divided into three categories based on the themes. At first, the text posts were divided into categories based on whether they were about pregnancy, childbirth/labor, or postpartum care. The following categories were applied to those that were classified as related ($n = 245$): (1) interaction-generating question; (2) promotional (promotional advertisements of goods and services); (3) experiential (midwives' or pregnant/postpartum women's experiences); (4) motivational; and (5) educational (information about pregnancy, childbirth, and postpartum/baby care). Based on the aim of this paper, a section of the posts in category 5 on pregnancy ($n = 72$) was selected as the final dataset for analysis.

2.2. Data Analysis. This research uses the Big Q method of thematic content analysis in accordance with the constructionist philosophical outlook [22]. The procedure entails looking for meaningful patterns and potentially interesting data points [23]. With the use of this method, we were able to recognize and classify codes, themes, and subthemes by getting to know the important pieces of information. The information was moved to the online open-source qualitative data management and organizing tool Taguette [24], which helped with data management and retrieval.

The six phases listed by Terry et al. [25] were followed in the analytical process: (a) familiarizing oneself with the data; (b) creating codes; (c) developing themes; (d) reevaluating potential themes; (e) identifying and labeling topic; and (f) generating the report. Researchers can gain insights into the aboutness of the data by immersing themselves in it by reading over it multiple times, a process known as acquaintance with the data [25]. In order to become familiar with the instructional posts for the current study, the researchers

had to read through them several times and make notes on the main points of interest that align with the objective of the study.

For the purpose of this study, we used Taguette's "Highligh" feature to code the data. Iterative coding involves both coding and recoding in addition to code modifications to improve upon previous codes. In order to facilitate the easy construction of themes in the following phase, we concluded this process by compiling the codes and their corresponding data segments. In order to construct a theme, related codes are combined into larger patterns while keeping central organizing principles in mind [25]. This part of the study included going over the codes very carefully to find recurring themes. Next, codes associated with every main idea were grouped together to form a single possible theme. In this study, we combined linked scripts into themes using Taguette's "Merge" function.

The next step after developing themes was to review them. This involved looking over the codes pertaining to possible themes to make sure they all supported the same main idea and comparing the themes to the data set to make sure they accurately reflected each other. In the fifth step, defining and naming themes, each theme was given a brief title along with a brief explanation of its significance. Several topics, including the pregnant woman, labor, and postpartum care, emerged in the current study. We report the woman's pregnancy and prenatal period for the purposes of this study. The writing of the report is the sixth and last phase. The report for this study is formatted as a journal article. Extracts are used both illustratively and analytically to substantiate the claims made.

3. Findings

This section presents the findings of the study. This is done according to the thematic issues constructed from the analysis.

3.1. Theme 1: Dietary Behavior of Pregnant Women. An important thematic issue that emerged from the analysis concerns the dietary behavior or nutrition of pregnant women. Here, the focus is on what to consume and what to not consume during pregnancy. For example, a case is made on the need to consume certain kinds of foods during pregnancy, highlighting their nutritional value while cautioning against their excessive use, as seen in the extract below:

> CAN I TAKE SOY MILK DURING PREGNANCY?
>
> Soy milk is plant based and a good source of first class protein, calcium, iron, etc.
>
> It also provides energy that can help the expectant mum to stay fit
>
> It's ok to take it in moderation together with other foods
>
> Remember to consume more fruits, vegetables, nuts whole grains, and also take adequate water as well
>
> Do not take it in excess as it has been linked to some congenital abnormalities due to a substance known as Isoflavone. Phytic acid may also inhibit the absorption of other nutrients
>
> In conclusion it is safe to take when taken in moderation with other foods. Do not take excessively
>
> 1 to 2 cups a day may be enough. Talk to your nutritionist about it.
>
> Do sign up for our pregnancy class to learn more ….

In the extract above, Midwife Adwoa explains the importance of soy milk to pregnant women. She does this by listing the nutrients it contains and how valuable it is to the pregnant woman. In addition, she highlights the need to take it moderately and with fruits, vegetables, nuts, grains, and sufficient water, due to potential side effects if taken in excess. In another post, Midwife Adwoa explains the value of watermelon to pregnant women:

> WHY YOU SHOULD TAKE WATERMELON DURING PREGNANCY
>
> It has lots of water to prevent dehydration
>
> Lots of roughage to prevent constipation
>
> High levels of vitamins C and B6, as well as potassium for cramps and magnesium.
>
> Magnesium helps muscles relax, which can prevent premature contractions during pregnancy.
>
> In addition, watermelon can fight morning sickness
>
> Reduces heartburns
>
> It's in season. Get a slice daily until it's out of season.

Here, the need to take watermelon is explained in relation to its value in keeping the body hydrated, preventing constipation, in addition to its nutritional content (i.e., vitamins C and B6, potassium, and magnesium) and its ability to fight morning sickness and reduce heartburns.

In another post, Midwife Afi explains the value of drinking water to pregnant women, as shown in the extract below:

> Drinking water in pregnancy is so important because it keeps you well hydrated, prevents constipation, urinary tract infection and any other uncomfortable pregnancy symptoms. Aim for 8–12 glasses of water per day and if you don't enjoy the taste of water, try adding a squeeze of lime or a splash of fruit juice. Dehydration can lead to lower levels of amniotic fluid, which can influence the baby's development, lead to preterm labor. Dehydration can cause deficiencies in nutrients that are vital for the health of the pregnant woman and the developing baby.

In this extract, Midwife Afi explains that water enhances hydration and prevents constipation and other infections and symptoms. On the other hand, she frames dehydration in a negative light and by so doing, heightens the need to keep hydrated by taking in more water and even increasing the potential of the water by adding some lime and fruit juice.

As indicated earlier, while some posts encourage pregnant women to consume certain food substances, as exemplified above, there are some posts that discourage pregnant women from taking some substances due to their potential health effects on them and their unborn babies. For example, in a post, Midwife Afi explains the dangers of consuming excessive salt during pregnancy:

> Why should you reduce salt intake especially during pregnancy? The body needs to maintain a balance of sodium (salt) and water. If people eat too much salt, they will retain more water. Checking the salt content on food packaging can help a person to keep their salt intake within a healthful range and reduce fluid retention.

Similarly, Midwife Adwoa cautions against the consumption of alcohol during pregnancy. She cites two scenarios to stress the need for pregnant women to avoid alcohol at all costs, adding the negative impact it may have on the unborn baby:

> ALCOHOL AND PREGNANCY DON'T MIX MUM.. Good afternoon midwife Adwoa please I mistakenly drank not too much alcohol, please am I safe. Am 9 weeks
>
> Midwife Adwoa….Taking alcohol during pregnancy should not be a mistake MUM… I visited a friend and she gave me fruit juice not knowing it was contained alcohol she also did not know dat am pregnant
>
> #Note… No amount of alcohol during pregnancy is considered safe. Let's be careful of what we consume during pregnancy.
>
> Alcohol goes straight to your baby when you drink it.
>
> It can affect the baby's brain development
>
> Leading to fetal alcoholic syndrome
>
> It is real
>
> Be sure of the content of every food you consume during pregnancy
>
> This should not happen again!!!

In some cases, an attempt is made to encourage women to eat well, by explaining its benefit to the unborn child. In a post Midwife Adwoa explains why pregnant women need to eat well:

> NUTRITION DURING PREGNANCY
>
> Did you know, research has proven that women who eat well during pregnancy also have babies who enjoy food when they are born than babies whose mums could not eat? Your child starts learning about foods in utero (whilst in the womb) The more variety you eat, the more your baby will also grow loving variety of foods As the baby is born, the baby will observe how you enjoy food. Baby is likely to observe and copy your attitude towards food. If you want your baby to eat when it's born without hustles, start while the baby is in utero. And also let the baby observe how the family enjoys food.

In another post, Midwife Jane explains some attitudinal changes that come with pregnancy, especially with regard to pregnant women's dietary behavior:

> Pregnancy hormones can lead to unusual cravings and aversions. It sometimes influences taste preferences and create unexpected shifts in food preferences. This can make you hate the food you like and love the food you hate.

Here, Midwife Jane explains that shifts in food preferences during pregnancy are due to the production of certain hormones that dictate the dietary behavior.

3.2. Theme 2: Sex During Pregnancy. The pregnant woman's sexual life also emerged as a theme. Pregnancy is characterized by sexual changes experienced differently by women, which may have either positive or negative repercussions for the woman [26]. Midwife Jane attributes these changes in a pregnant woman's sex life to some hormones:

> There can be changes in a pregnant woman's sex drive. During pregnancy, the increased levels of hormones can either increase or decrease libido. A woman who had an increased libido in her previous pregnancy through to postpartum can experience a decrease and vice versa, in her current state. Talk heartily with your partner and discuss what to expect. Remember that every pregnancy is unique.

In another post, she tries to explain that sex is safe during pregnancy, unless the woman has some medical conditions:

> PREGNANCY AND SEX
>
> Sex during pregnancy is safe unless a complication has been detected and it's been managed. One can have sex as many as one wants or enjoys it. In most cases, most women have fluctuation in the sex drive, some have either increased or decreased libido which are sometimes caused by hormonal changes. It's up to both couple to know these things and work their way through them for the best results. Kindly note that, having sex is not going to harm the baby. The muscles of the uterus and the amniotic fluid surrounding the baby protect the it. The mucus plug at the cervix prevents ascending infection to the baby in utero. Don't forget to talk to your OBGY or your midwife about pregnancy and sex. Until then, don't forget to enjoy your sex rights during pregnancy.

In a posthighlighting things pregnant women should do, Midwife Afi similarly notes:

> Have sex frequently
>
> Sex is safe for a pregnant woman as long as you don't have any complications. Talk to your midwife or doctor if you have any questions.

3.3. Theme 3: Medication and Healthcare During Pregnancy. Medication and healthcare are crucial during pregnancy. This emerged as a theme in the data analyzed. Part of this theme focused on the use of herbal medicine, where two of the midwives expressed concerns. Midwife Jane reports a scenario where a pregnant woman resorts to the use of herbal medicine which ends up increasing her blood pressure:

> "As a pregnant woman, during your antenatal appointment, your blood pressure was seen to be high. You were educated on the condition, managed, and later discharged with medications. However, you went home and stopped taking the drugs because someone suggested that herbal medication is the best approach for managing "hypertensive disorders in pregnancy." Now, you've recorded the highest BP than the previous ones which now requires prompt medical intervention. Yɛɛblɛ ooo

Here, the point is to advise pregnant women to go according to prescriptions offered by medical professionals rather than relying on advice from their friends since doing so can be disastrous.

In a similar post, Midwife Adwoa explained why pregnant women take herbal medicine and aptly added why it is not advisable, encouraging them to use only prescribed medicine:

> There are so many reasons women resort to enema. Some believe it will make them strong. For some to hasten labor. And others for a healthy baby. Most of the things used are herbs which sometimes we can't be sure of the contents. Sometimes women come with unexplained ruptured uterus. Complications you can't find the root. It's important to know that labor comes in stages and forcing or hastening labor with herbs can lead to unexpected complications. Unprescribed medications or herbs can also contain substances that are toxic to the fetus or mum. Self care and adequate care during pregnancy is what women need for a healthy pregnancy. Lets seek care from skilled attendants. So many of the problems we get during childbirth can be avoided if we take the right steps. Let me also add that there is no need to add other medicines either herbal or orthodox to the medicine given to you at the hospital.

From the post, it is clear that pregnant women take herbal medicine, particularly enema, to induce smooth childbirth, and according to the midwife, this can be risky as childbirth is supposed to occur in stages. She encourages pregnant women to seek medical attention from skilled attendants and avoid unprescribed medications, since the medicinal value of such medications is sometimes unclear.

Midwife Afi also explains the need to be honest with the doctor about medications being taken, and adds that since most medications have side effects, it is crucial to monitor how one's body reacts after taking specific medicines.

> Most medications have side effects. As a pregnant woman, you should tell your doctor about any medication you're currently taking because most medications are not to be taken during pregnancy. Take only prescribed medication. Every pregnant woman should know the names of the medications she is taking. Monitor what happens to you after any medication, if you feel unusual after taking any medication, report to your doctor or midwife.

Apart from the medication, the attempt was made to explain to the pregnant women the importance of antenatal

services. Midwife Jane summarizes the need for frequent visits to healthcare providers, especially when the pregnant woman sees no improvements in a medical condition following an antenatal visit:

> Hi everyone especially my pregnant women, If you have had your antenatal appointment or sought medical attention for a specific condition, and you notice that there is no improvement or the situation worsens, please do not wait until your next scheduled appointment. It is essential to report back to your healthcare provider immediately for further evaluation and necessary action.

In another post, she summarizes the procedure carried out during antenatal visits and explains how essential they are to the pregnant woman:

> During your antenatal appointment, you're likely to be offered several laboratory investigations. Some of these tests are done with blood, urine, tissue taken or even stool samples. These tests help identify conditions which may increase the risks of complications and be treated or managed. When asked by your healthcare provider to do labs, do not choose scan over labs. Each of them is equally important.

Midwife Adwoa elaborates on what happens to women who do not utilize antenatal services:

> Using this write up to describe what usually happens women do not go for antenatal. They usually get poor outcomes. Many of the times a pregnant woman falls down and is rushed to the hospital, when they regain consciousness and you speak to them, they will tell you.. 'I haven't started going for antenatal' The usual phrase. 'I don't have money! My husband has travelled and I am waiting for him to come back before I can go to the hospital.

She explains that pregnant women get conditions such as "pre-eclampsia," "low hemoglobin levels," and many other infections, which could be detected early during antenatal visits.

3.4. Theme 4: Social Support. For most women, pregnancy is a significant but emotionally delicate time that is also marked by changes in roles, lifestyles, and physical appearance. These modifications could affect how a pregnant woman makes decisions, behaves, and approaches the social obligations that come with being a mother. Relationship troubles, financial troubles, and a lack of social support can all make these changes during pregnancy worse. Therefore, it is essential to have social support throughout pregnancy in order to address these issues [27]. The role of support from the husband, family, and friends of pregnant women emerged as a theme in this study. This is emphasized by Midwife Adwoa in the extract below:

> WHO IS YOUR SUPPORT PERSON?
>
> Scenario: She came to the hospital when she was 43 weeks. She didn't even know pregnancy should not go beyond 42 weeks She didn't know she has to feel her baby's movement everyday after quickening She was waiting for labor to set in.
>
> She didn't know the placenta stops working after sometime during pregnancy She traveled and went about everything, thinking labor would set in when time was due. That didn't happen for her. When she realized things were delayed she finally reported to the hospital. At the hospital Fetal heart was absent. Placenta has stopped working, baby is gone!
>
> As much as us she needed to know all these we asked ourselves. Where is her partner? At least he could have reminded her to visit the hospital on her due date
>
> What about the family support system? At least if someone was checking frequently on her asking her how things are going, the story will have been different. And finally friends who are around us. Yes this situation could have been different if the support system she had was stronger and showed some concern to her. Every expectant mum needs a strong support system. To check on you and also to make sure you are healthy. It could be your partner, mother, relatives or friend. It could also be your private midwife, doula, doctor, etc.
>
> Don't keep your pregnancy to yourself. Get someone to support you when need be. We can change certain stories if we change our approach to pregnancy! As I always say. A successful pregnancy is not automatic!
>
> Take the right steps.

This postforegrounds the importance of the husband, family, and friends as a social support system. It is emphasized that frequent checkups from the support person(s) can serve as a reminder to the pregnant woman about important timelines and medications, which can go a long way to enhance the health of the pregnant woman and the unborn child.

In this regard, Midwife Jane particularly highlighted the role of men as a support system for pregnant women. This support can be physical or emotional and entails escorting

their pregnant women to prenatal services, assisting with household duties, providing the woman monetary help, etc.:

> Men can play a vital role in pregnancy by providing emotional and physical support to their partners, attending prenatal appointments with them, helping with household chores, providing financial support, educating themselves, and being present during the childbirth process.

3.5. Theme 5: Sleep and Physical Activity. It is important for pregnant women to sleep well and engage in physical activities, as this has positive health outcomes. In the data, the nurses emphasized the sleeping position of women. Midwife Adwoa, for instance, posted:

> CAN I SLEEP ON MY BELLY DURING PREGNANCY?
>
> It's not advisable to sleep on your belly after your second trimester. Sleep on your left or right side Sleeping on your back or on your abdomen when your bump is growing can lead to complications Don't leave your pregnancy to chance.

Midwife Jane explained the rationale behind sleeping on the left. According to her, assuming that sleeping posture enhances blood circulation and, in turn, promotes good nutrition for the unborn baby. Additionally, she cautions against frequently sleeping on the right, on the back, and on the belly:

> Sleeping on the left side during pregnancy improves blood circulation to the mother and proper nutrition for the baby because pressure is relieved off some major blood vessels and vital organs. One can occasionally sleep on the right side but it shouldn't be more or equal to sleeping on the left side because the growing uterus can put pressure on the liver. Sleeping on your back with the growing uterus puts pressure on some vital organs and blood vessels. This can cause backache, indigestion, dizziness, etc. Sleeping on your belly puts additional pressure on your abdomen, causes heartburns and can obstruct blood flow which can cause distress to the mother and the baby. Sleeping on your stomach as pregnancy advances is wrong
>
> Now, tell me you even want to do that, I'm listening?

Apart from sleep, the value of exercise was also foregrounded by the midwives. Midwife Adwoa explains by using herself as an illustration, enumerating a number of exercises that can be helpful and practical for pregnant women:

> I hardly exercise on a normal day but when I get pregnant, in fact I make it a ritual. I get to know all the corners in my vicinity. I walk at least 30 min a day in addition to other exercises. The benefits have been amazing. Let me share with you! Exercising during pregnancy can make your labor and delivery easier!!! Make it a practice and ask your healthcare provider which one is convenient for you. There are simple exercises that a pregnant woman can do.. example walking, simple house chores, deep breathing exercise, squatting among others…

Midwife Afi similarly noted the relevance of regular exercise. According to her, it helps to eliminate conditions such as insomnia and obesity:

> Exercise is good for both mother and baby. Regular exercise helps combat many issues that arise during pregnancy including insomnia (difficulty in sleeping), excessive weight gain. If you exercise regularly before you became pregnant, keep it up.

4. Discussion

The aim of this study was to analyze the themes found in the Facebook posts of three Ghanaian midwives regarding expecting women. Consistent with previous research [28–30], the midwives captured very important themes in their posts: dietary behavior, sexual lives, medication, social support, and sleep and physical activity.

Importantly, we found that the dietary behavior of pregnant women was a crucial thematic issue in the data analyzed. On the one hand, the midwives recommended some specific diets believed to contain nutrients important to the health of pregnant women and their unborn babies. The consumption of soy milk and watermelon has been particularly encouraged, alongside the intake of more fruits, vegetables, nuts, grains, and adequate water, as these food items are believed to contain vitamins and other essential nutrients that can improve the health of pregnant women. This finding agrees with the findings of previous research [28–30]. According to Khomami et al. [29], dietary guidelines encourage the consumption of wholefoods from the core food groups, such as wholegrains and cereals, fruits, vegetables, meat and/or substitutes, dairy products, and a small quantity of "discretionary" or noncore foods. For both the health of the expectant mother and the growth and development of her unborn child, a diet rich in nutrients is essential during pregnancy.

As a recent systematic review shows, while topics of nutrition are supposed to be ideally discussed in relation to dietitians and nutritionists, most pregnant women rely on midwives for such information due to the limited number of dieticians [31]. In a study on midwives' perception on nutrition communication in ANC, Beulen et al. [32] made interesting discoveries that agree with the findings of our study. First, the midwives considered it their major responsibility to provide dietary information to the pregnant woman because good and adequate nutrition during pregnancy is considered important to the well-being of the mother and

the unborn child. The midwives also emphasized their need to rely on the internet for information on nutrition, albeit cautioning on the need for midwives to stay updated on such information to be able to guide pregnant women to navigate through the web to obtain consistent and reliable information.

The second theme that emerged from the analysis concerns the sexual lives of pregnant women. This theme encourages sex during pregnancy unless there is any medical condition that prohibits it. Additionally, it emerged that pregnancy could lead to some changes in the sexual preferences of women, and it is important for couples to communicate about it and decide on what works for them. The importance of sex education during pregnancy has been emphasized by García-Duarte et al. [33], revealing that most women think that sex during pregnancy could harm their baby. Mivšek and Tomai [34] have outlined some changes that affect the woman's sexuality during pregnancy. Physiologically, the stoppage of menstruation, nausea, fatigue, enlargement of breasts, and heaviness and shortness of breath all lead to vagaries in the pregnant woman's sexual life. For instance, in the second trimester, there is an increase in blood flow to the genitals, which strengthens the sensitivity of this area and thereby increases the desire to have sex. Psychologically, a woman goes through three stages of pregnancy acceptance, from a focus on how the pregnancy may change her life, on the foetus as it makes first movements, and finally becoming aware of the upcoming birth, and these correspond with the three trimesters. Mivšek and Tomai [34] also intimated that couple may have sex during pregnancy though the desire may change in the course of the pregnancy.

Medication during pregnancy is critical as it is a period where women are exposed to several threats that can endanger their lives and that of the unborn child. In this study, two midwives cautioned against the use of herbal medicine whose dosage hasn't been prescribed and efficacy hasn't been confirmed by experts. A large number of pregnant women who use herbal medicine are from developing countries like Ghana [35]. In Ghana, a study by Peprah et al. [36] showed that pregnant women obtain information on these herbal medicines from their relatives, friends, and the mass media, and they attribute the use of these medicines to cultural norms and health beliefs in the form of personal philosophies, desire to manage one's own health, illness perceptions, and a holistic healing approach. These findings have also been reported in other African countries [37–40].

In the study, one midwife noted that most women rely on herbal medicine as they believe that it hastens labor and that it is good for the baby. Similar findings have been reported in Malawi by Makombe et al. [40] who added that respondents perceived herbal medicine to be ineffective, resulting in cesarean delivery and deformed babies. It is in the light of these negative implications that the midwives in the present study encouraged women to patronize antenatal services from skilled attendants, rather than rely on self-medication involving herbs. The WHO [41] recommends focused ANC as the most basic care for the healthy pregnant woman. High-quality ANC has been shown to promote maternal and fetal health [42]. As reported by the WHO [43], Ghana recorded 87.8% in ANC coverage, measured by at least four visits, between 2000 and 2022. This figure suggests that at present, more than 10% of pregnant women do not utilize antenatal services at the recommended minimum level, that is, four times during pregnancy. This foregrounds the need for intensive campaigning and education of women on the need for antenatal services, as the midwives in the present study continue to do through their social media pages.

The findings of the present study stress the need for social support during pregnancy. According to Bedaso et al. [27], social support entails the provision of emotional or informational support, instrumental, tangible, and/or psychological support for somebody by the social network of family members, friends, and community members. This can take the forms of caring for the pregnant woman, notifying her of relevant information, helping her with household chores, and providing financial assistance to them. In the present study, Midwives Adwoa and Jane emphasized that it is essential for every pregnant woman to have a support person who will remind her of crucial information and check on her to ensure that she is in good health. The role of the partner or husband in providing emotional, physical, and financial support is particularly emphasized. Social support is important as the absence of it can be disastrous to the pregnant woman [44, 45]. In particular, in Ghana, lack of social support has been linked with mental health problems among pregnant women [44].

We have considered the final theme under sleep and physical activity. In this study, the focus was particularly on sleep posture of the pregnant woman and the importance of exercise to her health and that of the unborn baby. It is noted that it is particularly advisable to sleep on the left so as to enhance blood circulation and, in turn, good nutrition for the baby. It has been conventional practice since the 1950s, according to O'Brien and Warland [46], to enhance maternal hemodynamics and gas exchange by positioning pregnant women in the left lateral tilt position. Most expectant mothers sleep on their backs; on average, they do so for about 25% of each night. It is possible that this could lead to fetal susceptibility, growth limitation, and eventually fetal death because it shows that the fetus may be repeatedly exposed to diminished oxygen and nutrition delivery from the placenta on a nightly basis [47]. On the other hand, increased exercise during pregnancy has been linked to a number of health benefits, such as a lower risk of preterm birth and cesarean deliveries, better cardiovascular function, increased physical fitness or maintenance of it, a decrease in depressive symptoms, and an improvement in psychologic well-being [48–51].

The main strength of this study is the use of the qualitative method that has helped to generate deep insights from the Facebook posts of the selected midwives. This analysis especially draws strengths from the adoption of the six-step thematic analysis procedure [25] as well as the use of software. Despite this, the study has some limitations that need to be acknowledged. The first limitation concerns the reliance on just three midwives. Despite this, since the focus is on the range of topics covered and not on differences between midwives, the 378 posts used for the study have

proved sufficient to generate important insights. Second, we relied solely on the posts by midwives without checking whether the information provided was factual. In view of this, we acknowledge that our focus is not on the accuracy of midwives' Facebook messaging. Finally, since our focus was not on the assumed efficacy of the information communicated, this study relied solely on posts without interviews with users of such information and we are unable to ascertain to what degree the information provided is useful to or retained by the target audience. In view of this limitation, we recommend further studies into the perceptions of pregnant mothers who use Facebook on the usefulness of health information posted by midwives.

5. Conclusion

The overall aim of this work has been to construct the themes in pregnancy-related Facebook posts by three Ghanaian midwives. As this study revealed, the midwives posted information on a wide range of thematic issues, including the dietary behavior of pregnant women, their sexuality, social support systems, medication use, and sleep posture and physical activity. The findings of this study clearly show that health messaging has a huge potential in extending health information to a wider audience in Ghana and beyond to promote behavior change. In other words, it foregrounds the role of the internet, particularly social media as an avenue for the dissemination of health information. Despite its huge potential, it may come with several challenges, for instance, increased workload on midwives if combined with the paper system [52]. We recognize that pregnancy and childbirth is a considerably long and complex journey, and this study focused on just a portion of this journey. It, therefore, becomes imperative for future research to consider other maternal and child health issues such as labor and childcare, as presented in social media posts of health professionals.

Data Availability Statement

The data presented in this study are available upon request.

Conflicts of Interest

The authors declare no conflicts of interest.

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References

[1] A. Cortegiani, D. Battaglini, G. Amato, et al., "Dissemination of Clinical and Scientific Practice Through Social Media: A SIAARTI Consensus-Based Document," *Journal of Anesthesia, Analgesia and Critical Care* 4, no. 1 (2024): 21.

[2] Y. A. Ahmed, M. N. Ahmad, N. Ahmad, and N. H. Zakaria, "Social Media for Knowledge-Sharing: A Systematic Literature Review," *Telematics and Informatics* 37 (2019): 72–112.

[3] R. J. Baron and Y. D. Ejnes, "Physicians Spreading Misinformation on Social Media—Do Right and Wrong Answers Still Exist in Medicine?" *New England Journal of Medicine* 387, no. 1 (2022): 1–3.

[4] M. DeCamp, T. W. Koenig, and M. S. Chisolm, "Social Media and Physicians' Online Identity Crisis," *JAMA* 310, no. 6 (2013): 581-582.

[5] S. Sule, M. C. DaCosta, E. DeCou, C. Gilson, K. Wallace, and S. L. Goff, "Communication of COVID-19 Misinformation on Social Media by Physicians in the US," *JAMA Network Open* 6, no. 8 (2023): e2328928.

[6] S. J. Dixon, "Most Popular Social Networks Worldwide as of April 2024, Ranked by Number of Monthly Active Users," 2024, https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/.

[7] H. Morse and A. Brown, "Using Facebook Groups to Support Families: Midwives' Perceptions and Experiences of Professional Social Media Use," *medRxiv* (2022).

[8] R. Tranter and C. McGraw, "Integrating Social Media into Routine Midwifery Services: Maternity Direct+, *British Journal of Midwifery* 25, no. 7 (2017): 458–464.

[9] World Health Organization (WHO), "Maternal Mortality," World Health Organization, Geneva2024, https://www.who.int/en/news-room/fact-sheets/detail/maternal-mortality.

[10] E. K. Ameyaw, K. S. Dickson, and K. S. Adde, "Are Ghanaian Women Meeting the WHO Recommended Maternal Healthcare (MCH) Utilisation? Evidence From a National Survey," *BMC Pregnancy and Childbirth* 21, no. 1 (2021): 1–9.

[11] J. Adu and M. F. Owusu, "How Do We Improve Maternal and Child Health Outcomes in Ghana?" *The International Journal of Health Planning and Management* 38, no. 4 (2023): 898–903.

[12] J. Azaare, P. Akweongo, G. C. Aryeetey, and D. Dwomoh, "Impact of Free Maternal Health Care Policy on Maternal Health Care Utilization and Perinatal Mortality in Ghana: Protocol Design for Historical Cohort Study," *Reproductive Health* 17, no. 1 (2020): 1–17.

[13] J. F. Phillips, J. K. Awoonor-Williams, A. A. Bawah, et al., "What Do You Do With Success? the Science of Scaling Up a Health Systems Strengthening Intervention in Ghana," *BMC Health Services Research* 18, no. 1 (2018): 1–10.

[14] F. K. Nyonator, J. K. Awoonor-Williams, J. F. Phillips, T. C. Jones, and R. A. Miller, "The Ghana Community-Based Health Planning and Services Initiative for Scaling Up Service Delivery Innovation," *Health Policy and Planning* 20, no. 1 (2005): 25–34.

[15] W. Dotse-Gborgbortsi, D. Dwomoh, V. Alegana, A. Hill, A. J. Tatem, and J. Wright, "The Influence of Distance and Quality on Utilisation of Birthing Services at Health Facilities in Eastern Region, Ghana," *BMJ Global Health* 4, no. Suppl 5 (2020): e002020.

[16] A. A. Abuosi, E. A. Anaba, A. A. Daniels, A. A. A. Baku, and J. Akazili, "Determinants of Early Antenatal Care Visits Among Women of Reproductive Age in Ghana: Evidence From the Recent Maternal Health Survey," *BMC Pregnancy and Childbirth* 24, no. 1 (2024): 309.

[17] O. B. Asibey, S. Agyemang, and A. Boakye Dankwah, "The Internet Use for Health Information Seeking Among Ghanaian University Students: A Cross-Sectional Study," *International Journal of Telemedicine and Applications* 2017 (2017): 1756473.

[18] D. L. G. Borzekowski, J. N. Fobil, and K. O. Asante, "Online Access By Adolescents in Accra: Ghanaian Teens' Use of the Internet for Health Information," *Developmental Psychology* 42, no. 3 (2006): 450–458.
[19] D. D. Sasu, "Number of Active Social Media Users in Ghana 2017–2024," 2024, https://www.statista.com/statistics/1171445/number-of-social-media-users-ghana/.
[20] J. Chen and Y. Wang, "Social Media Use for Health Purposes: Systematic Review," *Journal of Medical Internet Research* 23, no. 5 (2021): e17917.
[21] C. McNab, "What Social Media Offers to Health Professionals and Citizens," *Bulletin of the World Health Organization* 87, no. 8 (2009): 566–566.
[22] V. Braun, V. Clarke, N. Hayeld, and G. Terry, "Thematic Analysis," in *Handbook of Research Methods in Health Social Sciences*, ed. P. Liamputtong, (Springer, Singapore, 2019).
[23] J. Menard-Kocik and V. Caine, "Obstetrical Nurses' Perspectives of Pregnant Women Who Use Illicit Substances and Their Provision of Care: A Thematic Analysis," *Canadian Journal of Nursing Research* 53, no. 1 (2021): 47–55.
[24] R. Rampin, V. Rampin, and S. DeMott, "Taguette: open-source qualitative data analysis," *Journal of Open Source Software* 6, no. 68 (2021): 1–5.
[25] G. Terry, N. Hayfield, V. Clarke, and V. Braun, "Thematic Analysis," in *the Sage Handbook of Qualitative Research in Psychology*, eds. C. Willig and W. Stainton-Rogers, (Sage, 2nd edition, 2017): 17–37.
[26] C. C. Leite, R. G. Masochini, A. N. Cunha, et al., "Sexuality in Pregnancy: Perception of Pregnant Women in an Educational Group," *Scientific Electronic Archives* 13, no. 4 (2020): 76–85.
[27] A. Bedaso, J. Adams, W. Peng, and D. Sibbritt, "Prevalence and Determinants of Low Social Support During Pregnancy Among Australian Women: A Community-Based Cross-Sectional Study," *Reproductive Health* 18, no. 1 (2021): 1–11.
[28] J. L. Lee, M. DeCamp, M. Dredze, M. S. Chisolm, and Z. D. Berger, "What Are Health-Related Users Tweeting? A Qualitative Content Analysis of Health-Related Users and Their Messages on Twitter," *Journal of Medical Internet Research* 16, no. 10 (2014): e237.
[29] B. M. Khomami, R. Walker, M. Kilpatrick, S. de Jersey, H. Skouteris, and L. J. Moran, "The Role of Midwives and Obstetrical Nurses in the Promotion of Healthy Lifestyle During Pregnancy," *Therapeutic Advances in Reproductive Health* 15 (2021): 1–12.
[30] S. Strömmer, S. Weller, L. Morrison, et al., "Young Women's and Midwives' Perspectives on Improving Nutritional Support in Pregnancy: The Babies, Eating, and LifestyLe in Adolescence (BELLA) Study," *Social Science & Medicine* 274 (2021): 113781.
[31] J. Arrish, H. Yeatman, and M. Williamson, "Midwives and Nutrition Education During Pregnancy: A Literature Review," *Women and Birth* 27, no. 1 (2014): 2–8.
[32] Y. H. Beulen, S. Super, A. Rothoff, et al., "What Is Needed to Facilitate Healthy Dietary Behaviours in Pregnant Women: A Qualitative Study of Dutch Midwives' Perceptions of Current versus Preferred Nutrition Communication Practices in Antenatal Care," *Midwifery* 103 (2021): 103159.
[33] S. García-Duarte, B. J. Nievas-Soriano, N. Fischer-Suárez, G. Castro-Luna, T. Parrón-Carreño, and G. Aguilera-Manrique, "Quality of Sexuality during Pregnancy, We Must Do Something—Survey Study," *International Journal of Environmental Research and Public Health* 20, no. 2 (2023): 965.
[34] A. P. Mivšek and X. H. Tomai, "Sexual Aspects of Pregnancy," in *Midwifery and Sexuality*, (Springer International Publishing, Cham, 2023): 67–76.
[35] D. F. Malan and D. F. Neuba, "Traditional Practices and Medicinal Plants Use During Pregnancy by Anyi-Ndenye Women (Eastern Côte d'Ivoire)," *African Journal of Reproductive Health* 15, no. 1 (2011): 85–93.
[36] P. Peprah, W. Agyemang-Duah, F. Arthur-Holmes, et al., "We Are Nothing Without Herbs: A Story of Herbal Remedies Use During Pregnancy in Rural Ghana," *BMC Complementary and Alternative Medicine* 19, no. 1 (2019): 1–12.
[37] M. El Hajj, D. C. Sitali, B. Vwalika, and L. Holst, "Back to Eden": An Explorative Qualitative Study on Traditional Medicine Use During Pregnancy Among Selected Women in Lusaka Province, Zambia," *Complementary Therapies in Clinical Practice* 40 (2020): 101225.
[38] I. L. Jackson, M. R. Akpan, A. E. Akwaowoh, and V. I. Sampson, "The Attributes and Determinants of Herbal Medicine Use Among Pregnant Women Attending Antenatal Clinics at Three Hospitals in Uyo, Nigeria," *Journal of Herbal Medicine* 46 (2024): 100891.
[39] A. Z. Leke, H. Dolk, M. Loane, et al., "Prevalence, Determinants and Attitude Towards Herbal Medicine Use in the First Trimester of Pregnancy in Cameroon: A Survey in 20 Hospitals," *PLOS Global Public Health* 2, no. 8 (2022): e0000726.
[40] D. Makombe, E. Thombozi, W. Chilemba, A. Mboma, K. J. Banda, and E. Mwakilama, "Herbal Medicine Use During Pregnancy and Childbirth: Perceptions of Women Living in Lilongwe Rural, Malawi—A Qualitative study," *BMC Women's Health* 23, no. 1 (2023): 228.
[41] World Health Organization, "WHO Recommendations on Antenatal Care for a Positive Pregnancy Experience," 2016, https://apps.who.int/iris/bitstream/handle/10665/250796/9789241549912eng.pdf.;jsessionid42101E27F51D3FD1A92DC8B7CFB9715B?sequence=1.
[42] G. Shibre, B. Zegeye, D. Idriss-Wheeler, and S. Yaya, "Factors Affecting the Utilization of Antenatal Care Services Among Women in Guinea: A Population-Based Study," *Family Practice* 38, no. 2 (2021): 63–69.
[43] World Health Organisation, "The Global Health Observatory," 2024, https://www.who.int/data/gho/data/indicators/indicator-details/GHO/antenatal-care-coverage-at-least-four-visits.
[44] B. A. Agyekum, "Perceptions and Experiences of Prenatal Mental Health: A Qualitative Study Among Pregnant Women in Ghana," *Health Psychology Open* 10, no. 2 (2023): 20551029231202316.
[45] H. Cho, K. Lee, E. Choi, et al., "Association Between Social Support and Postpartum Depression," *Scientific Reports* 12, no. 1 (2022): 3128.
[46] L. M. O'Brien and J. Warland, "Typical Sleep Positions in Pregnant Women," *Early Human Development* 90, no. 6 (2014): 315–317.
[47] J. Warland, J. Dorrian, J. L. Morrison, and L. M. O'Brien, "Maternal Sleep During Pregnancy and Poor Fetal Outcomes: A Scoping Review of the Literature With Meta-Analysis," *Sleep Medicine Reviews* 41 (2018): 197–219.
[48] D. Z. Belachew, T. Melese, K. Negese, G. F. Abebe, and Z. Y. Kassa, "Antenatal Physical Exercise Level and Its Associated Factors Among Pregnant Women in Hawassa City, Sidama Region, Ethiopia," *PLOS ONE* 18, no. 4 (2023): e0280220.
[49] T. T. Hailemariam, Y. S. Gebregiorgis, B. F. Gebremeskel, T. G. Haile, and T. M. Spitznagle, "Physical Activity and Associated Factors Among Pregnant Women in Ethiopia: Facility-Based Cross-Sectional Study," *BMC Pregnancy and Childbirth* 20, no. 1 (2020): 1–11.

[50] B. Janakiraman, T. Gebreyesus, M. Yihunie, and M. G. Genet, "Knowledge, Attitude, and Practice of Antenatal Exercises Among Pregnant Women in Ethiopia: A Cross-Sectional Study," *PLOS ONE* 16, no. 2 (2021): e0247533.

[51] U. B. Okafor and D. T. Goon, "Physical Activity in Pregnancy: Beliefs, Benefits, and Information-Seeking Practices of Pregnant Women in South Africa," *Journal of Multidisciplinary Healthcare* 14 (2021): 787–798.

[52] W. A. Odendaal, J. A. Watkins, N. Leon, et al., "Health Workers' Perceptions and Experiences of Using mHealth Technologies to Deliver Primary Healthcare Services: A Qualitative Evidence Synthesis," *Cochrane Database of Systematic Reviews* 3, no. 3 (2020): CD011942.