

# **Factors associated with current use of modern contraceptive methods among young market women working at St. Balikuddembe Market in Kampala, Uganda: A cross-sectional study**

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## **Abstract**

### **Background:**

Despite increased access to modern contraception among young women globally, little is known about modern contraceptive use among women working in the informal sector who are usually missed out on in most national surveys. We assessed the factors associated with modern contraceptive use among young market women in Kampala, Uganda.

### **Methods:**

This was a cross-sectional study conducted among 343 young women aged 15-24 years, working at St. Balikuddembe Market in Kampala, the Capital City of Uganda. Data were collected on socio-demographic and behavior characteristics including the current use of modern FP methods. We computed the proportion of young women who reported the current use of modern FP methods and determined the factors associated with the current use of modern FP methods using a modified Poisson regression model.

### **Results:**

Of 343 young market women, 56% (192) were food handlers. Nearly half of the women (48.4, n=166) had at least one biological child. Forty-seven percent (160) of the women reported the current use of modern FP methods. Having 1-2 living children (adjusted Prevalence Ratio [aPR] = 1.81, 95% Confidence Interval [95%CI]: 1.20, 2.72) or three or more living children (aPR=2.20, 95%CI: 1.33, 3.64), age 20-24 years (aPR=2.15, 95%CI: 1.46, 3.17), having secondary education (aPR=2.75, 95%CI: 1.05, 7.21), and having a positive attitude towards modern FP (aPR=1.35, 95%CI: 1.07, 1.71) were positively associated with current use of modern FP methods.

### **Conclusion:**

The use of modern contraception among young market women remains sub-optimal. Having at least one living child, older age, and secondary education were the factors associated with modern contraceptive use in this population.

### **Recommendation:**

Our findings suggest a need for innovative, target-specific FP interventions with a focus on several biological children, level of education, and age, to improve the uptake of modern contraceptive services among young market women in this setting.

**Keywords:** Modern contraceptive methods, factors associated with FP use, young market women,

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## 1. INTRODUCTION:

Globally, the adolescent birth rate (ABR) has decreased from 64.5 births per 1000 women in 2000 to 42.5 births per 1000 women in 2021, but rates of change have been uneven across regions.[1] Adolescent girls in low and middle-income countries continue to have the highest rates at 101 and 53.2 births per 1000 women, respectively, in 2021.[2] As of 2019, adolescents aged 15–19 years in low- and middle-income countries (LMICs) had an estimated 21 million pregnancies each year, of which approximately 50% were unintended and which resulted in an estimated 12 million births.[3,4] Bearing children at a young age has profound health and social consequences for most young parents and their children.[5] Young mothers are less likely to complete their education, to be happily married, to be employed, to earn high wages, to have safe deliveries, and more likely to have larger families.[6-10] These findings suggest a need for interventions to reduce adolescent pregnancy rates, particularly unintended pregnancies, in LMICs.

The use of modern contraception is one of the most efficacious interventions in preventing unintended pregnancies.[11] In a spectrum modeling of the impact of contraception on pregnancies, abortion, and birth in South Africa (2015-2030), Chola et al.[12] estimated that a 0.68% annual increase in contraceptive use would reduce the number of pregnancies from 1.3 million in 2014 to one million in 2030. Family planning can also avert approximately 7,000 newborn and child and 600 maternal deaths. However, despite these potential benefits of contraception, access to contraceptives remains limited to adolescent girls in many parts of the world.[13,14] Even when adolescents can obtain contraceptives, they may lack the agency or the resources to pay for them, knowledge on where to obtain them, and how to correctly use them.[1] As a result, contraceptive use has remained generally low in most LMICs,[15] thereby contributing

to the high teenage pregnancies observed in this part of the world.[16].

Although several studies have documented the factors associated with the use of modern contraceptive methods in several settings,[17-19] a majority of these studies have been conducted among women in the general population[20-22] or specific sub-populations such as HIV-positive women, [23] adolescent girls,[24] and women living in the fishing communities.[25] Limited studies have been conducted to assess factors associated with the current use of modern contraceptive methods among young market women working in the informal sector even though this population is one of the poorest and most vulnerable. [26] As has been documented elsewhere, women working in the informal sector must continue to bring income to the household, care for their physical and mental health after childbirth, and attempt to exclusively breastfeed their infant and provide nurturing care. [27] Without a minimum wage, maternity leave, job, and wage security, these women usually find challenges supporting their families and would benefit from efforts intended to support them to have manageable families, including improved use of contraception to limit childbirth, as appropriate.

In this study, we explored the factors associated with the current use of modern contraceptive methods among young market women to inform interventions to improve access to contraceptive services among these informal sector workers.

## 2. METHODS

### 2.1. Study site

The study was carried out at St. Balikuddembe Market (formerly called ‘Owino Market’) in the Central Division of Kampala, the Capital City of Uganda. St. Balikuddembe Market is the largest market in Uganda and serves as a center of informal sector businesses within Kampala City in particular and the Greater Kampala Metropolitan Area in general. The market employs over 50,000 vendors and traders; 70% of whom are women. Up to 300,000 customers visit the market every day, with the number even more on

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weekends and a few days before public holidays, making it one of the busiest markets in Uganda. St Balikuddembe Market, named after one of the Uganda Martyrs and Catholic Saint (St Joseph Mukasa Balikuddembe) who was killed in 1885 at the place where the market now stands, features hundreds of vendors selling food items, clothes, shoes, bed sheets, vegetables, electronics, textiles, and bags.[28] The market employs approximately 26,250 young women aged 15-24 years. Kampala City has five divisions which include Kampala central division, Lubaga, Makindye, Nakawa, and Kampala central division. Kampala central division was selected purposively because it had the highest presence of young women working in the informal sector. According to the information verbally obtained from one of the market masters, 45% (n=11,812) of the young women employed in this market are engaged in food handling/vending, 35% (n=9,187) in selling fresh fruits and vegetables, 11% (n=2,888) in selling agricultural produce and 10% (n=2,363) in garment selling.

## *2.2. Study design and population*

This was a cross-sectional study conducted among 343 young market women aged 15-24 years, engaged in food handling or fruit and vegetable selling in St Balikuddembe Market in Kampala, Uganda. This category of women was selected considering that they constituted up to 80% of the women working at St Balikuddembe Market. Thus, we believed that a sample drawn from this category would be a fair representation of the majority of young women who operate in this market.

## *2.3. Sample size Determination*

Assuming a contraceptive prevalence rate among young women of 31.1%, a margin of error of 5%, and a standard normal distribution of 196, we estimated that we would need to enrol 329 young women aged 15-24 years into the study. After adjusting for a non-response rate of 4.1%,<sup>29</sup> we estimated a final sample size of 343 young women to be enrolled in the study.

## *2.4. Sampling procedures*

We conducted a pre-study visit to St. Balikuddembe Market and collected data on the number of young women aged 15-24 years and what type of activities they were engaged in. Based on records obtained from the Market leadership, there were 26,250 young women aged 15-24 years. Of these, 45% (n=11,812) were engaged in food handling; 35% (n=9,187) were engaged in selling fresh fruits and vegetables; 11% (n=2,888) were engaged in selling agricultural produce, while 10% (2,363) were engaged in selling garments. We purposely decided to focus on women who were engaged in food handling and selling fresh fruits and vegetables since up to 80% of the young women were engaged in these activities. We identified 192 stalls operated by food handlers and 151 stalls operated by fruit and vegetable sellers. At each stall, we compiled a list of young women aged 15-24 years and used this list as our sampling frame. One young woman aged 15-24 years was randomly selected from the list of women at each stall using simple random sampling techniques. The selected women were contacted and provided with information about the study, after which we assessed their willingness to participate in the study. If they were not willing to participate in the study, another woman was selected from the same stall where the first woman had been selected, while keeping the first woman who was selected outside the sampling frame. All women who agreed to participate in the study were then given an appointment for an interview. It should be noted that there was no existing list of young women working in the market other than the one that we generated for this study. This lack of an existing sampling frame could likely have resulted in the selection of women who were present at the time of the interview, something that would result in the sample not being fully representative of the women engaged in food handling or selling fresh fruits and vegetables in the market. However, we tried to minimize this bias by asking women if there are days when some women do not work in the market (e.g. when they have gone to replenish supplies) but we were told that women work on their stalls every day. It is, therefore, likely

that our sampling frame included all the women working on the selected stalls.

### *2.5. Study variables*

The dependent variable was the current use of modern contraception while the independent variables were: the study participant's age, education level, occupation, religion, marital status, number of biological children alive, awareness of contraceptive methods, attitude towards contraception, when to have a child or the next child, and age of the youngest child.

### *2.6. Data collection methods and procedures*

Data collection took place between April and May 2020. Data were collected by trained research assistants (3 females with at least a Diploma certificate) through face-to-face interviews guided by a questionnaire. Research assistants were trained for two days, including a day for pre-testing of the study tools in one of the markets outside Kampala City. Research assistants assessed participants' study eligibility (age 15-24 years, engaged in food handling/vending or fruit and vegetable selling) and, among those that were eligible, they took them through the informed consent process. Interested participants signed an informed consent form. Study participants were allowed to ask questions about their participation in the study before getting enrolled. Eligible participants were administered a structured, pilot-tested, interviewer-administered questionnaire that was conducted in Luganda, the main local language that is spoken in the study area. Data were collected on socio-demographic characteristics including age, education, marital status, religion, occupation, number of live biological children the participant had, age of the youngest child, and when to have a child or the next child. Data were also collected on awareness, attitude, and current use of modern contraception. The data collection process took an average of 40 minutes. Respondents were approached at their convenience in the absence of their clients to attend to. After data collection, all the completed questionnaires were edited in the field to allow for clarification on unclear responses with

the respondent before the research assistants left the field.

### *2.7. Measurement of variables*

The primary outcome was the current use of modern contraceptive methods, defined as the percentage of young women who responded in affirmative to questions assessing their current use of modern family planning (FP) methods. Initially, respondents were asked if they were currently using anything to delay or avoid getting pregnant. If they responded in the affirmative, they were asked about what they were doing to delay or avoid getting pregnant. Questions on FP use were restricted to ten modern FP methods including female sterilization, male sterilization, contraceptive pills, Intra Uterine Device (IUD), injectable injections, implants, male condoms, female condoms, foam/jelly, and emergency contraception. The current use of modern FP was assessed by socio-demographic and behavior characteristics. The primary explanatory variable was several biological children alive, categorized as 1=no child; 2=1-2 children, and 3=3+ children. Age was categorized into two categories 15-19, and 20-24; education was categorized as 1=no education, 2=primary and 3=secondary education while respondents were categorized as being food handlers/vendors or fruit and vegetable sellers, depending on their occupation in the market. Marital status was categorized as either married or non-married. Religion was categorized into Catholics, Anglican, Born again, and Muslim. Attitude towards family planning was assessed by reading out a series of statements to which respondents were asked to choose a response based on a five-point Likert-like scale ranging from 1=Strongly agree to 5=Strongly disagree. Some of the statements included: "Modern contraception is better than traditional methods in limiting childbirth", or "Benefits of using contraceptives outweigh any associated negative effects". We then computed an average of scores; lower values denoted a more favorable (positive) attitude while higher values denoted a less favorable (negative) attitude towards contraception.

### **3. Data Analysis**

The unit of analysis was a young woman aged 15-24 years working at St Balikuddembe Market. Quantitative data were entered into a computerized database using EpiData 3.1. We conducted a descriptive analysis to determine the percentage of young women aged 15-24 years who were aware of modern FP methods and the percentage of all young women who reported current use of modern FP methods, among those that were aware of modern FP methods. Further, to identify factors associated with the outcome variable, a modified Poisson regression analysis was performed. Variables with p-value  $\leq 0.2$  at the bivariate analysis (age, marital status, occupation, religion, number of biological children alive, when to have a child or next child, and attitude towards the use of modern FP methods) were considered for the multivariable modified Poisson regression model. Variables with a p-value  $<0.05$  in the multivariable modified Poisson regression model were taken as significant predictors. Crude and adjusted odds ratios with their 95% confidence intervals were calculated.

#### *3.1. Ethical considerations*

The study was approved by the Research and Ethics Committee of Makerere University School of Public Health, Kampala, Uganda. Potential respondents were provided with detailed information about the study and invited to participate. Interested respondents gave verbal informed consent before participating in the study.

## **4. RESULTS**

#### *4.1. Characteristics of young women*

Overall, a total of 378 women working at the selected stalls were approached for an interview. Initially, 30 women refused to be interviewed (20 food handlers and 10 women selling fresh fruits and vegetables) claiming that they were busy with their customers. After data collection had begun, three food handlers and two women selling fresh fruits and vegetables, who had agreed to be interviewed, declined participation without giving

a formal reason. We suspect that they were not interested in participating in the study, although they did not mention this outrightly. At the end of the data collection exercise, a total of 343 young women had been interviewed.

Of the 343 women interviewed, 56.0% (n=192) were food handlers/vendors while (44.0%, n=151) were fresh fruit and vegetable sellers. The majority of the respondents had worked in the market for more than 2 years (61.8%, n=212). The mean age of the participants was 20.9 years ranging from 15 -24 years and more than two-thirds of the respondents (68.2%, n=234) were aged 20-24 years. Thirty-eight percent of all respondents ascribed to the Catholic faith. Slightly more than half of the respondents (53.6%, n= 184) had never married, 54.5% (n=187) had attained secondary education, while slightly more than half of the respondents (51.6, n=177) had no child (Table 1).

#### *4.2. Current use of modern FP methods*

Overall, 46.6% (n=160) of all respondents reported the current use of any modern FP methods. Current use of modern FP methods was significantly higher among those aged 20-24 years compared to those aged 15-19 years (20-24 years: 59.4% vs. 15-19 years: 19.3%; P<0.0001). We also observed a significant difference in the use of modern FP methods between Catholics (63.4%, n=83) and other religious denominations (p<0.0001). Married women reported significantly higher current use of modern FP methods compared to those that are not married (married: 69.0% vs. not married 27.2%; p<0.0001). The current use of modern FP methods was significantly higher among those with secondary education than those with primary education or no education (secondary education: 50.3% vs. primary education: 45.6% vs. no education: 16.7%; p<0.023). Current use of modern FP methods was significantly higher among those with 3+ children alive, than those with 1-2 children alive or no child alive (3+ children: 87.5% vs. 1-2 children: 65.3% vs. no child: 27.1%; p<0.0001) (Table 2).

The proportion of young women who reported the current use of specific modern FP meth-

Table 1: **Background characteristics of young market women, Kampala, Uganda**

<b>Variable</b>	<b>N=343 (%)</b>
<b>Age-group (years)</b>	
15-19	109 (37.8)
20-24	234 (68.2)
Mean (IQR)	20.92 (19,2)
Standard Deviation (SD)	2.38
<b>Education</b>	
None	18 (5.2)
Primary level	138 (40.2)
Secondary level	187 (54.5)
<b>Marital status</b>	
Not married	184 (53.6)
Married	159 (46.4)
<b>Religion</b>	
Catholic	131 (38.3)
Anglican	111 (32.4)
Born Again	54 (15.7)
Muslim	47 (13.7)
<b>Occupation</b>	
Food handler/vendor	192 (56.0)
Fresh fruit and vegetable seller	151 (44.0)
<b>Number of biological children alive</b>	
No child	177 (51.6)
1-2 children	150 (43.7)
3+ children	16 (4.7)

ods was assessed. The four most currently used modern methods were condoms (17.0%, n=59) followed by injectable injections (16.0%, n=55), emergency contraception 0%, n=31 and pills (7.6%, n=26 (Figure 1).

#### **4.3. Factors associated with current use of modern FP methods.**

At the bivariate analysis level, factors found to be negatively associated with the current use of modern FP methods were being Anglican and being Muslim. On the other hand, the factors that were positively associated with current modern FP use were age 20-24, being married, having secondary education, being a fruit and vegetable seller, working in the market for having 1-2 children or 3+ children alive, and having a positive attitude towards modern FP use. Af-

ter adjusting for potential and suspected confounders, the factors that were negatively associated with current modern FP use were being Anglican ([aPR]=0.49, 95% CI:0.33, 0.72), working in the market for 2+ years (aPR=0.73, 95%CI: 0.58, 0.92), planning to have a child or next child in 2+ years (aPR=0.57, 95% CI: 0.38,0.84) and not knowing when to have a child or next child (aPR=0.71 95% CI: 0.54,0.92). On the other hand, factors that were positively associated with the current use of modern FP methods were having 3+ biological children alive (aPR=2.20, 95%CI: 1.33, 3.64), having 1-2 children (aPR=1.81, 95% CI:1.20,2.72), being 20-24 years (2.15, 95% CI:1.46,3.17), being a fruit and vegetable seller (aPR=1.24, 95%CI: 1.02,1.51), having secondary education (aPR=2.75, 95% CI: 1.05,7.21) and having a positive attitude towards

Table 2: Current use of modern family planning methods among young market women in Kampala, Uganda, stratified by background characteristics

Variable	Total(N)	Yes (n, %)	No (n, %)	p-value
<b>Age-group (years)</b>				
15-19	109	21 (19.3)	88 (80.7)	
20-24	234	139 (59.4)	125 (53.4)	<0.0001
<b>Education</b>				
No education	18	3 (16.7)	15 (83.3)	
Primary level	138	63 (45.6)	75 (54.3)	<0.023
Secondary level	187	94 (50.3)	93 (49.7)	
<b>Marital status</b>				
Not married	184	50 (27.2)	134 (72.8)	
Married	159	110 (69.1)	79 (49.7)	<0.0001
<b>Religion</b>				
Catholic	131	83 (63.4)	48 (36.6)	
Anglican	111	24 (21.6)	87 (78.4)	
Born Again	54	32 (59.3)	22 (40.7)	<0.0001
Muslim	47	21 (44.7)	26 (55.3)	
<b>Occupation</b>				
Food handlers/vendors	192	76 (39.6)	116 (60.4)	
Fresh fruit and vegetable sellers	151	84 (55.6)	67 (44.4)	<0.003
<b>Years worked in the market</b>				
< 2	131	54 (41.2)	77 (58.8)	
≥ 2	212	106 (50.0)	106 (50.0)	0.113
<b>Number of biological children alive</b>				
None	177	48 (27.1)	129 (72.9)	
1-2	150	98 (65.3)	52 (34.7)	<0.0001
≥ 3	16	14 (87.5)	2 (12.5)	
<b>When to have a child or next child (years)</b>				
< 2	64	32 (50.0)	32 (50.0)	
≥ 2	58	20 (34.5)	38 (65.5)	0.124
I don't know	221	108 (48.9)	113 (51.1)	
<b>Attitude towards modern FP methods</b>				
Negative	112	43 (38.4)	69 (61.7)	
Positive	231	117 (50.6)	114 (46.3)	<0.033

modern FP use (aPR=1.35, 95% CI:1.07,1.71) (Table 3).

## 5. DISCUSSION:

Our study on the current use of modern FP among young market women aged 15-24 years working at St Balikuddembe market, Kampala,

Uganda, found that 4 in every 10 young market women reported the current use of any modern FP method. We found that having at least one living biological child, age 20-24 years, being a fruit and vegetable seller, having secondary education, and having a positive attitude towards modern FP use were positively associated with the current use of modern contraception. These findings

Table 3: Crude and adjusted odds ratios associated with current use of modern FP methods among young market women in Kampala, Uganda

Variable	Current use of modern FP		Crude Prevalence Ratio and 95% Confidence Interval	Adjusted Prevalence Ratio (95%CI)
	Total (N)	n (%)		
Number of biological children alive				
None	177	48 (27.1)	1.00	1.00
1-2	150	98 (65.3)	2.41 (1.84,3.15)	1.81 (1.20,2.72)
≥ 3	16	14 (87.5)	3.23 (2.38,4.34)	2.20 (1.3,3.64)
Age-group (years)				
15-19	109	21 (19.3)	1.00	1.00
20-24	234	139 (59.4)	3.08 (2.07, 4.60)	2.15 (1.46,3.17)
Education				
No education	18	3 (16.6)	1.00	1.00
Primary level	138	63 (45.6)	2.74 (0.96,7.83)	1.75 (0.57,4.57)
Secondary level	187	94 (50.3)	3.02 (1.06, 8.57)	2.75 (1.05,7.21)
Marital status				
Not married	184	50 (27.2)	1.00	1.00
Married	159	110 (69.1)	2.55 (1.97,3.30)	1.29 (0.84,1.98)
Religion				
Catholic	131	83 (63.4)	1.00	1.00
Anglican	111	24 (21.6)	0.34 (0.2,0.50)	0.49 (0.33,0.72)
Born Again	54	32 (59.3)	0.94 (0.72, 1.20)	1.10 (0.88,1.37)
Muslim	47	21 (44.7)	0.71 (0.5, 0.99)	0.99 (0.68,1.43)
Occupation				
Food handlers/vendors	192	76 (39.6)	1.00	1.00
Fresh fruit and vegetable sellers	151	84 (55.6)	1.41 (1.12, 1.76)	1.24 (1.02,1.51)
Years worked in the market				
< 2	131	54 (41.2)	1.00	1.00
≥ 2	212	106 (50.0)	1.21(0.95, 1.55)	0.73 (0.58, 0.92)
When to have a child or next child (years)				
< 2	64	32 (50.0)	1.00	1.00
≥ 2	58	20 (34.5)	0.69 (0.45,1.06)	0.57 (0.38,0.87)
I don't know	221	108 (48.9)	0.98 (0.74, 1.30)	0.71 (0.54,0.92)
Attitude towards modern FP methods				
Negative	112	43 (38.4)	1.00	1.00
Positive	231	117 (50.6)	1.32 (1.01, 1.72)	1.35 (1.07,1.71)

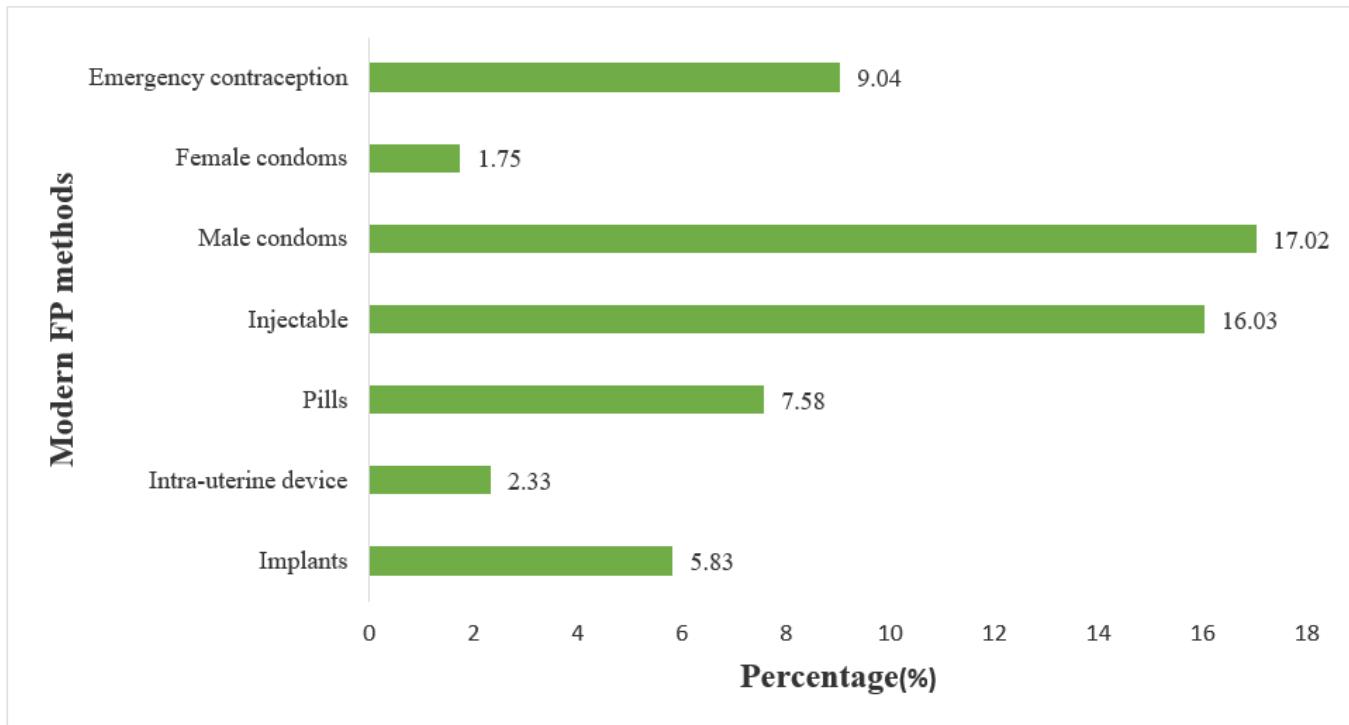


Figure 1: Percentage of young market women who reported current use of specific modern FP methods.

suggest that the use of FP among young market women is not only low but is largely driven by several individual factors. These factors include a woman's age (older women were more likely to use modern FP methods than younger ones), level of education (the higher the level of education, the more likely a young woman was likely to use modern FP methods), a woman's occupation (those engaged in selling fruits and vegetables were more likely to use than others), and presence of living biological children (women with at least one living biological child were more likely to use than without any child). Collectively, these findings suggest a need for innovative approaches to increase the uptake of modern contraception services among young market women in this setting.

Our finding that the use of modern FP methods was higher in young women with at least one living biological child is generally consistent with findings from previous studies which established an association between several living biological children and contraceptive use [29,30]. The association between having at least one biological child and contraceptive use is not surprising given

that those with at least one child may not experience as much societal and cultural pressure to have children as those without children. As a result of reduced societal pressure, women with at least one child may be able to safely negotiate with their male partners to begin to use family planning for child spacing purposes, and once they have achieved their desired family size, they may begin to use family planning for limiting child-birth, as appropriate. Thus, individuals who are close to or those that have attained their family size, going by the number of living biological children that they have, may be more inclined to use modern contraception than those who have not yet achieved their desired family size or those that do not have any living biological child. These findings call for a need to implement target-specific FP promotional interventions while taking into consideration the fertility desire needs and the extent to which women have achieved their ideal family size into consideration.

In the same vein, the finding that those who are aged 20-24 years and those with secondary education were more likely to use contraception

than their counterparts may not be surprising given that, as has been proven in previous studies, [20,31-33] contraceptive use increases with increasing education and the woman's age. There is also evidence to show that contraceptive use increases with increasing education, [34,35] which is consistent with the findings reported in this paper. More educated young women tend to desire fewer children than uneducated women and are more likely to know the benefits of using modern contraception than their low-educated or uneducated counterparts. To increase the use of modern contraception, our findings suggest a need for target-specific FP promotional efforts that can meet the reproductive health needs of the different categories of women. For instance, women with no living biological children can receive information on FP for child-spacing while those with at least one child can receive information on FP for limiting childbirth.

However, we can't fully explain why women engaged in selling fresh fruits and vegetables were more likely to use contraception than those engaged in food handling/vending. Likewise, we don't know why women who had spent two or more years working in the market were less likely to use contraception than those who had worked in the market for a less period. We speculate that the observed differences in the use of contraceptive services could be related to the nature of the occupations that women were engaged in which might have created more time for some women than others to access contraceptive services. For instance, unlike fresh fruits and vegetable sellers, women involved in food handling/vending spend most of the day working (preparing and serving food to customers or selling fresh food to customers, etc.) and may have limited time to go to health facilities to access contraceptive services. However, these are probably explanations that may not explain the observed differences between the two groups. Thus, further research is warranted to understand the reasons why women engaged in selling fresh fruits and vegetables were more likely to report current contraceptive use than those involved in food handling/vending. Likewise, further research is warranted to under-

stand why those who had worked in the market longer were less likely to use contraceptives than those who had worked in the market for a short time.

## 6. Study limitations and strengths

Our study had important limitations and some strengths. The primary outcome, the current use of modern contraception, was assessed through self-reports; if these women lied about their current use of modern contraception, then, this is likely to yield unreliable and biased estimates about the prevalence of modern contraceptive use. We tried to minimize this by interviewing women individually and in private and also assuring them that data collected from them will be used in aggregate format but this may not have completely removed the risk of under- or over-reporting of contraceptive prevalence that is assessed solely based on self-reports. In addition, data on contraceptive use among market women were collected from women engaged in food handling and selling fresh fruits and vegetables at the expense of the other young women who were engaged in other activities including selling agricultural produce and garments. Thus, the findings from this study may be fully generalizable to all the young market women at St Balikuddembe market in Kampala, Uganda. However, given that food handling and selling fresh fruits and vegetables constitute up to 80% of the activities that young market women are engaged in, we believe that our findings may apply to a majority of the young women working in most markets in Kampala and elsewhere. However, despite this limitation, our study is the first of its kind to target young women in a market setting, a sub-population in the informal sector that is usually ignored in public health research. [27] Thus, the findings from this study can help to inform the design of interventions that can help to inform the delivery of sexual and reproductive health services, including contraception, to these women working in the informal sector.

## 7. CONCLUSION

Our study shows that the use of modern contraceptives use among young market women is still sub-optimal. Having at least one child alive, age 20-24 years, having secondary education, and having a positive attitude towards the use of modern FP methods were positively associated with the current use of modern FP among young women working in the St. Balikuddembe market.

## 8. RECOMMENDATIONS

Our study findings suggest a need for innovative, target-specific FP interventions focusing on women's age, education level, and the number of living biological children. Specifically, target-specific interventions are needed to target:

1. Women who have at least one child should be sensitized on short-term FP methods which they can use for spacing-up children until they have attained their desired family size. Women without any living biological children can be sensitized about the available modern FP methods-mix and associated side effects so that they can use the best method to use until they have decided to have a child.
2. Women who are aged 15-19 years: if these women do not yet have children, these women should be provided with information on the available modern FP methods-mix so that they can avoid unintended pregnancies until such a time when they decide to have children. If they have at least one child, they can be sensitized on short-term FP methods that they can use to space up children until they have attained their desired family size. Women with the desired family size can be provided with information on long-acting reversible or permanent contraception methods, based on their FP needs.
3. Women with primary education or less: these should be sensitized on the available modern FP methods mix and the associated side-effects so that they can make a decision on which FP method to use. The FP

information should be packaged in easy-to-read and largely pictorial formats that these women can easily understand since most of the women with primary education or less are illiterate.

4. Women who are not interested in using any modern FP methods: these women should be sensitized about the use of other non-modern FP methods. While non-modern FP methods are generally less effective in pregnancy prevention than modern methods, their use may be a better option than not using any FP methods at all.

## 9. Abbreviations

ABR	Adolescent birth rate
aPR	Adjusted prevalence ratio
CI	Confidence interval
cPR	Crude prevalence ratio
FP	Family planning
HIV	Human immunodeficiency syndrome
IUD	Intra-uterine device
LMIC	Low and middle income country

## 10. Ethics approval and consent to participate

This study was reviewed and approved as part of Molly Nambajjwe's dissertation research for her undergraduate degree at Makerere University School of Public Health, Kampala, Uganda. All participants provided written informed consent before participation in the study. All market women who were below the legal age of consent (i.e. those aged 15-17 years) who operated their stalls in the market were considered emancipated minors, as per the research guidelines from the Uganda National Council for Science and Technology. All study procedures were performed by the ethical standards of the institutional and/or national research committees and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

## 11. Acknowledgement

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## 12. Authors' contributions

This study was conceived by NM as part of her Bachelor of Environmental Health Science degree at Makerere University School of Public Health. NM wrote the study protocol, supervised data collection, conducted the data analysis, and drafted the manuscript. JKBM guided the initial conceptualization of the study as NM's academic supervisor, provided scientific oversight during study implementation, contributed to the interpretation of the findings, and reviewed the final manuscript for substantial intellectual content. NM, JKBM, and DM participated in the writing of the initial draft of this paper, contributed to the interpretation of the findings, and reviewed the final manuscript for substantial intellectual content. All authors read and approved the final manuscript.

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## 14. Disclosure

The authors declare that they have no competing interests.

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