



Determinants of modern contraceptive use: A cross-sectional study among market women in the Ashiaman Municipality of Ghana

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ABSTRACT

Background: In Ghana, the use of modern contraceptives has been shown to be consistently low among women in informal jobs. This study examined the awareness, knowledge and availability of modern contraceptives, prevalence and determinants of modern contraceptive use among market women in the Ashiaman Municipality of Ghana.

Method: A cross-sectional study was conducted among 290 market women of the reproductive age. Data were collected between May and July 2017 using a structured questionnaire. Pearson chi-square and Fischer exact tests, and logistic regression analysis were conducted to examine the determinants of modern contraceptives use.

Results: The average age of respondents was 29 ± 5.96 years. There was a universal awareness and high knowledge (98.6%) about modern contraceptives; however the prevalence of their usage was 36.9%. Determinants of modern contraceptive use included negative thoughts about the use of contraceptives ($p = 0.020$), and husbands/partners deciding the use of contraceptive ($p = 0.004$). Multiple regression showed lower odds of modern contraceptive use among respondents that had negative thoughts about modern contraceptives use ($OR = 0.39$; 95% $CI = 0.21-0.75$) compared to those with positive thoughts about modern contraceptive use; and respondents whose husbands or partners decided for them to use contraceptives ($OR = 0.34$; 95% $CI = 0.18-0.63$) compared to women whose husbands or partners did not decide for them to use contraceptive.

Conclusion: The key determinants identified underline the need for interventions that emphasize practical education of both men and women focusing on the benefits of modern contraceptive services to help demystify the misconceptions and negative thoughts about modern contraceptives, and decrease male's disapproval of their use.

1. Introduction

The use of modern contraceptive methods in developing countries has been propagated for the purposes of cutting down fertility rates, lowering population growth rates, empowering particularly woman in childbearing for better health conditions, and to enhance socio-economic growth (Levine et al., 2006). Modern contraceptives have desirable benefits such as spacing and determining the desired family size (number of children), reducing maternal and infant morbidity and

mortality, empowering women and enhancing economic development, offering protection against sexually transmitted diseases including HIV/AIDS, and decreasing particularly unsafe abortion cases (Nonvignon & Novignon, 2014; World Health Organization, 2018).

Despite the known benefits of contraceptives, the use of modern contraceptives is low and the unmet needs for family planning are persistently high in several African countries (Cleland, Ndugwa, & Zulu, 2011). Between 2012 and 2017, the average prevalence of modern contraceptive use among married women or those in relationships in

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Africa was estimated at 23.9% (95% uncertainty interval [UI] 22.9–25.0) and 28.5% (UI 26.8–30.2), respectively (Cahill et al., 2018). In West Africa, a low prevalence of modern contraceptive use of less than 20% was reported in 2017 among married women or those in relationships in several countries (Cahill et al., 2018).

In Ghana, an estimated low average prevalence of 27.1% (UI 22–32.9) has been reported (Cahill et al., 2018). Even though most recent national health surveys in Ghana have shown an increase in the use of modern contraceptives from 22% in 2014 to 25% in 2017 (Ghana Statistical Service, 2015; Ghana Statistical Service, 2018), and an increase of more than 5 times in the last three decades (5% in 1988 to 25% in 2017), Ghana like other West Africa countries, may miss its desired contraceptive prevalence target of 50% by the year 2020 (Adjei et al., 2015). According to the 2010 National population and housing census, the Ashiaman municipality where this current study was conducted, has a general fertility rate of 77.5, a little higher than the regional average of 75.7 per thousand women aged 15–49 years (Ghana Statistical Service, 2014). However, according to the Ashiaman District Health Information Management System report, only 18% of modern contraceptive use was reported in 2015 (Ashiaman District Health Directorate) which was well below the national prevalence of 25% (Ghana Statistical Service, 2018).

The uptake of modern contraceptive methods has been noted to be associated with several factors. Studies in Ghana have established socio-demographic factors including women's age, education, wealth status, and number of living children (Nketiah-Amponsah, Arthur, & Abuosi, 2012; Nonvignon & Novignon, 2014). Nonvignon and Novignon (2014) further found that having access to family planning services and knowledge of contraceptive methods were associated with increased use of modern contraceptives. Other factors including insurance ownership, partner's approval, geographical area of residence (Nketiah-Amponsah et al., 2012), religion, being engaged in a form of employment and/or occupation, and being married (Aryeetey, Kotoh, & Hindin, 2010; Nketiah-Amponsah et al., 2012) have also been identified to be related to the use of contraceptives. In Burkina Faso, user's opposition and husbands' disapproval, health concerns from fear of side effects, and high cost of contraceptives have also been documented as method-related reasons for non-use of modern contraceptives among women with unmet needs (Adebowale & Palamuleni, 2014).

The factors that drive the uptake of modern contraceptive differ across countries, regions and cultures (Nketiah-Amponsah et al., 2012), and as such are contextual (Beson, Appiah, & Adomah-Afari, 2018). Several studies in Ghana have explored the factors influencing modern contraceptive use, but these studies have focused on the general women population of the reproductive age (Achana et al., 2015; Apanga & Adams, 2015; Aryeetey et al., 2010; Beson et al., 2018; Eliason et al., 2014; Ebu, Boateng, Pereko, & Hormenu, 2018). Meanwhile, the uptake of modern contraceptives usage is found to be consistently low among women in informal jobs including sales (Avisah et al., 2018). Again, modern contraceptives usage among women in informal job class especially market women have not been characterized and less known. Relevant knowledge and understanding of modern contraceptive usage among this understudied population are critical for contextualizing uptake promotion interventions. This study aimed at examining the awareness, knowledge and availability of modern contraceptives, prevalence and determinants of modern contraceptive use among market women using one of the largest urban community market at Ashiaman Municipality in Ghana

2. Methods

2.1. Study design and setting

The study was a cross-sectional descriptive study conducted between May and July 2017 at Ashiaman, the capital of Ashiaman Municipality of the Greater Accra region. Ashiaman is about 30 km

from Accra, the capital of Ghana. Ashiaman Municipality is located within Latitude 5° 42' N and Longitude 0° 01' W, spans a total land area of about 45 Km² and made up of 7 Sub-municipal areas namely Amui Djor, Blackkpatsona, Gbemi, Maamomo, Mantseman, Nii Anang, and Tsinaiaigber sub-municipal areas for the purposes of planning and delivery of health services (Ghana Statistical Service, 2014). Ashiaman Municipality is a cosmopolitan area with an estimated population of 209 289 of which 57 936 are females aged 15–49 years, and comprise largely of migrants from different parts of Ghana (Ghana Statistical Service, 2014). The total fertility rate is 2.6% and a crude birth rate of 23.7%, and a general fertility rate of 77.5 per one thousand women aged 15–49 years (Ghana Statistical Service, 2014). The Municipality has one hospital, two public clinics, four health centres, four Community Health Planning Services (CHPS) facilities and fifteen private clinics. These health facilities provide among other services family planning, reproductive and child health and maternal services. The CHPS facilities specifically provide comprehensive maternal and child health services including family planning, and in these facilities family planning services and commodities are to large extent subsidized. Family planning services and commodities can also be accessed in private pharmacy shops.

The Ashiaman Municipality has two main markets; the central market and the Nii Anang Adjor market. The central market is the largest market and located within the capital of the municipality. It is a busy daily market where all kinds of commodities are sold, and solely regulated and maintained by the Ashiaman Municipal Assembly.

2.2. Study population and sampling

The study was conducted among market women of reproductive age who sell in the Ashiaman central market, the largest market in the municipality that was purposively selected. Market women form part of the women involved in informal jobs, and as such present the opportunity to characterize the use of modern contraceptives for this class of women who are understudied on the topic. The study sample was drawn from a subsample of reproductive-aged market women aged 18–49 years who resided at Ashiaman Municipal area and sold items at the central market. Women aged 18–49 years, who owed a shop/stall or shop/stall attendant who resided at Ashiaman Municipal area and sold items at the central market were included in the study. Women were excluded from the study when age below 18 years and above 49 years and were shoppers at the market. The minimum sample size for the study was determined using the Cochran's sample size formula (Cochran, 1977) with the parameters: national prevalence of modern contraceptive use (22%) (Ghana Statistical Service, 2014), 95% confidence interval ($z = 1.96$), margin of error of 5%, and 10% non-response rate. A minimum sample size of 290 was determined. A multi-stage sampling technique was employed to select the market women for the study. First the systematic random sampling was used to select the shops or stalls by beginning at the main entrance of the market. A bottle was spun and the direction of the bottle at the halt of spinning was used to determine the shop or stall to be first surveyed (Aminde et al., 2017). The total number of women who owned shops and/or stalls and attendants at the Ashiaman market could not be obtained to determine the interval for the systematic sampling, and as such after the point of start was determined, one in every three shops or stalls that was owned by a woman and/or had a woman attendant within the target aged group was interviewed as employed in a similar study in Nigeria (Egede et al., 2015). Within each selected shop or stall, where more than one woman were identified, a simple random sampling using balloting was run for eligible women wherein a candidate that selects from a box a ballot paper with the inscription 'YES' was included in the survey, and those with 'NOs' meant exclusion from the study (Aminde et al., 2017). Women in shops or stalls who were selected and unwilling to take part in the study were replaced by women in the next shops or stalls.

2.3. Data collection and tools

A structured questionnaire was used to collect data. The first section of the questionnaire collected information on participant's socio-demographic characteristics including age, marital status, educational level, religion, ethnicity, number of children, good sold, and average income per month. The second section of the questionnaire enquired about awareness and knowledge on modern contraceptives, contraceptive use and availability. The third section elicited for the potential determinants of modern contraceptive use. Modern contraceptive methods were defined as male and female condoms, oral pills, implants, injectable, intrauterine device, foam/jelly, diaphragms, and cervical caps. Awareness was measured as ever heard of modern contraceptives whilst knowledge on modern contraceptive was measured as the ability of the respondent to mention at least one of the modern contraceptive methods. Current modern contraceptive use was defined as currently using any of the modern contraceptive methods. Ten research assistants who were community health nurses and at the time of the study attached to the CHPS facilities and offered family planning services in the municipality, but on their off-duty days in order not to interfere with their normal daily duties, were recruited, and trained on research ethics, the rationale of the study and data collection techniques to administer the questionnaires. The training also included the approach and content of questionnaire translation into the local dialects to ensure that consistent, valid, reliable, and uniform data is collected. The questionnaire was administered through face to face interviews to study respondents by the research assistants. The questionnaire was formulated from literature reviewed on modern contraceptive use among women of the reproductive age and was pretested in the Medina main market of the La Nkwantanang Medina Municipal District, a cosmopolitan area with similar characteristics as those in the study area. This allowed for the revision of the questionnaire where necessary before the main data collection was done. The questionnaire was designed and administered in English language but questions were translated into the local languages Akan-Twi, Ga and Ewe by the research assistants during the interviews for respondents in cases where a respondent could not understand the English language. The interviews which lasted for an average time of 15 min per respondent were conducted in the market at the shops and stalls of the respondents when they were not attending to customers, respecting their privacy and also administered questionnaires were anonymized by identifying them with only codes.

2.4. Data analysis

Data collected were entered into, cleaned and analyzed with STATA Version 12. Categorical variables were summarized into proportions, and the Pearson chi-square and Fischer exact tests where appropriate were first done to establish the relationship between the categorical variables and use of modern contraceptives. Univariate and multivariate logistic regressions were further done to further test the strength and direction of the associations between independent variables and the use of modern contraceptives reporting unadjusted and adjusted Odds Ratios (OR) and their corresponding 95% confidence intervals (CI). Variables that showed significant associations (at $p < 0.05$) from the chi-square test were selected into multiple regression model and controlled for possible confounders in a stepwise manner. Confounders considered included all the significantly associated variables at the chi-squares analysis. Statistical significance was accepted at $p < 0.05$. The Hosmer-Lemeshow goodness-of-fit test was done for the model; a chi-square statistic of 1.176(4) and significant value of 0.882 was recorded indicating the model sufficiently fits the data. The tolerance test was done to test for multicollinearity and using the Variance Inflation Factor (VIF), the results (VIF values ranging from 1.07 to 1.58) showed no existence of multicollinearity.

Table 1

Distribution of the current use of contraceptive by background characteristics.

Factors	Total, n(%)	Contraceptive use, n (%)		Chi-square p-value
		Yes	No	
<i>Age in years</i>				
18–24	73(25.2)	30(28.0)	43(23.5)	0.24
25–35	175(60.3)	58(54.2)	117(63.9)	
> 35	42(14.5)	19(17.8)	23(12.6)	
<i>Marital status</i>				
Married	213(73.4)	80(74.8)	133(72.7)	0.54
Divorced/Separated	62(21.4)	20(18.7)	42(22.9)	
Widowed	15(5.2)	7(6.5)	8(4.4)	
<i>Educational level</i>				
No education	30(10.3)	14(13.1)	16(8.7)	0.27
Primary	38(13.1)	13(12.2)	25(13.7)	
JHS	114(39.3)	37(34.6)	77(42.1)	
SHS	65(22.4)	22(20.6)	43(23.5)	
Tertiary	42(14.8)	21(19.6)	22(12.0)	
<i>Religion</i>				
Christianity	203(70.0)	78(72.9)	125(68.3)	0.41
Islam	87(30.0)	29(27.1)	58(31.7)	
<i>Ethnicity</i>				
Ga	59(20.3)	24(22.4)	35(19.1)	0.30
Akan	111(38.3)	43(40.2)	68(37.2)	
Dangme	48(16.6)	18(16.8)	30(16.4)	
Ewe	38(13.1)	8(7.5)	30(16.4)	
Others*	34(11.7)	14(13.1)	20(10.9)	
<i>Items sold</i>				
Food stuff	110(37.9)	40(37.4)	70(38.2)	0.64
Provision	46(15.9)	17(15.9)	29(15.9)	
Drinks	55(19.0)	17(15.9)	38(20.8)	
Clothing	79(27.2)	33(30.8)	46(25.1)	
<i>Average income/GH**</i>				
350 or less	24(8.3)	9(8.4)	15(8.2)	0.78
351–500	101(34.8)	38(35.5)	63(34.4)	
501–650	58(20.0)	23(21.5)	35(19.1)	
Above 650	107(36.9)	37(34.6)	70(38.3)	
<i>Number of children</i>				
1–4	174(60.0)	67(62.6)	107(58.5)	0.49
> 4	116(40.0)	40(37.4)	76(41.5)	

* Other ethnic groups in Ghana.

** GH¢ = Ghana Cedis = 5.2USD. JHS = Junior High School; SHS = Senior High School.

2.5. Ethical approval and consent to participants

Ethical clearance to conduct the study was obtained from the Ghana Health Service Ethical Review Committee (Protocol ID No. GHS-ERC: 43/02/2017). Informed written consent, signed or thumbprint, was obtained from all the study participants. Participation in the study was entirely voluntary. There was no risk and no direct benefits associated with taking part in the study.

3. Results

3.1. Socio-demographic characteristics of the respondents

Table 1 presents the socio-demographic characteristics of the respondents. A total of 290 market women from the Ashiaman central market were recruited for the study, with a response rate of 100%. The average age of the respondents was 29 ± 5.96 years. Majority of the respondents were married (73.5%) and had 1 to 4 children (60%), and were Christians (70%). Respondents were commonly from the Akan ethnic group (38.3%) and had attained a Junior High School education (39.3%). About 38% of the respondents sold food stuffs and 37% of them reported an average income of GH¢651.00 and above (~\$125.2) per month.

Table 2
Awareness and knowledge about modern contraceptives (N = 290).

Statement	Frequency	Percent
<i>Heard about modern contraceptives</i>		
Yes	290	100.0
<i>Source of information*</i>		
Television	289	99.7
Radio	281	96.9
Hospital/clinic	270	93.1
Friends	229	79.0
Posters/banners	67	23.1
Newspaper/magazines	96	33.1
<i>Know any modern contraceptive method</i>		
Yes	286	98.6
No	4	1.4
<i>Identified modern contraceptive method* (n = 286)</i>		
Female sterilization	105	36.7
Male sterilization	85	29.7
Pills	275	96.2
Injectable	270	94.4
Male condom	286	100.0
Female condom	230	80.4
Diaphragm	106	38.1
IUD	245	85.7
Implants	120	42.0
Foam/Jelly	86	30.1

* Multiple responses allowed.

3.2. Awareness and knowledge about contraceptives

Table 2 provides information on respondents' awareness and knowledge about modern contraceptives. There was universal (100%) awareness of modern contraceptives among the respondents and approximately 99% of them knew of at least one modern contraceptive method. Among the modern contraceptives known to the respondents included were male condoms (100%), pills (96.2%), injectables (94.4%), female condoms (80.4%), intrauterine device (85.7%), and implants (42%). Respondents' sources of information on modern contraceptives were the television (99.7%), radio (96.9%), the hospital/clinic (93.1%), and their family and friends (79%).

3.3. Availability and use of modern contraceptives among respondents

Table 3 presents data on the availability and use of modern contraceptives among respondents. Only 36.9% (n = 107) of the respondents were currently using modern contraceptives, and the male condoms (35.5%), injectables (27.1%), and pills (19.6%) were the commonly used contraceptives. A high proportion of the respondents (93.5%, n = 100/107) who used contraceptives indicated they could access contraceptives in their area of residence and was mostly from the pharmacy shop (89.7%). Most respondents said accessing modern contraceptives was easy (81.3%).

3.4. Determinants of modern contraceptive use among respondents

Bivariate analysis showed that socio-demographic characteristics were not statistically significantly associated with the use of modern contraceptive among the market women (Table 1). Knowledge about modern contraceptives, and availability of services were also not associated with the use of modern contraceptives (Table 4). However, thoughts about the use of modern contraceptives (p = 0.020); cost of the service (p = 0.030); fear of the side effects of modern contraceptives (p = 0.021); and husbands/partners deciding the use of contraceptive (p = 0.004) were associated with the use of modern contraceptives (Table 4).

Univariate regression analysis indicated that the odd of modern contraceptive use were low among market women who held negative

Table 3
Availability and use of modern contraceptives among respondents.

Statement	Frequency	Percent
<i>Use of modern contraceptive (n = 290)</i>		
Yes	107	36.9
No	183	63.1
<i>Modern contraceptive currently used (n = 107)</i>		
Pills	21	19.6
Injectable	29	27.1
Male condom	38	35.5
Female condom	5	4.7
Diaphragm	2	1.9
Implants	9	8.4
Foam/jelly	3	2.8
<i>Access to contraceptives in area (n = 107)</i>		
Yes	100	93.5
No	7	6.5
<i>Place to get modern contraceptives (n = 107)*</i>		
Hospital/Clinic	74	69.2
Pharmacy	96	89.7
Chemical shop	70	65.4
<i>Process of getting contraceptive (n = 107)</i>		
Difficult	20	18.7
Easy	87	81.3

* Multiple responses allowed.

Table 4
Other factors associated with the use of contraceptive among the market women.

Factors	Contraceptive use, n(%)		Chi-square p-value
	Yes	No	
<i>Knowledge of modern contraceptive</i>			
Yes	104(97.2)	182(99.4)	0.14**
No	3(2.8)	1(0.6)	
<i>Perception about the use of modern contraceptives</i>			
Positive	51 (47.7)	62 (33.9)	0.02*
Negative	56 (52.3)	121 (66.1)	
<i>Fear of side effects</i>			
Yes	87 (81.3)	166 (90.7)	0.02*
No	20 (18.7)	17 (9.3)	
<i>Cost of service is high</i>			
Yes	45 (42.1)	54 (29.5)	0.03*
No	62 (57.9)	129 (70.5)	
<i>Time constraint</i>			
Yes	27 (25.2)	45 (24.6)	0.90
No	80 (74.8)	138 (75.4)	
<i>Distant to clinic is far</i>			
Yes	7 (6.5)	14 (7.8)	0.73
No	100 (93.5)	169 (92.2)	
<i>Availability of service</i>			
Yes	69 (64.5)	130 (71.0)	0.25
No	38 (35.5)	53 (29.0)	
<i>Husband/partner decide contraceptive use</i>			
Yes	69 (64.5)	146 (67.9)	0.004*
No	38 (35.5)	37 (47.3)	
<i>Dissatisfaction with service</i>			
Yes	81 (75.7)	142 (77.6)	0.71
No	26 (24.3)	41 (22.4)	
<i>Lack of patient-provider communication</i>			
Yes	71 (66.4)	128 (69.9)	0.53
No	36 (33.6)	55 (30.1)	
<i>Cultural beliefs support use of modern contraceptives</i>			
Yes	91 (85.0)	160 (87.4)	0.57
No	16 (15.0)	23 (12.6)	

* Significant at p < 0.05.

** p-value from Fischer's exact test.

Table 5

Univariate and multivariate regression models of factors associated with contraceptive use among respondents (N = 290).

Factors	Crude OR (95% CI)	P-value	Adjusted OR (95% CI)**	P-value
<i>Thoughts about the use of modern contraceptives</i>				
Position	Ref		Ref	
Negative	0.56 (0.35–0.92)	0.02*	0.39 (0.21–0.75)	0.005*
<i>Fear of side effects</i>				
No	Ref		Ref	
Yes	0.44 (0.22–0.89)	0.02*	0.56 (0.27–1.17)	0.13
<i>Cost of service</i>				
No	Ref		Ref	
Yes	1.73 (1.05–2.85)	0.03*	1.04 (0.57–1.92)	0.88
<i>Husband/partner decide use</i>				
No	Ref		Ref	
Yes	0.46 (0.27–0.78)	0.005*	0.34 (0.18–0.63)	0.001*

OR = Odd Ratio.

CI = Confidence Interval.

Ref = reference category.

* p < 0.05.

** Adjusted for thought about contraceptive use, fear of side effects, cost of service & husband/partner's decision.

thoughts about the use of modern contraceptives (OR = 0.56; 95% CI = 0.35–0.92) compared to those who held positive thought about the use of modern contraceptives. Market women who had fears about the side effects of modern contraceptives (OR = 0.44; 95% CI = 0.22–0.89) were also at lower odd of using modern contraceptive compared to women who did not fear the side effects of the use of modern contraceptive. Furthermore, the odd to use modern contraceptives were lower for women who indicated that their husbands/partners decide the use of contraceptive (OR = 0.46; 95% CI = 0.27–0.78) compared to women who indicated husbands/partners do not decide the use of contraceptive. However, women who held that the cost of the service was high (OR = 1.73; 95% CI = 1.05–2.85) were more likely to use modern contraceptives compared to women who indicated that the cost of the service was not barrier to modern contraceptive use (Table 5).

Multivariate logistic regression analysis revealed that negative thoughts about the use of modern contraceptives (AOR = 0.39; 95% CI = 0.21–0.75), and husbands or partners deciding the use of modern contraceptives (AOR = 0.34; 95% CI = 0.18–0.63) independently determined the use of modern contraceptive among the market women (Table 5).

4. Discussion

The study was aimed at examining the awareness, knowledge and availability of modern contraceptives, prevalence and determinants of modern contraceptive use among market women in the Ashiaman Municipality of Ghana. There was a universal awareness of modern contraceptives among the respondents similar to what has been established elsewhere in Africa where all women of the reproductive age in the study had heard about modern contraceptives (Mosha, Mgidwa, & Msuya, 2017). The ability of almost all the women in the current study to mention at least one modern contraceptive is comparable to the slightly above 90% (Eliason et al., 2014), about 94% (Awusabo-Asare, Biddlecom, Kumi-Kyereme, & Patterson, 2006), 98% (Beson et al., 2018) and 99.7% (Aryeetey et al., 2010) of women aged 15–49 knowing at least a method of modern contraceptive reported in previous studies in Ghana. Generally, there is nearly universal awareness and knowledge about modern contraceptives in Ghana (Ghana Statistical Service, 2015), and the findings of the current study support that fact. Common modern contraceptives mentioned in our study included male condoms, followed by pills and injectables. This is

consistent with the findings from previous studies in Ghana (Aryeetey et al., 2010; Ghana Statistical Service, 2015; Grindlay, Dako-Gyeke, Ngo, Eva, Gobah, & Reiger, 2018), and other parts of Africa (Asekun-Olarinmoye et al., 2013; Mosha et al., 2017). The male condom is the most popular contraceptive method, mainly because it has widely been publicized in the media and as part of efforts aimed at combating HIV/AIDS (Ajong, Njotang, Kenfack, Yakum, & Mbu, 2016). In contrast to our observation in this study, injectables were the most popular contraceptive among reproductive age women in other previous studies (Beson et al., 2018; Eliason et al., 2014). The injectables are seen as appropriate for new users of modern contraceptives particularly in a community where the use of modern contraceptive is connected with promiscuity (Eliason et al., 2014). The observed high level of awareness and knowledge on contraceptives could further be attributed to the success of the various campaigns mainly through television and radio, and educational interventions by the Ghana Health Service and its donor partners including Non-Governmental Organizations, with a major campaign message like “It’s your life, it’s your choice” which for over a decade have often emphasized on these methods.

Women in the study indicated to have accessed information on modern contraception commonly through the television, radio and hospitals/clinic. Previous studies have also identified hospitals, radio, and television in Ghana (Eliason et al., 2014) and hospital and radio in Tanzania (Mosha et al., 2017). Television was the most common source of information, similar to that reported by another study in the Greater Accra region of Ghana where television was identified as the main source of information (Beson et al., 2018), but contrary to what has been documented in a previous study in Nigeria where among a group of market women of the reproductive age, friends were identified as the major source of information on contraceptives (Egede et al., 2015). Television has been indicated to be more reliable and educative in disseminating information than through friends (Egede et al., 2015), which is disputed to be full of misrepresentation and misapprehension, and possibly fashioned by egocentrism (Oyedokun, 2007). In our study setting, which was urban, most of the inhabitants have adequate access to television and radio, and there is good reception, hence that could have made it easy for them to access information on modern contraceptives. In Ghana, radio and television, play a huge role in creating awareness, particularly on health issues and have been used in many health campaigns as channels of communication (Hill et al., 2007; Oppong Asante & Oti-Boadi, 2013). The findings of the current study underpin the strategies of use of these media as channels of communication in health campaigns.

The prevalence of modern contraceptive use in our study is comparable to 36.8% in Nigeria (Osaro, Tobin-West, & Mezie-Okoye, 2017), 36% in South Sudan (Obwoya, Wulifan, & Kalo, 2018), 39.9% in Nepal (Chaudhary, Dangol, Rai, & Rai, 2016), but higher than the 21% reported previously in Ghana (Beson et al., 2018). The dominant use of male condoms as modern contraceptive recorded by this study is consistent with similar studies in Nigeria where male condom was the most commonly used contraceptive among market women (Egede et al., 2015), and rural women (Osaro et al., 2017). On the contrary, injectable have been reported as a common contraceptive used among women in the Iringa Municipality of Tanzania (Kamangu, 2016), citing high accuracy of prevention to pregnancy than pills and condoms, and reduction of frequent visit to clinic for the service as compared to other methods (Kamangu, 2016). The dual roles played by condoms for the prevention of sexually transmitted infections, and control of unintended pregnancies, which have been the main motivation for national adoption in family planning services in Ghana (Apanga & Adams, 2015) in addition to high accessibility (Williamson, Parkes, Wight, Petticrew, & Hart, 2009), may have accounted for the male condom being the commonly used method in this study. The observation made in our current study could also suggest the dismissal of the notion (especially in male-controlled communities) that family planning is women’s business which may be linked to low prevalent of male condom usage

reported among women (Eliason et al., 2014).

Women who were using modern contraceptives in this study indicated the availability and easy access to modern contraceptives from pharmacy, hospital and chemical shops in their places of residence. This finding is similar to the observation made in the Iringa Municipality of Tanzania where modern contraceptives were reportedly available and accessible from hospitals, health centres, pharmacies and nearby shops (Kamangu, 2016). The current study findings suggest the progress made in making modern contraceptive services available and easily accessible to meeting the needs of people, as lack of access in particular have been documented as a major barrier to the use of modern contraceptives in developing countries including Ghana (Schivone & Blumenthal, 2016). However, the current setting of the study is an urban area which is often associated with increased availability and accessibility to family planning services compared to rural areas (Nakirijja, Xuili, & Kayiso, 2018), which may have contributed to the observation made in this study.

Knowledge about modern contraceptive was found not to be associated with the use of modern contraceptives, consistent with the findings of several previous studies (Apanga & Adams, 2015; Beson et al., 2018; Eliason et al., 2014; Osaro, Tobin-West, & Mezie-Okoye, 2017). In Ghana, barriers to the use of modern contraceptive including husbands/partners' disapproval, fear of side effects, and misconceptions about family planning (Apanga & Adams, 2015; Hindin, Mcgough, & Adanu, 2014), and service-provider factors (Hindin et al., 2014) even though there is high knowledge and awareness level, have been documented. This suggests that having high knowledge does not guarantee the use of modern contraceptives and therefore prompts for strategies to now focus on practical informational and educational programs addressing these challenges to the use of modern contraceptives rather than just giving out mere information on modern contraceptives.

This study shows that women who had negative thoughts about the use of modern contraceptives were less likely to use modern contraceptives. This is supported by the misconceptions (Apanga & Adams, 2015; Hindin et al., 2014) including the notions that contraceptives are dangerous and could damage the reproductive system (Okanlawon, Reeves, & Agbaje, 2010) and that their use is wrong (Nsubuga, Sekandi, Sempeera, & Makumbi, 2016); and notions that engaging in family planning go against the moral, cultural, or religious principles (Adefalu et al., 2018) which have been linked to low use of contraceptives. This finding suggests the need for programs aimed at promoting contraceptive use to emphasize on the benefits of modern contraceptive services to help demystify the misconceptions and negative thoughts about the use of modern contraceptive.

Likewise, this study revealed that women who indicated that their husbands/partners decide the use of contraceptive were less likely to use modern contraceptives. This finding is supported by similar studies in Ghana (Beson et al., 2018; Eliason et al., 2014) and Cameroon (Njotang et al., 2017) that report that men/partners' approval, support or discussion about contraceptive use are positively associated with the use of a modern contraceptive. Men opposition to the use of modern contraceptives has been indicated as a major barrier to the use of modern contraceptives (Apanga & Adams, 2015; Egede et al., 2015), and their influence on contraceptive use among women in sub-Saharan African have been documented (Vouking, Evina, & Tadenfok, 2014). The finding in our study, as stipulated by Beson et al. (2018), mirrors the largely traditional male-controlled societies of Ghana where men normally take the lead and power in making decisions, even on family planning and confirms how men are essential for the effective implementation of family planning programs (Assaf & Davis, 2019; Eliason et al., 2014). This finding implies the need for the Ghana Health Service and its partners to actively educate and involve men in family planning campaigns and interventions.

The cost of service was revealed as not a determinant of the use of modern contraceptives in our study. This is in consonance with what has been established in a previous study in Ghana (Eliason et al., 2014).

The cost of family planning service has been indicated to mainly account for the failure of women to use the obtainable contraceptives in sub-Saharan Africa, and that the common use of condoms and pills is due to their affordability (Nakirijja et al., 2018), which may have reflected in our study where condom, injectable and pills were cited as the commonly used contraceptives. Furthermore, it could be noted that respondents in our current study were engaged in a form of occupation and mostly reported a monthly average income equivalent to $\geq \$125.2$, possibly placing them in the position to afford the services. This could explain the observation where the cost of service could not determine the use of modern contraceptives.

The fear of side effects of modern contraceptives has been documented to be a barrier to the use of modern contraceptives (Abiodun & Balogun, 2009; Izale, Govender, Fina, & Tumbo, 2014; Mosha et al., 2017). This is contrasted by the finding of this study where perceived fear of side effect did not significantly determine the use of modern contraceptives. Ukegbu et al., have explained that perceived fear of side effects could emanate from the lack of information on modern contraceptives (Ukegbu, Onyeonoro, Nwokeukwu, & Okafor, 2018), but as observed in our study, there was high knowledge of modern contraceptives among the respondents suggesting they were well informed on modern contraceptives, which could explain why fear of side effects could not predict the use of modern contraceptives. This finding also suggests the success of the various campaigns aimed at raising awareness and knowledge on modern conceptions to demystify perceptions including the fear of side effects.

4.1. Study strength and limitations

The study has presented evidence on the determinants of modern contraceptive use among women in an informal job class such as market women in a cosmopolitan and densely populated urban area (Ashiaman Municipality), which could have important implications for health policy and interventions on sexual and reproductive health in the area and other similar areas in Ghana.

As a cross-sectional study, no causal interpretation of the results can be made. The study relied on respondents' self-reported data and could not be verified, which raises the issue of respondents' recall bias and may have resulted in the over or under estimation of the study parameters although all quality assurance and ethics measures were employed in data acquisition and processing. Generalization of the findings of the study is also limited as the study respondents were recruited from a sample of women from a single and purposively selected market in Ashiaman district of the Greater Accra Region. However, the findings of this study could be considered indicative of the context considered.

5. Conclusion

In conclusion, market women of the reproductive age were adequately informed about modern contraceptive, however the use of contraceptives was low even though modern contraceptives were available and accessible. The use of modern contraceptives was found to be influenced by misconceptions as to the negative thoughts about use of modern contraceptive, and husbands or partners deciding the use of contraceptive. These outcomes underline the need for interventions emphasizing practical education of both men and women to focus on the provision of information emphasizing the benefits of modern contraceptive services instead of just the creation of awareness and knowledge about modern contraceptives, in order to demystify the misconceptions and negative thoughts about modern contraceptive, and decrease male's disapproval of their use.

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Ethical approval and consent to participants

Ethical clearance to conduct the study was obtained from the Ghana Health Service Ethical Review Committee (Protocol ID No. GHS-ERC: 43/02/2017). Informed written consent, signed or thumbprint, was obtained from all the study participants. Participation in the study was entirely voluntary. There was no risk and no direct benefits associated with taking part in the study.

CRediT authorship contribution statement

Agnes Asiedu: Conceptualization, Methodology, Investigation, Resources. **Bernard Yeboah-Asiamah Asare:** Methodology, Software, Formal analysis, Data curation, Writing - original draft, Visualization. **Bismark Dwumfour-Asare:** Methodology, Writing - review & editing. **Diana Baafi:** Writing - review & editing. **Abdul-Razak Adam:** Writing - review & editing. **Sawdah Esaka Aryee:** Writing - review & editing. **John Kuumuori Ganle:** Supervision.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ijans.2019.100184>.

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