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# Factors influencing contraceptive utilisation among postpartum adolescent mothers: a cross sectional study at China-Uganda friendship hospital

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## Abstract

**Background** Globally, modern contraceptives remain underutilized among postpartum mothers resulting in the rise of short birth intervals. While there are a range of other factors that moderate the uptake of contraceptive services, understanding the significance of their influence is critical in public health programming. This study sought to analyze maternal and health facility factors influencing the utilization of contraceptives among postpartum mothers in urban areas of Uganda.

**Methods** Using a cross-sectional study design, a health facility-based study in urban areas of Kampala was conducted from January to March 2023. A total of 332 women aged between 15 and 22 years were randomly selected for the interviews using semi-structured questionnaires. The data was analyzed using a statistical software program R version 4.1.2. Chi-square and multivariable logistic regression were used to determine factors associated with postpartum contraceptive intake among adolescent mothers.

**Results** Overall, 28.3% of contraceptive usage was reported in the current study. The majority of the respondents, 98 (29.52%), were within the age group of 17–18 years, and the unmarried were 255 (76.81%). Factors associated with contraception use were income below UgX 500,000 (OR 4.546; CI 1.785–12,193,  $p=0.002$ ), occupation status of housewife and student (OR: 3.526; CI: 1.452–8.812,  $p=0.006$ ), distance of less than 5 km from health facility (OR: 2.62; CI 1.97–3.55;  $p=0.028$ ), and having a contraceptive preference (OR: 3.526; CI: 1.452–8.812,  $p=0.006$ ).

**Conclusions** Contraceptive use is low among adolescent post-partum mothers. Income, occupation status, proximity to a health facility, and preference for a particular contraceptive method are factors associated with contraceptive use in this study. Understanding attitudes and views regarding contraception use is therefore essential for creating effective interventions, given the detrimental effects of adolescent pregnancy.

**Keywords** Contraceptives, Naguru-China Uganda Friendship, Hospital, Postpartum adolescent mothers

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## Introduction

According to the World Health Organization (WHO), family planning significantly enhances health and saves the lives of children and their mothers [1]. Additionally, family planning methods have been associated with improved socioeconomic welfare for families and communities. [2, 3]. Indeed, it has been argued that family planning is an important pathway to achieving sustainable development goals (SDG) across the five different SDG themes of People, Planet, Prosperity, Peace, and Partnership [2, 3]. While these benefits of contraceptives have been widely recognized across the globe modern contraceptives remain underutilized among postpartum mothers [1]. This has been implicated in the rise of short-birth pregnancies, and it is estimated that over 200 million women in developing countries wish to limit or spread out their pregnancies, but lack access to modern family planning methods [4–6, 12].

Current available contraceptive methods include barrier methods such as intrauterine devices and condoms, while non-barrier methods include orals and injectables, as well as emergency and postpartum contraception strategies [7]. Condoms are one of the barrier contraceptive methods that are crucial for preventing sexually transmitted infections but should be used in conjunction with other forms of contraception due to their high failure rate [8, 9]. In the United Kingdom, post-partum contraception use is reported at 69%, while in the United States, usage is reported at 40% [9, 11]. In West Africa, lower rates of modern contraceptive methods (36%) are reported according to systematic reviews of postpartum contraception studies [10]. In Uganda, a much lower prevalence of contraceptive uptake (15.4%) was reported by Nakiwunga et al. (2022) among mothers aged 18 to 45 years [11]. Contraceptive uptake among adolescent postpartum mothers is not well elucidated; however, Sserwnja et al. (2021) report low utilization (9.4%) among female adolescents [12].

Studies have revealed of barriers to contraceptive utilization among postpartum mothers in low and middle-income countries (LMICs), ranging from a lack of or limited knowledge on the utilization, sexuality education, and limited access to services, a high risk of misperceptions, and harmful social norms surrounding premarital sexual activity and pregnancy [12, 13]. Furthermore, more than 80% of the Ugandan population lives in rural areas where access to family planning services is inadequate [14].

Uganda has a liberal family planning policy that permits all sexually active individuals and couples to obtain contraceptive services [15]. This policy is largely implemented through support from the Ministry of Health (MOH) and several Non-Government Organizations (NGOs) who together provide free planning services

through public health facilities such as the China-Uganda Friendship Hospital and community-based distribution programs. Additionally, private health facilities further provide support through the provision of contraceptive services at low fees; the cost implications are due to costs incurred on labour (human resources) and consumables.

Despite all the favorable factors and a high level of awareness of at least one contraceptive method (98%), a large proportion of adolescents in Uganda have never used a contraceptive method [21]. Therefore, this study focused on the factors influencing the use of contraceptives among postpartum adolescent mothers attending China-Uganda Friendship Hospital.

## Materials and methods

### Study design and study site

This was a cross-sectional study that employed quantitative data collection methods to gather data from postpartum adolescent mothers receiving care at Naguru China Uganda Friendship Regional Referral Hospital (NCUFH). The hospital provides a wide range of services, including counseling and treatment for sexual and reproductive health, which includes human immune deficiency virus (HIV) and sexually transmitted infections (STI), postnatal care, family planning, and counseling and care throughout pregnancy. The hospital has two wings of antenatal care services, which are the teenage antenatal clinics and general mother-child health. The general mother-child health wing operates five days in a week, and as per the records, the clinic handles over eighty mothers per day. On the other hand, the teenage antenatal clinic operates four days a week, attending to an average of 30 mothers a day. Since all of the care is provided without charge, low-income earners are drawn to it, particularly young people (teenagers), the majority of whom are from Kampala's slum areas

### Study population

The population of this study included all the postpartum adolescent mothers receiving care at the teenage antenatal clinic at the China-Uganda friendship regional referral hospital throughout the study period.

### Inclusion criteria

All consenting postpartum adolescent mothers 22 years of age or younger receiving care at the NCUFH facility. Postpartum adolescent mothers who had given birth to live babies.

### Exclusion criteria

Those who decline to consent to participate in the study. Those who were above the age of 22 years at the time of the study.

Postpartum adolescent mothers who were receiving emergency care.

### Sampling technique and procedure

A total of 332 adolescent mothers attending China Uganda Friendship Hospital were chosen using a simple random sampling technique. This was done to avoid a possible selection bias considering the homogeneity of the respondents as adolescents post-partum mothers. A free online random number generator ([www.random.org](http://www.random.org)) was used to this exercise and give all respondents a chance to participate in this study. The respondents were sampled from the teenage antenatal clinic, which attends to an average of 30 mothers a day for four days a week. Using the average daily attendance to estimate the population over the three months of study gave a total population of 1440; this was used as the maximum number, which was then fed into the online number generator to randomize the study sample size of 322. The respondents were then picked using both the online-generated number and the clinic registration number of the day throughout the entire study period.

### Data management

The data were collected, entered into Excel, organized, and stored in a protected way with locks and pass codes on computers and tabs. Data from the questionnaire was first entered in the research laboratory registers and then later double-entered into the computer using EPI DATA package 2.1, and then subsequently exported to a statistical software program R version 4.1.2 for analysis. Prior to analysis, all duplicate or unnecessary observations were eliminated from the dataset. The frequencies and proportions were determined. To determine the factors associated with contraceptive use, chi-square and logistic regression were used. Using a 95% confidence interval, associations with *p*-values less than 0.05 were considered to be statistically significant. The factors that were significantly associated with contraceptive use in the chi square analysis were then run in a logistic regression model.

### Ethical consideration

This study was approved by the Clarke International University Research and Ethics Committee (CLARKE-2023-639). An administrative clearance was sought from both the Kampala City Council Authority and the China-Uganda Friendship Hospital before the data collection process. The researcher obtained written informed consent from the study respondents before collecting any data, and the privacy and confidentiality of the participants' information were observed and maintained at all times. Furthermore, the study followed the Helsinki Declaration guidance on the ethical principles of having human participants in this study.

## Results

### Prevalence of contraceptive utilization

Generally, 28.3% (94/332) of the respondents used contraceptives. About 56.9% (189/332) of the respondents visited health facilities with family planning services. The most common contraceptive preferred was injection 37.35% (124/322) (Table 1).

### Demographic characteristics

The total number of respondents was 332, who were all postpartum adolescent mothers at China-Uganda Friendship Hospital, Naguru, Kampala district. Three quarters of the respondents (39.52%) were in the 17–18 age range, and the majority of these mothers (81.63%) identified as Christians, while just 18.37% identified as Muslims. Of the 332 mothers, 285 (76.81%) were unmarried, and the majority of them made less than UgX 500,000 a month. (Table 2)

### Factors associated with contraceptive use

In the chi square analysis, there was a significant association between distance from the health center and contraceptive use ( $p=0.039$ ); similarly, there was also a significant association between whether the person was required to pay and contraceptive use ( $p=0.009$ ).

In the multivariable logistic regression model, respondents with a preferred contraceptive method were significantly associated with contraceptive use (OR: 2.62; CI: 1.97–3.55;  $p=0.028$ ). The odds of women with a preferred contraceptive method using contraceptives were two times higher than their counterparts. Also, mothers who stayed within 5 km of the health facility were significantly associated with contraceptive use (OR: 2.10; CI: 1.44–2.48;  $p=0.033$ ). The odds of women who stayed within 5 km of the health using a contraceptive method were twice as high as their counterparts who stayed further away. (Table 3)

Mothers who earned less than UgX 500,000 were significantly associated with contraceptive use (OR 4.546; CI 1.785–12,193,  $p=0.002$ ). The odds of women earning less than UgX 500,000 were four times higher than their counterparts who earned more. Similarly, being a housewife was significantly associated with contraceptive use (OR: 3.526; CI: 1.452–8.812,  $p=0.006$ ). The odds of a housewife using a contraceptive method were three times higher than any other occupation under study (Table 4).

## Discussion

This study reveals a prevalence of 28.3% contraceptive use among adolescent postpartum mothers, indicating a lower rate compared to the 60.0% reported in a 2020 study from Uganda by Muyama et al. [16]. Similarly, previous study conducted outside Uganda, in Brazil among the same age group, have reported similar prevalence

**Table 1** Use of contraceptives and associated factors

| Variable   | Category                | Use contraceptives |            | N (%)      | p-value |
|--|-------------------------|--------------------|------------|------------|---------|
|  |                         | No                 | Yes        |            |         |
| Visit family planning  | no                      | 143(100)           | 0(0)       | 143(43.07) | 0.485   |
|  | yes                     | 21(11.11)          | 168(88.89) | 189(56.93) |         |
| <b>Maternal</b>  |                         |                    |            |            |         |
| Have preferred contraceptive                                     | no                      | 7(7.37)            | 88(92.63)  | 95(28.61)  | 0.027   |
|  | yes                     | 14(14.89)          | 80(85.11)  | 94(28.31)  |         |
| Type of contraceptive  | inject                  | 7(5.65)            | 117(94.35) | 124(37.35) |         |
|  | lud                     | 2(5.26)            | 36(94.74)  | 38(11.45)  |         |
|  | no                      | 143(100)           | 0(0)       | 143(43.07) |         |
| Type of health Centre  | private                 | 10(15.4)           | 55(84.6)   | 65(19.58)  | 0.801   |
|  | public                  | 11(8.9)            | 113(91.1)  | 124(37.35) |         |
| Why prefer a specific type of contraceptive                      | Less side effects       | 7(11.67)           | 53(88.33)  | 60(18.07)  | 0.946   |
|  | No                      | 143(100)           | 0(0)       | 143(43.07) |         |
|  | Readily available       | 14(19.72)          | 57(80.28)  | 71(21.39)  |         |
|  | Works longer            | 0(0)               | 17(100)    | 17(5.12)   |         |
|  | Works well              | 0(0)               | 41(100)    | 41(12.35)  |         |
| <b>Health facility</b>   |                         |                    |            |            |         |
| Distance from the health unit                                    | Less than 5 km          | 96(54.9)           | 79(45.1)   | 175(52.7)  | 0.039   |
|  | More than 5 km          | 68(43.3)           | 89(56.7)   | 157(47.3)  |         |
| Ever failed to access contraceptives due to long distance        | no                      | 164(52.56)         | 148(47.44) | 312(93.98) | 0.727   |
|  | yes                     | 0(0)               | 20(100)    | 20(6.02)   |         |
| Ever found family planning unit closed                           | I prefer not to mention | 143(100)           | 0(0)       | 143(43.07) | 0.110   |
|  | no                      | 21(15.22)          | 117(84.78) | 138(41.57) |         |
|  | yes                     | 0(0)               | 51(100)    | 51(15.36)  |         |
| Which day of the week  | I prefer not to mention | 143(100)           | 0(0)       | 143(43.07) |         |
|  | na                      | 21(15.22)          | 117(84.78) | 138(41.57) |         |
|  | Public holiday          | 0(0)               | 26(100)    | 26(7.83)   |         |
|  | Weekend                 | 0(0)               | 25(100)    | 25(7.53)   |         |
| Always find the contraceptive of choice whenever in need of them | I am not sure           | 143(100)           | 0(0)       | 143(43.07) | 0.046   |
|  | no                      | 21(11.86)          | 156(88.14) | 177(53.31) |         |
|  | yes                     | 0(0)               | 12(100)    | 12(3.61)   |         |
| Are you required to pay for family planning services             | I don't know            | 143(100)           | 0(0)       | 143(43.07) | 0.009   |
|  | no                      | 21(13.55)          | 134(86.45) | 155(46.69) |         |
|  | yes                     | 0(0)               | 34(100)    | 34(10.24)  |         |

rates [22]. The global challenge of low contraceptive utilization among adolescent mothers is underscored by unmet need for family from Kantorová et al. [17]. Consequently, there is considerable scope for improvement in both the utilization and choice of contraception among postpartum adolescent mothers. The low contraceptive use may be attributed to literacy level, limited awareness campaigns and counseling services in communities and schools to promote the use of modern contraceptive among adolescents [18, 19].

The likelihood of contraceptive use among the female adolescents increased significantly with the preference of specific contraceptive method. Thus, female adolescents with preferred method were more likely to use contraceptives than their counterparts. A study carried out in Tanzanian female youths reported unavailability of a preferred method of contraceptive discouraged uptake of modern contraceptives [20]. Another study in Malawi

also found that the quality and cost of family-planning services, rather than their proximity, influenced contraceptive use among young women [21]. This implies the importance of taking mothers' preference of specific contraceptives while placing orders for health facility stocks will increase contraceptive utilization. This study reports a high association of occupation with contraceptive use where students were six times likely to use contraceptives. Our findings are in agreement with other studies carried out elsewhere [15, 22, 23]. This could be due to promotion of interventions in schools such as prevention of teenage pregnancy; the increased awareness and access to contraceptive methods among students, as well as the influence of social and behavioral factors on contraceptive [24, 25]. Our findings reveal that health facilities within a distance of less 5 km of the respondents was highly associated with the increased chances of contraceptive use and mothers in this proximity were 2 times

**Table 2** Demographic characteristics

| Variable          | Category             | Frequency (%) |
|-------------------|----------------------|---------------|
| Age               | 14 to 16             | 54(16.27)     |
|                   | 17 to 18             | 98(29.52)     |
|                   | 19 to 20             | 92(27.71)     |
|                   | 21 to 22             | 88(26.51)     |
| Religion          | Christian            | 271(81.63)    |
|                   | Moslem               | 61(18.37)     |
| Education         | Non                  | 50(15.06)     |
|                   | primary              | 105(31.63)    |
|                   | Secondary            | 145(43.67)    |
|                   | Tertiary             | 32(9.64)      |
| Occupation        | Business             | 37(11.14)     |
|                   | Housewife            | 89(26.81)     |
|                   | Maid                 | 39(11.75)     |
|                   | Student              | 90(27.11)     |
|                   | Other                | 77(23.19)     |
| Marital           | Married              | 77(23.19)     |
|                   | Unmarried            | 255(76.81)    |
| Husband education | Primary and below    | 127(38.25)    |
|                   | Secondary and above  | 77(23.19)     |
|                   | Secondary            | 128(38.55)    |
| Income            | Greater than 500,000 | 63(18.98)     |
|                   | Less than 500,000    | 157(47.29)    |
|                   | None                 | 112(33.73)    |

**Table 3** Maternal and health facility factors relating to contraceptive use

| Variable (reference category)   | p-value | Odds ratio | Confidence interval |
|---|---------|------------|---------------------|
| <b>Maternal factors</b>   |         |            |                     |
| Preferred contraceptive (no)  |         |            |                     |
| Yes   | 0.028   | 2.62       | [1.97,3.55]         |
| <b>Health facility factors</b>  |         |            |                     |
| Distance from the health unit (More than 5 km)                        |         |            |                     |
| Less than 5 km  | 0.033   | 2.10       | [1.44,2.48]         |
| Always find the contraceptive of choice whenever in need of them (no) |         |            |                     |
| yes   | 0.550   | 0.787      | [0.02,5.113]        |
| Are you required to pay for family planning services (No)             |         |            |                     |
| yes   | 0.001   | 4.69       | [3.51,7.28]         |

likely to use contraceptives compared to their counterparts. In support of our findings, studies carried out elsewhere are in concordance with ours and they reported proximity to the health facility as a predictor to contraceptive use among the post-partum mothers [12, 26]. This could be due to easy access at convenient time and awareness of availability of the modern contraceptive services in the health facility. Also, nonpayment of contraceptive services in health facilities promotes the use of contraceptives and clients in these settings were found to be 4 times more likely to consume the service compared to the paying facilities. A previous study in urban Pakistan also showed that nonpayment for contraceptive services in health facilities can significantly increase the likelihood of clients using these services [27]. Among the studied population, economic factors, particularly

low income (as evidenced by mothers earning less than UgX 500,000) significantly increased the odds (4.55) of contraceptive use compared to those economically disadvantaged. This could be attributed to the nature of work that in most cases demands their daily attendance for pay and pregnancy is viewed as a barrier [26]. The use of contraceptives by housewives, compared to those who do business, is influenced by a variety of factors. Uddin and colleagues found that a balance of power in the spousal relationship is important, with sole decision-making by the husband is associated with lower odds of contraceptive use [28]. This is further supported by Mon and Liabsuetrakul, who identified the wife's health seeking perception, her income, spousal communication, and geographic barriers as significant predictors of contraceptive use [29]. Dixit et al. also highlighted the

**Table 4** Relationship between contraceptive use and disposing factors (multivariate logistic model)

| Variable (reference category)         |                      | p-value | OR [LCI, UCI]       |
|---------------------------------------|----------------------|---------|---------------------|
| Age (17to18)                          | 17to18 years         |         |                     |
|                                       | 19to20 years         | 0.589   | 1.218[0.596,2.5]    |
|                                       | 21to22 years         | 0.445   | 0.739[0.339,1.607]  |
| Education (Non)                       | Primary              | 0.403   | 0.654[0.232,1.731]  |
|                                       | Secondary            | 0.636   | 0.798[0.299,1.976]  |
|                                       | Tertiary             | 0.768   | 0.837[0.25,2.708]   |
| Occupation (business)                 | Business             |         |                     |
|                                       | Housewife            | 0.006   | 3.526[1.452,8.812]  |
|                                       | Maid                 | 0.144   | 2.246[0.766,6.798]  |
|                                       | Other                | 0.131   | 2.195[0.795,6.165]  |
| Marital (married)                     | Student              | 0.006   | 6.417[1.744,24.812] |
|                                       | Unmarried            | 0.612   | 0.853[0.458,1.568]  |
| Husband education (primary and below) | Secondary and above  | 0.323   | 1.43[0.706,2.927]   |
|                                       | Secondary            | 0.509   | 1.22[0.675,2.206]   |
| Income (None)                         | Greater than 500,000 | 0.085   | 2.571[0.892,7.735]  |
|                                       | Less than 500,000    | 0.002   | 4.546[1.785,12.193] |

importance of couples' concordant joint decision-making in meeting the unmet demand for contraception [30]. These studies collectively suggest that the use of contraceptives by housewives is influenced by a complex interplay of factors related to spousal dynamics, women's status, and communication.

## Conclusion

The prevalence of contraceptive use among postpartum mothers Naguru-China Friendship Hospital in Kampala Uganda was low with a higher preference for injectable contraceptives. Despite, the availability of the contraceptives at the health facility and other factors such as nonpayment and proximity to the health facility to the contraceptive utilization is low. Therefore, understanding the attitudes and views of postpartum teenagers regarding contraception is crucial for creating effective interventions, given the negative effects of adolescent pregnancy.

The study provides valuable insights into the prevalence and factors associated with contraceptive use among postpartum adolescent mothers in China – Uganda Friendship Hospital. The findings may contribute to the designing of targeted interventions for contraceptive utilization particularly for postpartum adolescent mothers and women with specific demographic characteristics.

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## Author contributions

R.W and S.W contributed to the design, conception, and data collection, fieldwork, drafting and writing of the manuscript. R.W, I.I and S.A contributed to data analysis and drafting of the manuscript. C.M.C, N.D and M.H contributed to supervision and drafting of the manuscript. All authors have read and approved the final manuscript.

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This study received no specific funding to declare.

## Data availability

No datasets were generated or analysed during the current study.

## Declarations

### Ethical approval and consent to participate

This study was approved by the Clarke International University Research and Ethics Committee (CLARKE-2023-639). An administrative clearance was sought from both the Kampala City Council Authority and the China-Uganda Friendship Hospital before the data collection process. The researcher obtained written informed consent from the study respondents before collecting any data, and the privacy and confidentiality of the participants' information were observed and maintained at all times. Furthermore, the study followed the Helsinki Declaration guidance on the ethical principles of having human participants in this study.

### Consent for publication

All authors approved the final manuscript for publication.

### Competing interests

The authors declare no competing interests.

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