

Exploring Factors Influencing Perinatal Outcomes among Adolescent Pregnancies in Northern Ghana-The Case of Kassena-Nankana Municipality in the Upper East Region.

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ABSTRACT

Introduction: It is estimated that about 11% of births worldwide are to adolescents aged 15–19 years, and more than 90% of these births occur in low and middle-income countries with an increased risk of adverse pregnancy outcomes such as perinatal mortality.

Aims and Objectives: The purpose of the study was to explore the factors that influence perinatal outcomes in adolescent pregnancies.

Materials and Methods: A facility-based cross-sectional study with 200 adolescent mothers who delivered. Multistage sampling method was used to select the facilities. Simple random sampling technique was used to select the participants at the facilities. The data were analysed using STATA version 11 software programme.

Results: The majority of the participants (71%) were between 18-19 years. Perinatal mortality rate was 30 per 1000 births. The following were found to be associated with high perinatal mortality rate: gestational age less than 37 weeks, harmful traditional practices, mothers who never used family planning service. Also, mothers who consumed alcohol had a highest odds of 5.9 perinatal mortality compared to other predictors. The results also showed that women living in a rural area {OR=0.41, 95%CI (0.1-2.3)} and those delivering at home {OR=3.91, 95%CI (0.6-22.5)} were more likely to experience adverse perinatal outcomes. Finally, perinatal mortality rate (33 per 1000 births) among the mothers aged between 15 and 17

years appears high compared to between 18 and 19 years category (28 per 1000 births).

Conclusion: The results reported in this study indicate that mothers who engaged in harmful traditional practices, had less than 37weeks gestation, used alcohol during pregnancy and never used family planning services prior to their pregnancies had increased odds of experiencing perinatal mortality. The combined effect of these factors needs to be taken into account when counseling women about healthy behaviour before and during pregnancy at health facilities.

Key words: Adolescent pregnancies, Perinatal outcomes, Neonatal death, Stillbirth, Ghana.

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INTRODUCTION

It is estimated that about 11% of births world-wide are to adolescents aged 15–19 years, and more than 90% of these births occur in low- and middle-income countries^{1,2} with an increased risk of adverse pregnancy outcomes such as preterm birth and perinatal death associated with adolescence pregnancy.³⁻⁵ According to WHO, 7.3 million of perinatal deaths that take place annually, 7 million of these deaths occur in developing countries, of which it is estimated that between 40 and 50% occur during the first seven days of life. Adverse perinatal outcomes pose a public health challenge to the health status and development of the society.⁶ More than 99% of perinatal mortality that occur in developing countries especially in sub-Saharan

Africa² at a predictable average rate of 57 per 1000 live births worldwide are preventable. Perinatal outcomes including live births, stillbirths and early neonatal deaths among adolescent pregnancies are particularly important determinants of infant mortality and morbidity in life.

Adolescent pregnancy continues to be a major social concern. A true burden of perinatal outcomes in adolescent pregnancies needs to be understood and further addressed. To help revitalize efforts to reduce child and newborn deaths and to contribute towards achieving the Sustainable Development Goals 2030, this study explored the causes of perinatal outcomes among adolescent mothers in northern Ghana.

MATERIALS AND METHODS

Study area

The Kassena-Nankana Municipality is one of the nine (9) Districts/municipalities located in the Upper East Region of Ghana. It spreads from 55 kilometers from north to south and 53 kilometers from east to west. The municipality shares boundaries to the: North with Kassena-Nankana West District and Burkina Faso, East with Kassena-Nankana West District and Bolgatanga Municipality, West with the Builsa District and South with West Mamprusi District (in the Northern Region). The Municipal's capital is Navrongo. The Municipality is made up of seven sub-municipalities. For this study, five sub municipalities were sampled. The proportion of women in their reproductive age is 24%. There are an estimated 24 health facilities in the Municipality. These are 1 Municipal Hospital, 2 Health Centres, 1 Private Clinic, 1 CHAG facility and 19 functioning CHPS.

Research design

A facility-based cross-sectional study with 200 adolescent mothers who delivered were interviewed.

Data collection

Quantitative data collection technique using structured interviews was employed. All mothers who were adolescents and delivered within the study period from October 2011 to September 2013 were interviewed. The data was collected from participants during antenatal and child welfare clinics.

Inclusion criteria

The study participants comprised of adolescent mothers between the ages of 15-19 years, who were residents in the Municipality for the last two years and with history of singleton births. Adolescent mothers who did not meet the criteria were excluded.

Data analysis

Data were processed and analysed using statistical software STATA version 11. The multiple choice and dichotomous

responses were converted to percentages. Association between independent variables and the dependent variable were measured with odds ratio. The observed association between independent variables and the dependent variable (perinatal outcomes) were tested for statistical significance using chi square test. To understand how these variables influence perinatal outcomes upon interaction, further analysis was done using binary logistic regression. $P < 0.05$ was assumed to be significant.

Ethical considerations

The proposal was approved by Committee on Human Research, Publications and Ethics of the Kwame Nkrumah University of Science and Technology (KNUST). Informed consent was obtained from the participants and head of the health institutions and community leaders.

RESULTS

Socio-demographic characteristics of Mothers

All the 200 mothers for this survey had singleton births with six experiencing perinatal mortality. Most (59%) were married. The ages of mothers at delivery ranged from 15-19 years with majority (71%) between 18-19 years. The rate of perinatal mortality among women between 15 and 17 years was 33 per 1000 births compared to between 18 and 19 years age group of 28/1000 births. More of the perinatal cases (30 per 1000 births) occurred among adolescent rural mothers compared to urban mothers (28 per 1000 births).

Over eighty percent (84%) of the women had formal education. Majority (87%) delivered at 9 calendar months or greater. Perinatal death among the mothers who delivered more than once was 73 per 1000 births.

The findings further showed that there was statistical association between perinatal mortality and gestational age less than 37 weeks (136 per 1000 births). (Table 1)

Table 1: Association of Socio-demographic factors of Mothers with perinatal outcomes.

Socio-demographic characteristics	Total births N (200%)	Perinatal deaths (PNM/1000births)	P- value (95% CI)
Maternal age(years)			
15-17	59(29)	2(33)	
18-19	141(71)	4(28)	P=0.834
Residence			
Rural	165(83)	5(30)	P=0.300
Urban	35(17)	1(28)	
Marital status			
Married	118(59)	4(33)	
Single	57(27)	2(35)	
Divorced/Separated	11(5)		P=0.83
Living with partner	14(7)		
Level of education			
No formal education	31(16)	2(64)	
Primary	152(76)	3(19)	P=0.240
Secondary/Tertiary	17(8)	1(58)	
Parity			
Nulliparous	159(80)	3(19)	P=0.069
Multiparous	41(20)	3(73)	
Birth interval			
<24months	18(9)	2(133)	
≥24months	175(88)	4(27)	P=0.101
Don't remember	7(3)		
Gestation			
<37weeks	22(11)	3(136)	P<0.000
≥37weeks	174(87)	3(17)	
Don't remember	4(2)		

Table 2: The association of health behaviours and health care utilization with perinatal outcomes.

Category	Total Births No (%)	Perinatal deaths (PNM/ 1000births)	Odds ratio (95% CI)	Adjusted odds ratio (95% CI)
Maternal age(years)			P=0.8	
15-17	59(29)	2(33)	1	
18-19	141(71)	4(28)	0.8(0.1-4.7)	
Residence			P=0.3	
Rural	165(83)	5(30)	0.41(0.1-2.3)	
Urban	35(17)	1(28)	1	
Birth interval			P=0.0	
<24months	18(9)	2(111)	1	
≥24months	175(88)	4(23)	0.2(0.0-1.1)	
Don't remember	7(3)			
Gestation			P<0.0	P<0.0
<37weeks	22(11)	3(136)	1	1
≥37weeks	174(87)	3(17)	0.11(0.0-0.5)	1.7(1.1-2.2)
Don't remember	4(2)			
Traditional beliefs and practices			P<0.0	P=0.0
Yes	33(16)	3(90)	5.46(1.1-28.4)	1.4(0.1-14.8)
No	167(84)	3(17)	1	
Mothers medical condition			P=0.835	
Yes	53(26)	3(56)	2.88(0.57-14.7)	
No	147(74)	3(20)	1	
Alcohol use during pregnancy			P<0.0	P=0.2
Yes	17(8)	2(125)	5.96(1.01-35.3)	4.9(0.4-65.0)
No	183(92)	4(21)	1	
Used any family planning method			P<0.0	P<0.0
Yes	148(74)	4(13)	1	1
No	52(26)	2(76)	0.2(0.0-0.9)	1.2(0.0-0.7)
Place of delivery			P=0.1	
Health facility	176(88)	5(28)	1	
Home	24(12)	1(42)	3.91(0.6-22.5)	
Level of ANC attendance			P<0.0	P<0.8
<6visits	10(95)	3(100)	1	
≥6visits	190(5)	3(15)	0.04(0.0-0.2)	0.03(0.0-0.4)
Client satisfaction			P=0.2	
Good	191(95)	5(26)	1	
Poor	9(5)	1(111)	4.7(0.5-44.6)	

The association of socio-demographic factors, health behaviour's and health care utilization with perinatal outcomes

In table 2, the following factors were found to be associated with adverse perinatal outcome: birth interval less than 24months (111 per 1000births), gestational age less than 37weeks (136 per 1000 births) and mothers with less than six antenatal visits (100 per 1000 births). Also, mothers who consumed alcohol, engaged in harmful traditional practices and who never used family planning services, had an increased odds of 5.9, 5.5 and 0.2 respectively of perinatal mortality were also statistically significant. Further analysis revealed that prematurity {OR=1.7, CI (1.1-2.2)}, harmful traditional practices {OR=1.4, CI (0.1-14.8)} and low family planning uptake {OR=1.2, CI (0.0-0.7)} appeared significantly associated with perinatal mortality.

The results also showed that women living in a rural area {OR=0.41, CI (0.1-2.3)} and those delivering at home {OR=3.91, CI (0.6-22.5)} were more likely to experience adverse perinatal outcomes. Finally, the study found a high perinatal mortality of 33 per 1000 births among mothers aged less than 18 years compared to 18 and 19 years group (28 per 1000 births).

DISCUSSION

In this study all participants were adolescent mothers who have been pregnant as well as experienced still births or delivery at adolescent age with singleton births. For the 200 adolescent mothers interviewed in this study, perinatal mortality rate (PNMR) was 30 per 1000 births slightly lower than the rate of 39 per 1000 births for the northern Ghana⁷ but higher than 22 per 1000 births for the Upper East Region.⁸ PNMR is a key health indicator of the quality of antenatal and perinatal care.

We found in this study that perinatal mortality rate among adolescent mothers who delivered at home was high as compared to their facility counterparts. Some of the reasons for delivering at home were familial and others. In general, it is believed that, the use of health services by women will depend on the availability and also a feeling in the community about where delivery takes place. These findings, though not directly covered during the interview, it might explain the preference for births to take place at home.⁹ Traditional health beliefs of Ghanaian population may also play an important role in the selection of services related to pregnancy,¹⁰ because they provide something that the formal services do not, which are valued by the mothers, such as

preference of birthing positions, hot baths after delivery among others.¹¹ Understanding these factors is critical to improving the accessibility and utilization of health care by adolescents during pregnancy and childbirth.

To understand how the variables of health behaviour's and healthcare utilization influence perinatal outcomes upon interaction, our study using binary logistic regression found significant predictors of adverse perinatal outcomes with: mothers who had engaged in harmful traditional practices. This finding is consistent with other studies in Ghana¹² and Tanzania.¹³ There is the need for a stronger role of community-level interventions that target social norms. The following behaviour's had a rippling impact on the perinatal outcomes. Mothers who consumed alcohol during pregnancy,¹⁴⁻¹⁶ low uptake of family planning^{12,13,17} and mothers who received less than six antenatal visits.¹⁸

In this study, about thirty percent of the mothers' age between 15 and 17 years. The Upper East Region is noted for a child marriage prevalence of 50% the highest in Ghana¹⁹ where a greater number of girls between 15 and 18 years (27 percent) are entering marriage often against their will.²⁰

This study found no statistical association between maternal age, residence, marital status, level of education and parity with perinatal morbidity and mortality. This finding is inconsistent with other studies elsewhere.^{21,22} The reason could be attributable to possible uncontrolled confounding risk factors such as smoking and other practices during pregnancies which were not included in this study hence a limitation. A Second limitation is that all adolescents who delivered at home and failed to attend antenatal and child welfare clinics were also not part of this study.

Finally, the ability to recall events by study participants could also be a contributory factor. We suggest that future studies on adolescence and perinatal morbidity and mortality need to approach it from a community's perspective to help address the unmet need for maternal healthcare service utilization for the poor and the specific sub-groups of the population in rural areas.

CONCLUSION

The results reported in this study indicate that mothers who engaged in harmful traditional practices, used alcohol during pregnancy, never used family planning services prior to their pregnancies had increased odds of experiencing perinatal mortality. The combined effect of these factors need to be taken into account and addressed with a multifaceted approach when counseling women about healthy behaviour before and during pregnancy at health facilities. The disparity in perinatal deaths between rural and urban areas should suggest to policy makers that more needs to be done to attain socio-economic equality in the rural areas particularly in the area of quality, affordable and accessible maternal health services. Also, promoting the use of family planning may ultimately help to foster the utilization of other maternal health services. Programmes that seek to change attitudes that are unfavorable towards maternal and child health services uptake are relevant in these communities. The need for the government to work towards increasing the age at marriage by legislating on marital age. Hence the need to ensure the implementation of the Laws prohibiting child early marriage (Act 560) and forced marriage (Act 554) in Ghana to stop child marriages. Also, greater emphasis is needed on providing adolescents with the skills and sex education to postpone sexual

activity until they are able to practice responsible sexual behaviour. Finally, the need to remove the barriers that prevent adolescents from going to the health facility in time by empowering them with decision-making skills regarding childbirth.

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