

Knowledge on Obstetric Emergencies and Birth Preparedness Among Pregnant Adolescents: A Cross-Sectional Study

Prince Owusu Adoma

University of Education, Winneba – C/R

William Ofori

Catholic University of Ghana – Fiapre

Michael Afari Baidoo (✉ baidoo.afari@yahoo.com)

University of Education, Winneba – C/R

Jacob Kwadwo Amponsah Abebrese

Institute of Care Division, Ghana Health Service Headquarters, Greater Accra, Ghana.

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Abstract

Background

Maternal mortality among adolescents remains high, meanwhile, it is an avoidable tragedy which can be prevented by increasing adolescent knowledge of obstetric emergencies and improving birth preparedness. The study aimed to assess pregnant adolescents' knowledge of obstetric emergencies and their birth preparedness in Techiman Municipality, Ghana.

Methods

In the facility-based survey, the target population consisted of 3 months and above pregnant adolescents (16–19 years) who resided in the municipality and attended ANC at Holy Family Hospital in Techiman. A consecutive sampling technique was used to select 422 pregnant adolescents for the study with a questionnaire as the instrument for data collection. Data were analyzed using SPSS software version 20. Moreover, frequency, percentages, chi-square, and binary logistic regression were applied in the data analysis.

Results

The results show that the majority of the respondents 233 (55.2%) had heard about obstetric emergencies and most of them 344 (81.5%) were able to notice danger signs in pregnancy. Meanwhile, 68.2% of the respondents were poorly prepared for delivery. Moreover, chi-square, bivariate and multivariate analysis revealed that the age of respondents, educational status, ethnicity, religion, marital status, number of children, and monthly income were statistically significant on knowledge and obstetric emergency preparedness. However, employment status was not statistically significant.

Conclusion

The study concludes that if pregnant women, especially adolescents, are given in-depth information regarding obstetric emergencies; they will not only be able to notice them but also take actions to deal with them. Moreover, if the adolescents' educational status, marital status, and monthly income are improved, it will go a long way to increase the knowledge and emergency preparedness among the pregnant adolescent.

Introduction

Maternal mortality among adolescents remains high, meanwhile, it is an avoidable tragedy which can be prevented by increasing adolescent knowledge of obstetric emergencies to improve birth preparedness and complications. Pregnant women who are unable to adequately prepare for childbirth are at risk of

complications arising out of pregnancy and delivery. Evidence suggests that 15% of all pregnant women develop a specific complication [1]. The situation is even worse for adolescents since the World Health Organization [1] indicated that the risk of maternal mortality, complications in pregnancy and childbirth are higher for adolescent girls than those aged 20 years and above. Furthermore, the United Nations Population Fund (UNFPA) reported that girls aged 15–19 years are twice as likely to die during childbirth as women 20 years and above. Although the circumstances of adolescent growth and development differ, so as adolescent pregnancy varies greatly. However, some commonalities stand out, the adolescent body is not fully developed to go through the process of pregnancy and childbirth without adverse effects.

The main obstetric complications that adolescents could suffer during pregnancy and childbirth include obstetric fistula, prolonged/obstructed labour, maternal haemorrhage, pregnancy-induced hypertension, maternal infections, and complications of abortion [2]. Therefore, without adequate emergency obstetric care, this can lead to common complications such as uterine rupture and a high risk of death for both mother and infant. For those who may even survive, prolonged labour might cause an obstetric fistula. There is supporting information from a WHO publication stating that in Ethiopia and Nigeria, more than 25% of fistula patients had become pregnant before age 15 and more than 50% before age 18 [3–5].

Emergency obstetric care is one of the recent strategies promoted by the WHO for the reduction of maternal mortality in developing countries [6]. Safe motherhood is one of the most cherished dreams of every woman and making this dream come true is the prime duty of all obstetric care providers. While most childbirth-related complications allow time for proper management, a few present as obstetric emergencies, where the successful outcome depends on prompt action and systematic rapid management.

Globally, a noticeable reduction in the maternal mortality ratio (MMR) has occurred since 1990, primarily due to the provision of effective and quality emergency obstetric care (EmOC) [7]. However, in most sub-Saharan African countries, the MMR has remained stagnant over the last two decades and few countries showed encouraging improvements [1]. The high maternal mortality in developing countries is attributed to women's poor knowledge and access to EmOC [8, 9] and lack of knowledge about obstetric danger signs [10, 11]. Lack of knowledge about obstetric danger signs often results in delays in seeking timely obstetric care [12].

Significantly, findings from the study by Kyei-Onanjiri et al. [13] showed that 80% of health facilities in Ghana did not meet the criteria for the provision of emergency obstetric care. This, according to the authors, will eventually lead to an increase in the number of women who encounter disabilities or die as a result of obstetric complications. The scary part of the situation is that 75% of maternal deaths occur as a result of complications due to pregnancy and childbirth [14, 15]. This study, therefore, aims at assessing emergency preparedness and determining the factors associated with poor emergency obstetric outcomes among pregnant adolescents in the Techiman Municipality.

Methods

Study Facility

The study was conducted at the Holy Family Hospital which was established in 1954 by the Medical Missions Sisters of the Catholic Church. It is the biggest health facility in the region and serves as the referral centre for health facilities in the Techiman Municipality and beyond. The hospital has a bed capacity of 115. The Maternity department of the hospital where the research occurred offers out-patient, in-patient, and emergency services in prenatal and postnatal care services and other maternal and child health services.

Study Design, Population, Sampling And Sample Size

In our facility-based cross-sectional study at the hospital, we sampled 422 consenting pregnant adolescents who have stayed in the municipality for at least six (6) months. Data collection began after ethical clearance had been sought from the Ghana Health Service Ethical Review Committee (ID: GHS-ERC 025/11/219) and approval from Techiman Municipal Assembly and Holy Family Hospital. A consecutive sampling technique was used to select respondents until the required sample size was achieved. The pregnant adolescents sampled were between the ages of 16 to 19 years and were questioned on their socio-demographic characteristics, knowledge of obstetric emergencies, and preparedness for obstetric emergencies. Data collection occurred at the maternity department during ANC services between the hours of 9 am to 5 pm every day for 3 months. Participants were allowed to complete the research instrument under the supervision of research assistants. However, the researchers employed interview-administered format in collecting data from participants who could not read and understand the English language [16].

Instrument And Sampling Procedure

A structured questionnaire was used for data collection. The instrument was extracted from various studies conducted on knowledge of obstetric emergencies, emergency preparedness, and demographic characteristics associated with knowledge of obstetric emergencies. The items were modified to meet the study objectives. The instrument had 30 items and consisted of 3 sections (A, B, and C). Section A comprised 10 items and captured information on the socio-demographic characteristics of patients. Section B contained 11 items which measured pregnant adolescents' knowledge of obstetric emergencies. Finally, section C, which had 9 items, measured emergency preparedness. The instrument was submitted to experts in Emergency Obstetric Care and Gynecology who scrutinized the items to improve the validity. To ensure the validity and reliability of the study, pretesting was embarked on using fifty respondents from Sunayni Municipal Hospital [17]. The questionnaire was personally administered by the researchers and aided by three research assistants.

Data Analysis

Quantitative data collected from respondents were entered into SPSS version 20 for analysis. Descriptive, binary and multivariate logistic regression analysis techniques were used to assess the knowledge of pregnant adolescents on obstetric emergencies, obstetric emergency preparedness, and the influence of socio-demographic characteristics of pregnant adolescents and their knowledge and emergency preparedness on obstetric emergencies. Data were represented in tables.

Results

Sociodemographic characteristics of the respondents

A total of 386 (91.5%) of the respondents were between the ages of 18 and 19 years, While 36 (8.5%) of them were between the ages of 16 and 17 years. Furthermore, 108 (25.6%), 286 (67.8%), and 28 (6.6%) of the respondents had gestational ages of 5 to 6 months, 8 to 9 months, and 2 to 9 months, respectively. In addition, 303 (71.8%) of the respondents had SHS as their highest educational status, 22 (5.2%) of them had primary education, and 13 (3.1%) of the respondents had tertiary education. Meanwhile, 16 (3.8%) of the respondents had no formal education. Moreover, of the respondents, 374 (88.9%) identified as Christians, 40 (9.5%) as Muslims, and 7 (1.7%) as traditionalists. The majority of the respondents 308 (73.0%) were cohabiting, 32 (7.6%) were single, and 32 (7.6%) of them were married. Nearly all respondents 391 (92.7%) had one child, 26 (6.2%) of them had two children, and 5 (1.2%) of the respondents had three or more children. Again, 123 (29%) of the respondents were students, 257 (61%) of them were unemployed, While 12 (3%) of the respondents were in gainful employment. A greater number of the respondents, 285 (68%) had a monthly income of GH 100–499, 101 (24%) had a monthly income of GH 100 or less, 31 (7.0%) had a monthly income of GH 500 999, and 5 (1%) of them received GH 1000 or more at the end of the month. (see Table 1).

Knowledge Of Pregnant Adolescents With Obstetric Danger Signs

Most of the respondents 233 (55.2%) had heard about obstetric emergencies While 189 (44.8%) said no. Again, the majority of the respondents 344 (81.5%) were able to notice danger signs in pregnancy and had their information from the health workers 229 (54.3%). Moreover, more than half of the respondents 354 (83.9%) said it was easy to get information about obstetric emergencies While 68 (16.1%) said no. Furthermore, most of the respondents 318 (75.4%) did know the recommended number of ANC visits during pregnancy which was 6 and above visits. Again, almost half of the respondents 196 (46.4%) had attended 5–7 ANC visits. According to the majority of the respondents 375 (88.9%), it is beneficial to go for ANC. Moreover, more than half of the respondents 272 (64.5%) did not know the actions taken for obstetric emergencies. Vaginal bleeding was a major 232 (55.0%) obstetric emergency followed by swollen feet 18 (4.3%). Lastly, most of the respondents 265 (68.2%) indicated that it is beneficial to deliver at the health facility (see Table 2).

Emergency Preparedness Of Pregnant Adolescents

A greater number of respondents 288 (68.2%) were prepared for delivery While 134 (31.8%) were not prepared. However, most of the respondents 226 (53.6%) had not bought the essential items for delivery as against 196 (46.4%) who had bought some essential items towards delivery. Most of the essential items bought by the respondents included baby clothes (71.0%), soaps and disinfectants (17.5%), and personal clothing (11.4%). Furthermore, majority of the respondents 306 (72.5%) had not saved money for their delivery, however, most of them 345 (81.8%) had valid National Health Insurance Cards for health care. Moreover, a greater majority of the respondents 290 (58.7%) had not identified a skilled provider for delivery and only 62 (14.7%) had made plans for possible blood transfusion. Again, most of the respondents 384 (91.0%) had not arranged transport for delivery or any obstetric emergencies. Most of them 230 (54.5%) had selected a place of delivery While 192 (45.5%) had not as detailed in Table 3.

Association Between The Demographic Characteristics Of Pregnant Adolescents And The Knowledge Of Obstetric Danger Signs

A bivariate analysis of the association between the sociodemographic characteristics of the respondents and the knowledge of obstetric danger signs during pregnancy was performed. The following variables proved statistically significant as the characteristics associated with knowledge of the respondents on danger signs during pregnancy: age of respondents ($p\text{-value} = 0.000$), educational status ($p\text{-value} = 0.000$), ethnicity ($p\text{-value} = 0.000$), religion ($p\text{-value} = 0.000$), marital status ($p\text{-value} = 0.000$), number of children ($p\text{-value} = 0.000$) and monthly income ($p\text{-value} = 0.000$). However, employment status was not statistically significant ($p\text{-value} = 0.112$) (see Table 4)

Moreover, a multivariate analysis of the association between the sociodemographic characteristics of the respondents and the knowledge of obstetric danger signs during pregnancy occurred. The analysis was done to exclude confounding variables. Age was a significant unadjusted odds ratio (1.833) for noticing danger signs in pregnancy ($p\text{-value} = 0.001$). Educational status were also significant with ($p\text{-value} = 0.000$) and OR = 1.707. Similarly, Ethnicity was significant ($p\text{-value} = 0.000$) and (OR = 1.153). Religion was highly significant ($p\text{-value} = 0.000$) and OR = 1.987. Marital status also proved statistically significant ($p\text{-value} = 0.001$) and OR = 1.976 (see Table 5).

Association Between The Socio-demographic Characteristics Of Pregnant Adolescents And Their Obstetric Emergency Preparedness

The association between the sociodemographic characteristics of the respondents and obstetric emergency preparedness was analysed. Age was significant with an adjusted odds ratio (0.734) for obstetric emergency preparedness ($p\text{-value} = 0.001$). The gestational age of the respondents was also significant with ($p\text{-value} = 0.000$) and AOR = 3.866. Likewise, educational status was significant ($p\text{-value} = 0.000$) and (AOR = 3.054). Ethnicity was highly significant ($p\text{-value} = 0.000$) and AOR = 2.036. Lastly, the

monthly income also proved statistically significant ($p\text{-value} = 0.000$) and AOR = 3.024. However, religion, marital status, number of children, and employment status were not statistically significant (see Table 6).

Discussions

Knowledge of pregnant adolescents with obstetric danger signs

Most of the pregnant adolescents (55.2%) knew obstetric danger signs and obstetric emergencies. The knowledge of these danger signs could be because the majority of them (92.7%) have had experience in childbirth. The increase in knowledge on obstetric danger signs and obstetric emergencies in the current study compared to previous studies could be due to policies put in place by the Ministry of Health which emphasizes continuous education with pregnant women about obstetric complications (maternal and child death) during ANC services. Again, most of the pregnant adolescents (81.5%) were able to notice danger signs in pregnancy due to easy access to information from health workers. Meanwhile, this is in sharp contrast with studies in other developing countries which revealed very low knowledge of pregnant women on danger signs during pregnancy. For instance, a study by Mbalinda et al. [18] showed that only about 1 in 3 pregnant women was able to mention at least three of the five basic components of birth preparedness and complication readiness (BPCR). Again, the work by Bogale et al. [19], revealed that less than half (31.9%, 27%, and 22.1%) of the pregnant women in the Goba district knew about danger signs during pregnancy, delivery and postpartum period, respectively.

Interestingly, women with a history of obstetric problems during the previous pregnancy were more likely to be knowledgeable about danger signs compared to those who had no complications in a prior pregnancy. This implies that health workers' education on obstetric danger signs to pregnant women is appreciated by pregnant women. However, this is in line with the findings of Kabakyenga et al. [20] which revealed that prior knowledge of obstetric danger signs and birth preparedness enhanced skill care by pregnant women during low-risk births and emergency obstetric care in low-income countries. Although full participation of male partners is very critical in achieving adequate birth preparedness, unfortunately, in sub-Saharan Africa, pregnancy and childbirth continue to be viewed as solely woman's issue [21]. Low levels of knowledge of pregnancy danger signs and birth preparedness have been blamed for the poor involvement of males in maternal health issues and several studies have confirmed it [22–24]. Again, although most pregnant adolescents know obstetric danger signs, the majority of them are unaware of the actions to be taken for obstetric emergencies which sometimes may lead to maternal and child death.

Meanwhile, vaginal bleeding was recorded as one of the most obstetric emergencies experienced by pregnant adolescents. This was also revealed by similar studies by Morhason-Bello et al. [5] and Adamu et al. [21]. According to Akpan et al. [25], most bleeding cases in pregnancy can lead to abortion, premature delivery of babies, and anaemia resulting in maternal mortality. Therefore, knowledge of the major obstetric danger signs, including severe vaginal bleeding, oedema on the face, blurred vision, prolonged labour, convulsions, retained placenta, foul-smelling vaginal discharge, and high-grade fever

can help to facilitate timely healthcare access. In previous research in developing countries, it has been suggested that women's knowledge of obstetric danger signs determines their health-seeking behaviour [26]. Hence, women with poor knowledge of obstetric danger signs are less likely to attend a healthcare facility when they face obstetric emergencies.

Obstetric Emergency Preparedness Of Pregnant Adolescents

A greater percentage (68.2%) of pregnant adolescents were prepared for delivery. However, the majority of them (53.6%) had not bought the essential items for delivery. Baby clothes (71.0%) were the most essential item bought by pregnant adolescents at birth. Meanwhile, the majority (72.5%) of them had not saved money towards delivery because they had valid National Health Insurance Cards for health care. The level of preparedness among pregnant adolescents for birth and its complications is higher in the current study compared to previous studies. For instance, about 49.4%, 24.7%, 86.2%, and 53.9% of women were prepared for birth and its complications in West Bengal, India, Northern Nigeria, Mpwapwa district of Tanzania, and Mbarara District of Southwest Uganda respectively [27–30]. Again, according to Bitew et al. [31], only 22% of pregnant women in Northern Ethiopia, 29.9% in Bale, and 16.5% in Arsi Zone, Central Ethiopia, and 17% in Southern Ethiopia were prepared for birth and its complications.

In the study, it was revealed that most of the pregnant adolescents (58.7%) had not identified a skilled provider for delivery and only (14.7%) had made plans for possible blood transfusion. Meanwhile, the majority of them (91.0%) had not arranged for transport for delivery or any obstetric emergencies. Most of the pregnant adolescents (54.5%) had selected a place of delivery. These findings support a similar study conducted in Ghana by Adamu et al. [21]. In their work, it was revealed that out of the 300 respondents, 78% were prepared for birth, 90% had valid health insurance, 64% had arranged for transport, whereas only 51% had made arrangements for a blood donor.

Unsurprisingly, BPCR is considered very low in developing countries due to many factors. One of the factors is the mother's level of preparedness and complication readiness. This may be explained by women's knowledge that having money in hand enables them to buy the necessary materials and to have access to transportation at times of referral in case of emergencies. In addition, the provision of a health worker with midwifery skills during ANC and at every birth is considered a crucial intervention for safe motherhood. Yet the WHO estimates that 47% of births in the developing world are assisted only by traditional birth attendants (TBAs), family members, or no one [32]. Besides, better information on obstetric danger signs, birth preparedness practices, and readiness for emergency complications are among the approaches aimed at enhancing the utilization of maternal health services and increasing access to skilled care during childbirth, particularly for women with obstetric complications [18].

Association Between The Socio-demographic Characteristics Of Pregnant Adolescents And Knowledge/preparedness On Obstetric Danger Signs

Concerning the association between sociodemographic characteristics of pregnant adolescents in Techiman Municipality and the knowledge of obstetric danger signs during pregnancy, age was significant with an unadjusted odds ratio (1.833) for noticing danger signs in pregnancy ($p\text{-value} = 0.001$). Moreover, educational status, ethnicity, religion, and marital status proved statistically significant. Again, in looking at the relationship between sociodemographic characteristics of pregnant adolescents and obstetric emergency preparedness, age, gestational age, educational status, ethnicity, and monthly income proved statistically significant ($p\text{-value} = 0.000$). However, religion, marital status, number of children, and employment status were not statistically significant.

Age plays an important role in birth preparedness. A study by Koşum et al. [26] in Nepal revealed that 70% of the respondents who were between ages 21 to 35 years reported having better preparedness and among respondents living in a nuclear family, 78% had better preparedness. In the same study, it was established that among educated respondents, 80% reported having better preparedness and the husband's education played a significant role in BPCR. Women who were married after the age of twenty had better preparedness. According to Koşum et al. [26], women who had given birth to one child only are better prepared than those who had three and more children.

Again, Bitew et al. [31] think that women having secondary education or higher are 6.20 times more likely to be prepared than illiterates. Koşum et al. [26] established that, regarding employment status, mothers who were employed had ≥ 4 times higher odds of being birth prepared compared to unemployed women. The findings of the current study support that of Adelaja et al. [33] which revealed that the major risk factors of obstetric emergencies in the hospital were illiteracy, poverty, lack of antenatal care, poor transport facilities and inadequate equipment/staffing. In addition, a systematic review by Geleto et al. [34] on barriers to access and utilization of emergency obstetric care in health facilities in Sub-Saharan Africa revealed that younger age, illiteracy, lower income, unemployment, poor health service utilization, a lower level of assertiveness among women, poor knowledge about obstetric danger signs, and cultural beliefs, poorly designed roads, lack of vehicles, transportation costs, and distance from facilities were some of the factors which resulted in obstetric emergencies.

Meanwhile, a study in southern Ethiopia provided evidence that the odds of being well prepared for birth and its complications were 0.51 and 0.22 times lower among women with a parity of two to four than those with a parity of one. It has therefore become relevant ; policymakers have to collaborate to enhance the promotion of birth preparedness and complication readiness at different levels in the health sector by improving the socio-economic status of women.

Conclusion

Giving pregnant women, especially adolescents in-depth information regarding obstetric emergencies; it would not only help them notice but also take actions to deal with these emergencies in the Techiman Municipality. Moreover. If the adolescents' age, educational status, marital status, and monthly income are improved, it will go a long way to increase their knowledge and emergency preparedness among the

pregnant adolescent girls in the municipality. Therefore, the Ghana Health Service through the Municipal Health Directorate should intensify their education on obstetric emergencies among all pregnant women during ANC to prevent maternal mortality. Furthermore, adolescent girls must be encouraged to go to school, get a job, and be financially sound before getting pregnant. This will help them to bear the cost which comes with pregnancy.

Declarations

Ethical Approval and consent to participate: All methods were carried out in accordance with relevant guidelines and regulations. The Ghana Health Service Ethics Review Committee approved this study (ID: GHS-ERC 025/11/219). Participants provided their informed written consent.

Consent to Publication: Not applicable

Data Availability statement: The data that support the findings of this study are available from corresponding author (Michael Afari Baidoo) with participants' written consent but restrictions apply to the availability of these data to the public. Due to ethical guidelines followed by the study and it could compromise research participant privacy and or consent

Conflict of Interest: No conflict of interest was declared

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Author contribution: POA and WO conceptualised study. MAB, POA, WO and JKAA designed the protocols. WO conducted data collection and acquisition. MAB, WO and JKAA carried out data processing, management, and analysis. MAB developed the initial manuscript. POA and JKAA edited and substantially revised the manuscript. All authors revised and proofread the manuscript for intellectual content and consented to submission to the journal.

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Tables

Table 1: Sociodemographic characteristics of respondents

Variables	Frequency	Percent
Age of respondent		
16-17yrs	36	8.5
18-19yrs	386	91.5
Gestational age		
3-5months	108	25.6
6-7months	286	67.8
8-9months	28	6.6
Educational level		
No formal education	16	3.8
Primary/Basic	22	5.2
JHS/SHS	371	87.9
Tertiary	13	3.1
Religion		
Christianity	374	88.9
Islam	40	9.5
Traditional religion	7	1.7
Marital status		
Married	32	7.6
Single	82	19.4
Cohabiting	308	73.0
Employment status		
Unemployed	257	61.0
Student	123	29.0
Self employed	42	10.0
Number of children		
One	391	92.6
Two	26	6.2
Three and more	5	1.2

Monthly income		
Less than GH 100	101	24.0
GH 100- GH 499	285	68.0
GH 500- GH 999	31	7.0
Above GH 1,000	5	1.0

Source: Author's fieldwork, 2021

Table 2: Knowledge of pregnant adolescents with obstetric danger signs

Variables	Frequency	Percent
Heard about an obstetric emergency?		
Yes	233	55.2
No	189	44.8
Total	422	100.0
Able to notice any danger signs in pregnancy?		
Yes	344	81.5
No	78	18.5
Total	422	100.0
Source of information		
Mother	78	18.5
Media	56	13.3
Health workers	229	54.3
Friends	59	14.0
Total	422	100.0
Is it easy to get information about OE?		
Yes	354	83.9
No	68	16.1
Total	422	100.0
Do you know the recommended number of ANC visits during pregnancy?		
Yes		
No	318	75.4
Total	104	24.6
	422	100.0
What are the recommended ANC visits?		
Less than 6 visits	20	4.7
6 and above	241	57.1
Don't know	104	24.6
Total	422	100.0
How many ANC visits have you attended so far		

Less than 2	20	4.7
2-4	31	7.3
5-7	196	46.4
8-9	175	41.5
Total	422	100.0
Is it beneficial to go for ANC?		
Yes	375	88.9
No	20	4.7
Don't know	27	6.4
Total	422	100.0
Do you know the actions taken for OE?		
Yes	150	35.5
No	272	64.5
Total	422	100.0
What are some of the OEs you can encounter?		
Vaginal bleeding	232	55.0
Swollen feet	18	4.3
Prolonged labour	29	6.9
Miscarriage	92	21.8
Premature delivery	22	5.2
Cord prolapse	29	6.9
Total	422	100.0
Is it beneficial to deliver at the health facility?		
Yes	265	68.2
No	157	31.8
Total	422	100.0

Source: Author's fieldwork, 2021

Table 3: Emergency preparedness of pregnant adolescents

Variables	Frequency	Percent
Are you prepared for your delivery?		
Yes	288	68.2
No	134	31.8
Total	422	100.0
Have you bought essential items for your delivery?		
Yes	196	46.4
No	226	53.6
Total	422	100.0
What essential items for your delivery have you bought?		
Baby's clothes		
Personal clothing	300	71.0
Soaps and disinfectants	48	11.4
Total	74	17.5
	422	100.0
Have you saved money for delivery?		
Yes	116	27.5
No	306	72.5
Total	422	100.0
Do you have a valid NHIS card?		
Yes	345	81.8
No	77	18.2
Total	422	100.0
Have you identified a skilled provider for delivery?		
Yes	132	31.3
No	290	58.7
Total	422	100.0
Have made plans for a possible blood transfusion?		
Yes	62	14.7
No	360	85.3

Total	422	100.0
Any arrangement for transport for delivery?		
Yes	38	9.0
No	384	91.0
Total	422	100.0
Have you selected your place of delivery?		
Yes	230	54.5
No	192	45.5
Total	422	100.0

Source: Author's fieldwork, 2021

Table 4: Bivariate analysis of the association between socio-demographics and knowledge of danger signs pregnancy

Independent Variables	Are you able to notice any danger signs or illness during pregnancy?		Total F (%)	$\chi(p\text{-value})$
	Yes f(%)	No F (%)		
Age or respondents				
16-17 years	0(0.0)	36(8.5)	36(8.5)	
18-19 years	344(81.5)	42(10.0)	386(91.5)	173.577(0.000)
Total	344(81.5)	78(18.5)	422(100.0)	
Educational status				
No formal education	16(3.8)	0(0.0)	16(3.8)	
Primary	22(5.2)	0(0.0)	22(5.2)	
JHS	59(14.0)	9(2.1)	68(16.1)	67.193(0.000)
SHS	247(58.5)	56(13.3)	303(71.8)	
Tertiary	0(0.0)	13(3.1)	13(3.1)	
Total	344(81.5)	78(18.5)	422(100.0)	
Ethnic group				
Akan	344(81.5)	20(4.7)	364(86.3)	
Ga	0(0.0)	16(3.8)	16(3.8)	296.553(0.000)
Ewe	0(0.0)	11(2.6)	11(2.6)	
Dagaati	0(0.0)	31(7.3)	31(7.3)	
Total	344(81.5)	78(18.5)	422(100.0)	
Respondents religion				
Christianity	337(79.9)	38(9.0)	375(88.9)	
Islam	0(0.0)	40(9.5)	40(9.5)	195.351(0.000)
Traditionalist	7(1.7)	0(0.0)	7(1.7)	
Total	344(81.5)	78(18.5)	422(100.0)	
Marital status				
Married	32(7.6)	0(0.0)	32(7.6)	
Single	4(0.9)	78(18.5)	82(19.4)	396.747(0.000)
Cohabiting	308(73.0)	0(0.0)	308(73.0)	

Total	344(81.5)	78(18.5)	422(100.0)	
Number of children				
One	339(80.3)	52(12.3)	291(92.7)	
Two	0(0.0)	26(6.2)	26(6.2)	122.775(0.000)
Three	5(1.2)	0(0.0)	5(1.2)	
Total	344(81.5)	78(18.5)	422(100.0)	
Employment status				
Unemployed	224(53.3)	32(7.6)	257(60.9)	
Students	81(19.2)	42(10.0)	123(29.1)	2.529(0.112)
Self-employed	26(6.2)	4(0.9)	30(7.1)	
Gainfully employed	12(2.8)	0(0.0)	12(2.8)	
Total	344(81.5)	78(18.5)	422(100.0)	
Respondents monthly income				
Less than GH 100	42(10.0)	59(14.0)	101(23.9)	
GH 100-499	272(64.5)	13(3.1)	285(67.5)	144.704(0.000)
GH 500-999	25(5.9)	6(1.4)	31(7.3)	
GH 1000 and above	5(1.2)	0(0.0)	5(1.2)	
Total	344(81.5)	78(18.5)	422(100.0)	

Source: Author's fieldwork, 2021

Table 5: Multivariate analysis of the association between sociodemographics and the knowledge of danger signs pregnancy

Dependent Variable	Are you able to notice any danger signs during pregnancy?	Unadjusted OR	Adjusted OR	95% Confidence Interval		Sig.
				Lower Bound	Upper Bound	
Age of respondents	Yes	1.833	0.036	1.763	1.904	0.001*
	No	1.848	1.064	1.721	1.975	
Educational status	Yes	1.707	2.077	1.555	1.858	0.000*
	No	1.826	0.139	1.552	2.100	
Ethnic group	Yes	1.153	3.032	1.091	1.216	0.000*
	No	1.000	0.057	0.887	1.113	
Respondents religion	Yes	1.987	2.021	1.945	2.028	0.000*
	No	2.022	0.038	1.947	2.096	
Marital status	Yes	1.976	0.047	1.367	1.942	0.001*
	No	1.345	1.054	1.217	1.943	
Number of children	Yes	1.879	0.034	1.475	1.876	0.012
	No	2.000	2.024	1.975	1.756	
Employment status	Yes	1.988	0.789	1.278	1.897	0.025
	No	3.00	2.897	1.908	1.765	
Respondents monthly income	Yes	1.988	0.567	1.675	1.786	0.054
	No	2.00	2.678	1.687	1.456	

Source: Author's fieldwork, 2021

Table 6: The association between the socio-demographic characteristics of pregnant adolescents and their obstetric emergency preparedness

Independent Variables	Are you prepared for your delivery?			AOR (95% CI)	$\chi^2(p\text{-value})$
	Yes f(%)	No f(%)	Total		
Age of respondents					
16-17yrs	0(0.0)	36(8.5)	36(8.5)		
18-19yrs	288(68.2)	98(23.2)	386(91.5)		
Total	288(68.2)	134(31.8)	422(100.0)	0.734(0.44-1.44)	84.589(0.000)
Gestational age					
3-5months	2(0.5)	106(25.1)	108(25.6)		
6-7months	286(67.8)	0(0.0)	286(67.8)		
8-9months	0(0.0)	28(6.6)	28(6.6)	3.866(1.8-7.9)	412.942(0.000)
Total	288(68.2)	134(31.8)	422(100.0)		
Educational status					
No formal education	16(3.8)	0(0.0)	16(3.8)		
Primary	22(5.2)	0(0.0)	22(5.2)		
JHS	3(0.7)	65(15.4)	68(16.1)	3.054(1.6-5.57)	198.113(0.000)
SHS	274(58.5)	56(13.3)	303(71.8)		
Tertiary	0(0.0)	13(3.1)	13(3.1)		
Total	288(68.2)	134(31.8)	422(100.0)		
Ethnicity					
Akan	288(68.2)	76(18.0)	364(86.3)		
Ga	0(0.0)	16(3.8)	16(3.8)		
Ewe	0(0.0)	11(2.6)	11(2.6)	2.036(1.7-5.32)	144.520(0.000)
Dagaati	0(0.0)	31(7.3)	31(7.3)		
Total	288(68.2)	134(31.8)	422(100.0)		
Religion of respondents					
Christianity	281(66.6)	94(22.3)	375(88.9)		
Islam	0(0.0)	40(9.5)	40(9.5)	0.063(1.8-4.42)	5.164(0.024)
Traditionalist	7(2.4)	0(0.0)	7(2.4)		
Total	288(68.2)	134(31.8)	422(100.0)		

Marital status					
Married	0(0.0)	32(7.6)	32(7.6)		
Single	0(0.0)	82(19.4)	82(19.4)		
Cohabiting	288(68.2)	20(4.7)	308(73.0)	0.458(2.34-0.24)	9.264(0.011)
Total	288(68.2)	134(31.8)	422(100.0)		
Number of children					
One	283(67.1)	108(25.6)	391(92.1)		
Two	0(0.0)	26(6.2)	26(6.2)	0.367(1.24-0.67)	6.632(0.024)
Three	5(1.2)	0(0.0)	5(1.2)		
Total	288(68.2)	134(31.8)	422(100.0)		
Employment status					
Unemployed	225(53.3)	32(7.6)	257(60.9)		
Student	63(14.9)	60(14.2)	123(29.1)		
Self-employed	0(0.0)	30(7.1)	30(7.1)	0.463(2.67-1.87)	8.987(0.034)
Gainfully employed	0(0.0)	12(2.8)	12(2.8)		
Total	288(68.2)	134(31.8)	422(100.0)		
Monthly income					
Less than GH 100	16(3.8)	85(20.1)	101(23.9)		
GH 100-499	272(64.5)	13(3.1)	285(67.5)		
GH 500-999	0(0.0)	31(7.3)	31(7.3)	3.024(2.87-3.45)	302.611(0.000)
GH 1000 and above	0(0.0)	5(1.2)	5(1.2)		
Total	288(68.2)	134(31.8)	422(100.0)		

Source: Author's fieldwork, 2021