



Original Research

Implications of self-medication in pregnancy for Safe Motherhood and Sustainable Development Goal-3 in selected Ghanaian communities



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ABSTRACT

Objectives: This study explored self-medication in pregnancy and its implications for achieving Safe Motherhood and Sustainable Development Goal-3 initiatives in some Ghanaian communities.

Study design: A facility-based cross-sectional descriptive design using mixed method approach of data collection.

Methods: Multi-staged simple random and purposive sampling techniques were used to select 136 pregnant women from public Antenatal Clinics in Efutu and Agona West municipalities in the Central Region of Ghana from June to August 2018. Quantitative data were collected using structured questionnaires and analyzed with Statistical Package for Social Sciences version 23.0 whilst interview guides were used to collect qualitative data via Focus Group Discussions and content analysis done.

Results: Self-medication in the study area is a common practice among most (88%) pregnant women of all socioeconomic backgrounds, those in the first trimester of pregnancy (68.7%) and routine Antenatal clinic attendants (69%). Religion ($p = 0.003$) and educational ($p = 0.004$) backgrounds of respondents were significantly associated with self-medication in pregnancy and motivated by reproductive intentions, availability of medicines, time factor, media advertisements and societal influences relating to beliefs, fears, expectations and perceptions. Majority (90%) of respondents had no side effects.

Conclusions: A nation-wide evaluation of public health education on the dangers of self-medication in pregnancy and implementation of drug regulatory policies are highly recommended in Ghana.

1. Introduction

The practice of deciding, obtaining and using medicines without professional medical advice/supervision (Self-medication) during pregnancy is a common practice worldwide, yet information on the side effects is globally scarce since Complementary and Alternative Drugs (CADs) use seems to be an appealing approach of well-being hence, CADs are not always subjected to the same research to guide regulations as conventional medicines [1]. Although Safe motherhood has been one of the global priority agenda of public health interest over the years [2], and has been heightened through focused national and international strategies for addressing maternal and child health issues [3–5] the implications of self-medication in pregnancy on meeting Safe Motherhood and Sustainable Development Goal-3 initiatives in Ghanaian communities has not been studied although medically, the period of pregnancy is a unique period of great physiological changes to both the mother and fetus [6] where most pregnant women take various medications either

based on experts advice, their significant others and/or by themselves to alleviate pregnancy-related physiological challenges [7].

Medications used during pregnancy have been a Global Health concern since the First World War [8–12]. Likewise, self-medication with herbal preparations in developing countries [13]. A study conducted in Addis Ababa on drug use among pregnant women reported that 12.4% of respondents self-medicate because they lack health education, modern health care facilities and qualified health professionals during pregnancy [14]. Because Ghana committed reducing maternal mortality by three-quarters in 2015 during the Millennium Development Goals [15, 16], and made similar commitments for the Sustainable Development Goals [17], this study assessed Self-medication in pregnancy and its implications for achieving Safe Motherhood and Sustainable Development Goal-3 initiatives in Effutu and Agona West Municipalities in the Central Region of Ghana to examine the progress being made in this area after these commitments.

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2. Methods

2.1. Study design

This study was facility-based, cross-sectional and descriptive in nature, using mixed method approach and based on the core assumptions of the Health Belief model [18].

2.2. Study area

The study area is Agona West and Effutu Municipalities of the central region, Ghana. Agona-Swedru and Winneba are their respective capital towns. Both municipalities respectively have total land areas of 417.3 square kilometers and 447 square kilometers with a population of 79,411 and 138,553 and corresponding female population of 42,088 and 78,560. With a similar total fertility rate of 3.2%, the population of women in fertility age (15–49 years) in these two municipalities are 18,265 and 38,465 respectively. Administratively, the two municipalities are further divided into sub-municipalities. The Effutu municipality has five sub-municipalities (i.e. south east, south west Winneba, Essuekyir-Gyahadze, Kojo-Beedu North and Low cost sub-municipalities). The Agona West municipality is divided into five sub-municipalities (i.e. Swedru, Nyakrom, Nkum, Bobikuma and Abodom sub-municipalities). The health systems in these municipalities are decentralized at the municipal, sub-municipal and community levels. Effutu Municipality has 12 health facilities comprising public, private, mission-based and quasi-governmental whilst the Agona West Municipality has 16 public and private owned health facilities [19].

2.3. Study population and sampling

The study population comprised pregnant women from Effutu and Agona West municipalities in the Central Region of Ghana. The sample size (136) was arrived at using two approaches. For the quantitative part of the study only pregnant women in their third trimester were involved with the assumption that they had experienced all the challenges associated with pregnancy, hence were most suitable for this aspect of the study. The sampling was done using an online Raosoft sample size calculator at 95% confidence interval, 5% margin of error and 50% response distribution [20]. In terms of the figures, the sample size n and margin of error E are given by:

$$x = Z(c/100)^2 r(100-r)$$

$$n = N x^2 / ((N-1)E + x)$$

$$E = \text{Sqrt}[(N-n)x / n(N-1)]$$

Where N is the population size (134), R is the fraction of responses that the study is interested in, and $Z(c/100)$ is the critical value for the confidence level c . The estimated number of respondents (100) were then randomly sampled and contacted to be involved in the quantitative part of the study. We also purposively sampled additional 36 pregnant women of all gestations for the qualitative part of the study with the aim of exploring in-depth views on the research topic. The variations in the gestations of respondents in the qualitative part of the study was to prevent recall biases so as to ensure that only most current qualitative views of respondents were obtained at specific gestations.

The sampling process was multi staged. The first stage was a random selection of sub-municipalities (three each from Effutu and Agona West municipalities). The second stage involved random selection of health facilities from the sampled sub-municipalities (i.e. six health facilities each from the sampled sub-municipalities). The third stage involved identification and sampling of pregnant women in their third trimester from the participating health facilities in Effutu and Agona West municipalities. Pregnant women in their third trimester were purposively sampled because the authors assumed that haven gone through the full

period of gestation they were more likely to have self-medicated. Equal numbers of pregnant women were sampled from both municipalities to prevent any sampling bias. All respondents were within 15–49 years, reside in the study area and have attended at least one antenatal clinic from any of the participating health facilities.

2.4. Data collection

Data was collected using author's developed instruments pretested in the Ga South municipality for content validity and reliability. The quantitative data was collected in May, 2018 using structured questionnaires administered by two trained field assistants and the authors through a face-to-face interview. The qualitative data was collected in July, 2018 using a focus group discussion guide. Six groups of six pregnant women were created for the focus group discussion. The pregnant women were randomly assigned to groups and discussions were done in six sessions. Questions for discussions were centered on the following themes: 1). Common pregnancy related medical and physiological conditions experienced during pregnancy; 2). Means adopted to treat these conditions; 3). Pregnant women's understanding of self-medication; 4). Common practices and medications used; 5). Factors responsible for self-medication; 6). Reasons for self-medication; 7) Challenges associated with self-medication if any. Questions and follow-up questions were discussed until issues related to each question was exhausted and responses taken in turns from participants. Data was collected through field notes and audio recordings by two field assistants in both English and in "Fante" (the lingua franca of the people of Effutu and Agona West Municipalities). The Faculty of Science Education, University of Education, Winneba gave the ethical approval for the study (FSE/DO/D5/V01. 3/101. Dated 10th April, 2018).

2.5. Data analysis

Data analysis commenced immediately after data collection. Quantitative data was coded and entered into Statistical Package for Social Sciences (SPSS version 23.0). The questionnaires were checked for reliability (alpha value of 0.85). Descriptive statistics were used and data was presented in frequencies and percentages. The qualitative data was analyzed using content analysis.

3. Results

Table 1 presents the demographic characteristics of respondents. The majority of respondents were adults between ages 21–30 with over eighty percent (80%) being Christians. The educational backgrounds varied with about 38% having completed basic or secondary level education prior to the current pregnancy. Seventy-seven percent were married and 60% self-employed in various trades. The parities of respondents ranged from 0 to 3⁺ children.

Although 88% of respondents visit ANC clinic routinely, Self-medication was a common practice among majority (69%) of the pregnant women irrespective of their backgrounds. The majority of the self-medications (68.7%) occurred during the first trimester of pregnancy with about 90% of respondents reporting no adverse effect (Table 2).

The focus group discussions unearthed key reasons for Self-medication and common practices used in the study area. Generally, the pregnant woman's perceptions about cause of sickness and immediate resources available informs self-medication decisions. Consequently, frequency of visiting Antenatal clinics do not prevent self-medication in pregnancy. A pregnant woman who has never defaulted in attending Antenatal clinic indicated that:

'I regularly attend Antenatal clinic to check the condition of myself and my baby. For the past six weeks, I have been feeling 'bassaa' (uneasy) but anytime I report this in the clinic the nurses tell me everything is fine with me and that what I'm experiencing is pregnancy related which will

Table 1
Demographic characteristics of respondents.

Demographic Characteristics	Frequency	Percentages
Age		
15-20	11	11.0
21-25	18	18.0
26-30	35	35.0
31-35	15	15.0
36-40	13	13.0
41-50	6	6.0
46+	2	2.0
Total	100	100
Religion		
Christian	84	84.0
Muslim	13	13.0
Others	3	3.0
Total	100	100
Education		
Tertiary	20	20.0
Secondary	38	38.0
Basic	38	38.0
No education	4	4.0
Total	100	100
Marital status		
Married	77	77.0
Single	16	16.0
Divorced	4	4.0
Widowed	3	3.0
Total	100	100
Occupation		
Student	20	20.0
Self-employment	60	60.0
Paid employment	14	14.0
Unemployed	6	6.0
Total	100	100
Age of Pregnancy (focus on third trimester only)		
7 months	41	41.0
8 months	42	42.0
9 months	17	17.0
Total	100	100
Parity		
None	23	23.0
1	19	19.0
2	23	23.0
3+	35	35.0
Total	100	100

Source: Authors field data 2018.

disappear after childbirth. They only give me the routine ANC drugs and advise me to rest and eat well. Although I have yielded to all these pieces of advice and taken my routine medication as instructed without any improvement. My mother in-law gave me some herbal medications and some pain reliefs which when I took made me feel better' (24years, first trimester pregnancy).

Another respondent was of the view that: 'pregnant women in my husband's family are given special herbal medicines to drink weekly so that the mother and baby will be strong. My husband always makes it available for me which I take with the ANC drugs (30 years s trimester).

Table 3 presents results of exploration of associations between demographic characteristics of the respondents and self-medication practices. Religion ($p = 0.003$) and educational ($p = 0.004$) backgrounds of respondents showed significant associations with self-medication.

The level of education emerged as one of the key determinant for self-medication in pregnancy. A respondent during the focus Group Discussion was of the view that she is an educated woman who can read on the internet hence does not see the need for regular visits to ANC clinic if she can google how she feels anytime she is not well and procure medications to treat minor sickness at home without going through the hassles of visiting a hospital (30 years, second trimester).

Table 2
Self-medication practices of pregnant women.

Description	Frequency	Percentages
Ever self-medicated		
Yes	69	69.0
No.	31	31.0
Total	100	100.0
Antenatal Clinic Visits		
Once every month	88	88.0
First time	12	12.0
Total	100	100.0
Reasons for self-medication		
Less expensive	17	25.4
Simple disease condition	29	43.3
Previous experience	14	20.9
Long waiting time	7	10.4
Total	67	100.0
Conditions necessitating self-medication in pregnancy		
Headache	37	55.2
Cold and flu	2	3.0
Lower abdominal pains	12	17.9
Vagina infection	2	3.0
Malaria	6	9.0
Body pains	8	11.9
Total	67	100.0
Gestation at self-medication		
First trimester	46	68.7
Second trimester	7	10.4
Third trimester	14	20.9
Total	67	100.0
Number of sick days		
1-2	30	44.8
2-4	23	34.3
5-6	14	20.9
Total	67	100.0
Medicines commonly used to self-medicate		
Antibiotics	23	34.3
Pain killers	20	29.9
Antacids	5	7.5
Herbal medicines	19	28.4
Total	67	100.0
Relief from sickness after self-medication?		
Yes	33	49.3
No	34	50.7
Total	67	100.0
Side effect after self-medication?		
Yes	7	10.4
No	60	89.6
Total	67	100.0

Source: Authors field data 2018.

The role of religious beliefs and practices was noted to influence some aspects of self-medication in pregnancy. A respondent explained that: *the mother provides her with some medications and holy water blessed from the church to take any time she is not feeling well. This she beliefs drives away evil spirits to stop pain and also prevents harming the pregnancy (17years, first trimester).*

The ANC visits by respondents were quite routine with about 85% visiting ANC at least once every month. Nevertheless, self-medication practices seems habitual with Pain killers/Relief being the most commonly used medicines (85%) by pregnant women visiting ANC once every month. Over the counter procured medicines are the main sources of medicine for self-medication by first time ANC visitors (60%) and monthly ANC attendants (42%). Self-medication is motivated once a relief from sickness being treated is seen early.

In the Focus Group Discussions, it was noted that the regularity of attending ANC clinics and the health educations obtained during the visits does not prevent a pregnant woman from self-medicating. An honest discussion with the pregnant women shows that even upon ANC clinics, they all had in their bags at least one form of self-procured

Table 3
Demographic characteristics of pregnant women and self-medication.

Demographic characteristics	Self-medication				Total response	X [2]	Significance	Correlation
	Yes	%	No	%				
Age								
15-20	9	13	2	6	11			
21-25	13	19	5	16	18			
26-30	29	42	6	20	35			
31-35	8	12	7	23	15			
36-40	7	10	6	20	13			
41-50	2	3	4	12	6			
46+	1	1	1	3	2			
Total	69	100	31	100	100	11.097	0.085	0.256
Religion								
Christian	63	91	21	67	84			
Muslim	4	5	9	29	13			
Others	2	3	1	3	3			
Total	69	100	31	100	100	10.304	0.003	0.300
Education								
Tertiary	14	20	6	19	20			
Secondary	34	49	4	13	38			
Basic	19	28	19	61	38			
No education	2	3	3	7	5			
Total	69	100	31	100	100	15.179	0.004	0.269
Marital status								
Married	61	88	16	52	77			
Single	5	7	11	35	16			
Divorced	1	2	3	10	4			
Widowed	2	3	1	3	3			
Total	69	100	31	100	100	18.048	0.000	0.392
Occupation								
Student	20	29	0	0	20			
Self-employment	46	67	14	45	60			
Paid employment	3	4	11	36	14			
Unemployed	0	0	6	19	6			
Total	69	100	31	100	100	38.801	0.000	0.597
Age of Pregnancy								
7 months	35	51	6	19	41			
8 months	30	43	12	39	42			
9 months	4	6	13	42	17			
Total	69	100	31	100	100	21.682	0.000	0.411
Parity								
None	0	0	0	0	0			
1	22	32	1	3	23			
2	17	25	2	7	19			
2	18	26	5	16	23			
3+	12	17	23	74	35			
Total	69	100	31	100	100	34.080	0.000	0.528

Source: Authors field data 2018. Significant at 0.025.

medications. A respondent explained this practice as follows: ‘As a pregnant woman, I always carry medications with me so that when I have a problem I can take immediately even before deciding to visit a hospital’ (35years, third trimester).

Another respondent indicated that: ‘Experience is the best teacher. My sister experienced serious heart burns when she was pregnant so she used to take 3 tablets of ‘Magacid’ morning, afternoon and evening and it stopped. I don’t have heart burns yet, but with this experience, I have also bought some and started taking regularly to prevent having same’ (28years, first trimester).

Despite a clear understanding on what constitute self-medication and the possible effects on the pregnant woman and her unborn baby, the practice still persists. The Focus Group Discussion shows that majority of respondents who self-medicate are not worried about the implications to their lives and pregnancy outcome but rather the current ailments. A respondent indicated that: ‘yes I know as a pregnant woman, self-medication is not good for my health but I always do it because, I can only buy what my money can afford when sick. God being so good I’m always relieved when I self-medicate’ (40years, third trimester).

Some respondent’s belief that what one self-medicates with

determines the severity of the harm to the body and the baby. For them, herbal medicines are safer compared to orthodox medicine since the herbal ones are from natural sources and have been used by generations without any problems. A respondent indicated that: ‘My grandmother had 15 children and my mother had 10 without attended any ANC clinic, but took only herbal medicines and delivered all the babies safely at home. In my case although I frequently attended all the ANC visits and took only prescribed medications my two children that I have were all delivered by CS and I’m not sure what the doctors will say about the mode of delivery of this current pregnancy’ (36years, first trimester).

4. Discussion

In this study we assessed Self-medication in pregnancy and its implications for achieving Safe Motherhood and Sustainable Development Goal-3 initiatives in Effutu and Agona West Municipalities in the Central Region of Ghana. Findings of this study show that self-medication in pregnancy is a common practice in Ghanaian communities despite national strategies to ensure professional medical care during pregnancy. A

key motivation for self-medication in pregnancy in the study area is the widely accessibility of medications coupled with high numbers (90%) of pregnant women who reported no side effect. This perception is risky since the belief of minimal or no side effect following self-medication in pregnancy could be misleading as the first trimester of pregnancy is a delicate period during which exposure to a particular medication could have short, medium and long term effects on both the mother and the fetus resulting in fetal abnormalities and even death for both. This finding is therefore of significant public health interest to inform interventions.

Religion was also observed in this study as a key driver for self-medication in pregnancy and supports previous studies which shows that religious beliefs and practices during pregnancy sometimes conflict with medical advice [21,22] resulting in pregnant women and their families declining medical advice on medications [23]. Consequently, data on fatalities associated with self-medication in pregnancy are usually not routinely collected [24,25], thus the implications of self-medication practices among pregnant women on safe motherhood in Ghanaian communities becomes anecdotal.

The observation that educated women claim to read on the internet about their condition and then procure medication for use hence no need for regular ANC visits has serious public health implications as it becomes a barrier to preventing complications of pregnancy most of which could sometimes be avoided if detected early and managed by competent medical practitioners in a health facility. Reading on the internet may not provide objective interpretation to supporting laboratory investigations and examination of vital signs for comprehensive medical solutions. This practice although might seemed convenient and cheaper, the long term effect might be expensive and fatal.

In this study, there was no significant association between ANC visit and self-medication in pregnancy. Respondents who regularly visit Antenatal clinics have been noted to routinely use pain relief medications prior to visiting a hospital. Although untreated persistent pain can have adverse effects on a pregnant woman and the fetus, self-medication in pregnancy with pain relievers/killers including non-steroidal anti-inflammatory drugs in the third trimester are usually not medically recommended [26].

There was a strong agreement on the indicators provided to test respondents' understanding of the basic concepts of self-medication, the effects on fetal and mother's life. The general observation of clear understanding of what constitute self-medication and the possible effects on the pregnant woman and her unborn baby by respondents shows that respondents were not worried about implications of self-medication but rather concerned about the current condition that necessitates self-medication which could be an act of desperation to solve an immediate health problem. The belief that, what one self-medicates with determines the severity of the harm to the body, has no medical basis since any medication when wrongly used in pregnancy becomes toxic and could lead to multiple harmful effect irrespective of the dose [27]. The reported use of self-procured/prepared herbal medications in pregnancy as common among respondents in this study stems from the view that herbal medicine are safer compared to orthodox medicine since the herbal ones are from natural sources and have been used by generations without any problems. This finding confirms the controversies that exist between Orthodox and Herbal medicines in Ghana driven by the perception of safety [28,29].

The implications of self-medication in pregnancy on Safe Motherhood and SDG-3 initiatives cannot be underemphasized as pregnancy related complications continue to be the leading cause of deaths and illnesses among women of reproductive age in developing countries [30,31]. Findings of the current study which showed that self-medication in pregnancy is significantly influenced by women's educational and religious backgrounds cannot be decoupled from a woman's reproductive intentions, expectations, fears and socio-cultural beliefs. Central to these variables are individuals' perceptions of health in pregnancy and the concept of accessing health care, using orthodox and/or traditional

medicines either by prescription or self-medication. The inadequate empirical evidence to relate self-medication in pregnancy to safe motherhood efforts therefore has implications on comprehensively estimating maternal health and the achievements of the SDG-3 targets in Ghana. Although self-medication in pregnancy was not proven to be a risk factor for Safe Motherhood in this study, the high prevalence of the practice calls for increase public health education and other programs in Ghana on the associated risks to prevent any negative implications for achieving Safe Motherhood and SDG-3 initiatives in Ghana. Although findings of this study might not be a true representation of the entire country, it provides a baseline for future research using larger sample sizes with varying socio-cultural backgrounds to inform decisions on driving Safe Motherhood and SDG-3 initiatives in Ghana.

Ethics approval and consent to participate

The study proposal obtained approval from the Faculty of Science Education, University of Education, Winneba (FSE/DO/D5/V01. 3/101. Dated 10th April, 2018). Written permissions were obtained from the Effutu and Agona West municipal health directorates as well as the facilities used for data collection. All pregnant women used in the study voluntarily consented for participation and publication of results anonymously. Prior to data collection, verbal and written permissions were sought from the respondents to participate in the study. The permission was granted after the objectives and nature of the study were satisfactorily explained to the respondents. In the case of few minors interviewed, a trusted adult nominated by the respondent themselves provided consent on their behalf to participate in the study.

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Declaration of competing interest

The authors declare that they have no competing interests in this study.

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Appendix A. Supplementary data

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