ORIGINAL RESEARCH ARTICLE

Predictors of Contraceptive use Among Female Adolescents in Ghana

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Abstract

Adolescent girls in Ghana still face a number of challenges accessing reproductive/sexual health services despite efforts to improve their accessibility. This paper explores the key socio-demographic factors associated with contraceptive use amongst adolescent girls in Ghana using the 2008 Ghana Demographic and Health Survey (GDHS). Data from the 2008 GDHS was analyzed. Socio-demographic variables were selected to assess their interaction with contraceptive use. Multivariable regression analyses were performed. Odds ratios and confidence intervals were computed. Place of residence and marital status were the most important predictors of contraceptive use among sexually active adolescents. Rural residents were less likely to use contraceptives compared to urban residents (OR 0.32, CI 0.12–0.84, p=0.021) as well as married respondents compared to their unmarried peers (OR 0.27, 95% CI 0.11-0.67, p=0.005). The accessibility of reproductive/sexual health services needs to be improved and promoted in rural areas and among married adolescent women. *(Afr J Reprod Health 2014; 18[1]: 102-109).*

Keywords: Adolescents, Contraception, Determinants, Ghana, GDHS

Résumé

Les adolescentes au Ghana font face à un certain nombre de défis d'accès aux services de santé de la reproduction / sexuelle malgré les efforts pour améliorer leur accessibilité. Cet article explore les facteurs socio- démographiques associés à l'utilisation de la contraception chez les adolescentes au Ghana en utilisant les données de l'Enquête Ghanéenne démographique et de santé de 2008 (EGDS). Les données des EGDS de 2008 ont été analysées. Les variables socio -démographiques ont été sélectionnés pour évaluer leur interaction avec l'utilisation de contraceptifs. Des analyses de régression multi variables ont été effectuées. Les odds ratios et les intervalles de confiance ont été calculés. Le lieu de domicile et l'état matrimonial étaient les indices les plus importants de l'utilisation de la contraception chez les adolescentes sexuellement actives. Celles qui résident dans des régions rurales étaient moins susceptibles d'utiliser des contraceptifs par rapport à celles qui habitent dans les régions urbaines (OR 0,32, IC de 0,12 à 0,84, p = 0,021) ainsi que les interrogées mariés par rapport à leurs pairs non mariées (OR 0,27, IC à 95% 0,11 au 0,67, p = 0,005). Il faut améliorer et promouvoir l'accès aux services de la santé sexuelle /de la reproduction dans les régions rurales et parmi les adolescentes mariées. *(Afr J Reprod Health 2014; 18[1]: 102-109).*

Mots-clés: adolescents, contraception, déterminants, Ghana, EGDS

Introduction

It is estimated that the world population will reach 7.2 billion by the mid-2013. Much of the population growth occurs in the least developed parts of the world that is Sub Saharan African and Asia[1]**.** This increased population growth couples with a limited amount of resources on earth and the rate of which these resources are being depleted have become an issue of major interest to many actors for decades now.

To help address the issue of rapid population growth numerous calls have been placed to countries to put in place strategies that will reduce the fertility rate[2]. Contraceptive use is the major method of reducing fertility rate. The promotion of contraceptives is not only due to its impact in reducing fertility rates but also because contraceptives such as condoms also help in limiting the spread of sexually transmitted infections including HIV. These benefits highlight why the access to contraceptives (unmet need for

family planning) has even been added as one of the indicators for the Millennium Development Goal 5 and is reported on in annually[3].

The government of Ghana, its development partners and international and local NGOs has been implementing vigorous activities to improve the use of contraceptives for many decades. Although some progress has been made especially in the area of knowledge, a large number of female adolescent Ghanaians still have an unmet need for access to modern contraception[4].

This paper, therefore, aims to broaden the information base for the design of future family planning programmes by exploring some of the socio-demographic variables that may be associated with contraceptive use by women aged 15-19 in Ghana.

Methods

Country background

Ghana, with a total land area of about 240,000 square kilometres is located in the western part of Africa and sandwiched between three French speaking countries; Burkina Faso in the North, Togo in the east and Cote d' Ivoire in the west. The Gulf of Guinea forms the coastline of the country on the South.

The country is divided into ten regions, namely Ashanti, Western, Upper East, West and Northern. The rest include Volta, Greater Accra, Central, Eastern and Brong Ahafo. About 4 out of every 5 Ghanaians are a Christian with Muslims being just 5% of the population and located mainly in the Northern part of the country. Recently other religions (Hinduism, Buddhism, Eckankar, Afrikania mission etc) and Christian denominations have sprung up in the country as the constitution of the country grants freedom of religion and worship.

Ghana is ethnically diverse with over 20 different ethnic groups, the main ones being, Akan, Mole - dagomba, Ewe and the Ga-adangme in decreasing order[4]. The Ghana Statistical Service (GSS) estimated the 2010 population of Ghana to be about 24.6 million, with a growth rate of 2.5% between the most recent census (2010) and the previous one 2000 (GSS 2012). About 10% are between 15-19 years[5].

The trends in some key health indicators for a ten-year period are shown in table 1. Despite the fact that the majority of the indicators improved modestly between 1998 and 2008, others such as contraceptive use stagnated.

Table 1: Trends in selected health indicators in Ghana 1998 – 2008

Indicator	1998	2003	2008
Infant mortality rate (/1000 live births)	57	64	50
Under five mortality rate (/1000 live births)	108	111	80
Skilled personnel at delivery (%)	44	47	59
Antenatal coverage – skilled professional (%)	89	92	95
Contraceptive prevalence – any method (%)	22	25	24
Total fertility rate (number of children per woman)	4.4	4.4	4
Unmet need for family planning (%)	23	34	35
Adolescent birth rate (/1000 women 15 – 19 years)	90	74	66
HIV prevalence (%)	4	3.6	2.2
Fertility rate	4.4	4.4	4.0

Sources: GSS and MI 1999[18], MoH 2001[20], GSS et al 2004[13], GSS et al 2009[4], NACP 2009[21], ICF Macro 2010a[22], ICF Macro[23] 2010

Study Setting

This study makes use of data collected in Ghana in 2008. Demographic and Health Surveys, from which data for this study was drawn, are conducted every five years in selected low- and middle-income countries. The primary objective of the surveys is providing detailed information to researchers and stakeholders on demographic, health, reproductive health and family planning trends within the country. All surveys aim to be nationally representative and collect information on women aged 15 to 49 and men aged 15 to 54. The 2008 GDHS women data set had 1,037 respondents between 15 and 19 years. This study is limited to a sub-sample of all the 162 sexually active female adolescents (aged between 15 and 19). For the purposes of the study sexually active adolescents are defined as those who are currently married or who have had sexual intercourse within the 4 weeks preceding the survey[4].

Data Collection and Ethical Clearance

Data for DHSs are collected with the respondents' informed consent, and ethical clearance is given before the data collection process begins. The data

are publicly accessible and analysing the Ghana 2008 DHS data does not require ethical clearance.

Data Analysis

Data were analyzed using SPSS-PASW, Version 18 (SPSS, Inc., Chicago, IL). "Current contraceptive use" (Yes/No) was selected as the sole dependent variable.

The following independent variables were selected in order to study their interaction with the contraceptive use indicator just mentioned: Age (15, 16, …, 19), Region (Western, Central, Greater Accra, Volta, Eastern, Ashanti, Brong Ahafo, Northern, Upper East, Upper West), Type of place of residence (Urban, Rural), Highest educational level (No education, Primary, Secondary, Higher), Religion (Catholic, Pentecostal/Charismatic, Other Christian, Moslem, Others), Ethnicity (Akan, Ga/Dangme/Ewe, Mole/Dagbani, Others), Wealth index (Poorest, Poorer, Middle, Richer, Richest) and Marital status (Not married, Married).

The variable *Wealth Index* was then re-categorized in order to be interpreted more easily in the logistic regression model, as *rich* (Richer and Richest) or *middle/poor (*Poorest, Poorer and Middle).

Descriptive statistics on all the variables collected were calculated using mean and standard deviation for numerical variables and frequencies and percentages for categorical variables.

The association between contraceptive use and each independent categorical variable was first assessed using Chi-square or Fisher's exact test.

The independent variables with a *p*-value equal to or less than 0.20 were then entered into multiple logistic regression models. P-value<0.2 was chosen in the bivariate analysis in order to use a more conservative criterion in screening the variables possibly associated to the outcome of interest. Both backward and forward stepwise logistic regression analyses (Wald test) were performed, and they gave the same results. *P*-values less than 0.05 (two-sided test) were considered significant in the final model. Odds ratios (OR) and their 95% confidence intervals (CI) were computed. The final multivariable models were tested for goodness of fit with the Hosmer–Lemeshow test.

Results

Table 2 shows the socio demographic characteristics of the sample. The study covered 162 female adolescents (15-19 years) who were sexually active (married or unmarried). The mean age of the respondents was 18 (SD ± 1.1). The Upper West (18%) and Ashanti (17%) were the regions most represented. The majority of the girls were from rural areas (71%) and educated at the secondary school level (53%). In terms of religious affiliation majority were Pentecostals (31%), followed by Christians (23%), Moslems (19%), Catholics (18%) and with 9% belonging to other religions. The most represented ethnic groups were Akans (37%) and Mole-Dagbani (18%). More than 50% of the respondents in the sample were from poor households and 53% were not married.

Only 35% of the girls stated that they currently used contraceptives.

Table 2: Socio demographic characteristics of the participants

Background Characteristics		Total (N=162) N (%)	Current contraceptive use		P-value
			No N=105 (65%) N (row %)	Yes N=57 (35%) N (row%)	
Current age	15	6 (4)	5 (83)	1 (17)	
	16	9 (6)	7 (78)	2 (22)	0.629
	17	27 (17)	15 (56)	12 (44)	

	18	51 (31)	33 (65)	18 (35)	
	19	69 (42)	45 (65)	24 (35)	
	Upper West	29 (18)	21 (72)	8 (28)	
	Ashanti	28 (17)	15 (54)	13 (46)	
	Eastern	19 (12)	8 (42)	11 (58)	
	Northern	17 (10)	17 (100)	0 (0)	
Region *	Central	14 (9)	11 (79)	3 (21)	<0.001
	Brong Ahafo	14 (9)	9 (64)	5 (36)	
	Greater Accra	11 (7)	2 (18)	9 (82)	
	Upper East	12 (7)	11 (92)	1 (8)	
	Western	9 (6)	5 (56)	4 (44)	
	Volta	9 (6)	6 (67)	3 (33)	
Place of residence	Urban	47 (29)	19 (40)	28 60)	<0.001
	Rural	115 (71)	86 (75)	29 (25)	
Highest education	No education	25 (15)	25 (100)	0 (0)	<0.001
	Primary	51 (32)	37 (73)	14 (27)	
	Secondary	86 (53)	43 (50)	43 (50)	
	Pentecostal/Charismatic	51 (31)	31 (62)	20 (38)	
	Other Christian	37 (23)	20 (54)	17 (46)	
Religion *	Moslem	31 (19)	22 (71)	9 (29)	0.226
	Catholic	29 (18)	20 (69)	9 (31)	
	Others	14 (9)	12 (86)	2 (14)	
	Akan	60 (37)	34 (57)	26 (43)	
Ethnicity	Ga/Dangme/Ewe	29 (18)	14 (48)	15 (52)	0.012
	Mole-Dagbani	29 (18)	22 (76)	7 (24)	
	Others groups	44 (27)	35 (80)	9 (20)	
	Poorest	47 (29)	44 (94)	3 (6)	
	Poorer	44 (27)	29 (66)	15 (34)	
Wealth index	Middle	35 (22)	19 (54)	16 (46)	<0.001
	Richer	24 (15)	7 (29)	17 (71)	
	Richest	12 (7)	6 (50)	6 (50)	
Marital status	Not married	86 (53)	41 (48)	45 (52)	<0.001
	Married/Living together [ftgether]	76 (47)	46 (90)	5 (10)	

* Categories sorted by frequency in descending order

The results from the cross tabulations showed that nobody among the respondents from the Northern region and those with no education were currently using any contraceptive. Region, place of residence, educational level, ethnic group, wealth index and marital status had their p-values less than 0.20. These variables were therefore included in the multivariable analysis. Age did not seem to play any role in the contraceptive use pattern and Region was considered to be collinear with place of residence.

Table 3 shows the results of the multivariable analysis. Here education level, ethnicity and wealth index lost their significance. The multivariable logistic model identified marital status and place of residence as independent predictors of contraceptive use among the sexually active adolescent female. Rural residence was

associated with about a three times (OR 0.32, 95% CI 0.12–0.84, p=0.021) reduction in the odds of current contraceptive use compared to urban residences. Being currently married was also

associated with almost 4 times reduction in current contraceptive use (OR 0.27, 95% CI 0.11-0.67, p=0.005).

Table 3: Results of bivariate and multivariable logistic regression analysis of 2008 Ghana DHS data [n=162]

	Background characteristics	Crude OR	95% CI	aOR[a]	95% CI	p-value
Place of residence	Urban (r)	1		1		
	Rural	0.23	0.11 – 0.47	0.32	0.12 – 0.84	0.021*
Highest educational level	Primary (r)	1		1		
	Secondary	2.64	1.25 – 5.57	1.74	0.72 – 4.25	0.219
	No education$					
Ethnicity	Akan (r)	1		1		
	Ga/Dangme/Ewe	1.4	0.58 – 3.41	2.51	0.87 – 7.22	0.087
	Mole-Dagbani	0.42	0.16 – 1.12	0.98	0.29 – 3.30	0.973
	Others	0.34	0.14 – 0.82	1.12	0.36 – 3.42	0.85
Wealth index	Middle/ Poor(r)	1		1		
	Rich	4.94	2.46 – 9.92	1.84	0.71 – 480	0.212
Marital status	Not married (r)	1		1		
	Married	0.17	0.08 – 0.36	0.27	0.11 – 0.67	0.005**

Notes – (r) is the reference category
a Adjusted odds ratio (aOR)
* p-value <0.05
** p-value <0.01

$None of the respondents in this group was currently using contraceptives, so regression could not be run

Discussion

As with some other studies, our analysis research did not find significant association between age and current contraceptive use. In particular, with regard to condom use Karim et al[7], found that age was not associated with condom use at first sex and with consistent condom use. However, other studies such as that by Odimegwu[8], looking at adolescent behaviour in Nigeria, found an association between age and contraceptive use.

There was no association between religion and contraceptive use in this study, contrary to findings by Odimegwu who found religious beliefs to be associated with adolescent sexual behaviour[8].

Anate (1995) had noted that religion affects contraceptive use negatively[9]. The lack of association between religion and contraceptive use in this study may be a reflection of the decreasing role of religion in the lives of Ghanaians. It should be noted, however, that those adolescents who are very religious are less likely to initiate sex[7, 9,10] and are therefore underrepresented in the current study which covers only sexually active adolescents.

The association between educational status and contraceptive use has been reported in other studies[6,11,12]. Among adolescents girls in Kenya higher education status increased the chances of using contraceptives by two to four times[12]. In this study sexually active female adolescents with

secondary education had a threefold increase in the likelihood of using contraceptives when compared with those with a primary education. However, this effect was reduced to about two fold in the multivariable analysis and it lost is significance. Increasing educational status enhances access to health services and access to information on various issues[13,14]. It also increases access to employment and disposable income, which has been shown to be a predictor of contraceptive use in adolescents[15]. Education might have lost its significance in the multivariable analysis because the highest education status among the respondents was secondary education, which is not enough to obtain a job. It is also possible the adolescents were not adequately exposed to Sexual Reproductive Health (SRH) information in their school as SRH is rarely taught in Ghanaian schools.

Wealth index lost its significance during the multivariable analysis. It must be noted that the wealth index as defined in this study is a composite indicator of all assets and income of individual household members and not that of adolescents. It is possible that the results would have been different if they were based on individual wealth. Young girls might be from rich households but they do not control how the household income is used. A study in Serbia found that adolescents who perceive their family to be rich were less likely to use contraceptives. However those with high weekly disposable income were found to be more likely to use contraceptives[15].

In this study marital status and place of residence were identified as the independent predictors of contraceptive use among the sexually active female adolescents in Ghana. This was rather expected. The unmarried adolescents had a fourfold increased likelihood of using contraceptives when compared to their married peers. This finding is comparable to that of Blanc et al. who observed the difference in contraceptive use between married and unmarried sexually active female adolescents to be about four times in Africa and even wider in West Africa[16]. In Nigeria in 2003 and Benin in 2006 the difference was observed to be 45% vs. 4% and 54% vs. 8% respectively[16]. Awusabo-Asare et al. also noted the

difference to be about two times between unmarried and married adolescents in Ghana[17].

Unmarried adolescents use more contraceptives to avoid getting pregnant[17] as sex out of wedlock is stigmatized in Ghana and pregnancies bring disgrace to the young girl and her family. Although the unmarried respondents had relatively higher rates of contraceptive use than the married respondents, it should be noted that almost half of them did not use contraceptives, thus they are at a high risk of sexually transmitted infections (STIs), unwanted pregnancies and possibly unsafe abortions. We suggest that married adolescents might not be using contraceptives because they want to have children. Some might not have been married for long and may want to have at least one child to prove that they are able to bear children before they think of contraceptives. In Ghana, having a child increases the status and the respect a woman gets from her immediate family, her husband's family and society at large.

In recent times, the radio has become the major medium used in social marketing in Ghana. It is not surprising that in almost all studies looking at family planning, the radio comes up as one of the major sources of family planning information[14,17,18]. Regrettably these radio stations are located in urban areas and a lot of rural areas are not able to receive transmission. Furthermore, the availability of other major sources of family planning information, such as the television and newspapers, are still very limited in rural areas. These factors might account for the reason rural adolescents are less likely to use contraceptives. Additionally, limited availability of drug stores and health facilities, could also be contributing to the low usage of contraceptives in the rural areas. For example the regions that had the lowest levels of contraceptive use have been shown to have limited number of health facilities[14].

Conclusion

The identification of place of residence and marital status as independent predictors of contraceptive use among sexually active female adolescents indicate that more attention needs to be paid to contraception among married and rural adolescents. It also shows that these groups of

sexually active adolescents are at a higher risk of pregnancy and STIs.

In the short to medium term, the government and its partners should consider outreach services for adolescents' sexual and reproductive health in the rural areas, whilst improving the capacity of health service providers to deliver adolescent friendly services. In the long term they should target not just increasing the availability of health facilities in the rural areas but also improving the privacy in the reproductive health section of these facilities. For all adolescents with unmet need for contraception, married and unmarried alike, access to youth-friendly contraceptive services are vital in order to strengthen their sexual and reproductive health and rights and reduce risks for HIV infection.

Further research to explore the trends in contraceptive use over as well as among male adolescents is essential. As a start, this research could use data from the five GDHS (1988 – 2008). Specific studies can later be designed for this purpose. The studies should also have qualitative components to help give further explanation to the trends and also add the individual experience to the figures. Additionally new ways of reaching rural and married adolescents with SRH information and services should also be explored in these studies.

Competing interests

The authors declare that they have no competing interests.

Contribution of Authors

Gaetano Marrone, Lutuf Abul-Rahman and Annika Johansson conceptualised the research idea. Lutuf Abdul-Rahman, Zaake De Coninck and Gaetano Marrone conducted the data analysis and wrote the first draft of the paper. All the authors edited the paper.

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