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DETERMINANTS OF PREGNANCY AMONG YOUNG FEMALES IN UGANDA AGED 15-29 YEARS, A CROSS-SECTIONAL ANALYSIS.

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Abstract:

Background

Uganda grapples with a significant global total fertility rate of 5.4, marked by a growing youth demographic aged 15 to 29 and elevated pregnancy rates. This poses a pivotal challenge to Uganda's Vision 2040. This study aims to scrutinize the determinants of youth pregnancy in Uganda.

Methods

Utilizing data from the 2016 Uganda Demographic and Health Survey, this study focuses on a sample comprising 10,900 women aged 15-29 years. A multiple logistic regression with the binary outcome variable "ever got pregnant" is estimated, using dummy variables as predictors. The model assesses the odds of pregnancy among young females, contrasting those who have ever been pregnant with those who have not. Model specification is validated through the Hosmer-Lemeshow goodness-of-fit test, with acceptance of the null hypothesis indicating a well-fitted model based on the F-statistic and p-value.

Results

This study unveils a substantial prevalence of pregnancy among young females (62.4%). Those who completed secondary or higher education exhibit a lower likelihood of ever getting pregnant (OR=0.26, 95% CI 0.14-0.50; OR=0.18, 95% CI 0.11-0.29) compared to their uneducated counterparts. Literacy levels reduce the odds of pregnancy, while ownership of a mobile phone or listening to the radio increases them. Additionally, higher wealth quintiles correlate with reduced odds of ever getting pregnant (poorer OR=0.78, 95% CI 0.65-0.94; middle OR=0.53, 95% CI 0.42-0.65; richer OR=0.44, 95% CI 0.35-0.56; richest OR=0.37, 95% CI 0.28-0.48). Notably, the likelihood of pregnancy increases among contraceptive users (OR=3.48, 95% CI 2.84-4.26) and with age progression (20-24 years: OR=13.44, 95% CI 11.46-15.77; 25-29 years: OR=74.91, 95% CI 57.87-96.96).

Conclusion

Pregnancy odds decline with higher education, wealth quintile, and literacy rate but rise with contraceptive use, radio listening, age, and mobile phone ownership.

Recommendation

Ensure Comprehensive education, sexual reproductive health campaigns, and initiatives empowering the youth.

Keywords: Young Females, Pregnancy, Fertility
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Introduction

Uganda's Vision 2040 aims to transform the nation into a modern and prosperous country within 30 years, yet challenges persist in achieving middle-income status. With 60% of the population below 18 years, the majority being poorly skilled and uneducated, there is a critical need to address the issues faced by the young population (Dlamini, et al., 2019; Uganda Vision 2040). The United Nations' 2030 Agenda emphasizes universal access to family planning methods, particularly in regions like Uganda with one of the world's highest total fertility rates at 5.4 (FEMNET, 2022). Teenage pregnancy, at approximately 16%, hinders development and contributes to poverty by causing dropouts and limiting potential productivity (Moreau, 2017).

While policies like the National Adolescent Health Policy (2004) target teenage pregnancy within the school setting, the vulnerability of young people outside the school system is overlooked. Definitions of youth vary among organizations, with an age range of 15-29 years chosen for this study due to the realization that focusing on young people is crucial for achieving Sustainable Development Goals (SDGs) (Dlamini, et al., 2019). International recognition of the youth as the hope for the future necessitates investments in their well-being (USAID, 2023).

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This study focuses on the 15-29 age group, aligning with the extended adolescence period, considering biological and social developments up to the age of 24 (Katie, 2018). The importance of youth-focused interventions is underscored by the UN Youth Strategy (2016-2030), emphasizing the need to harness the youth's potential for sustainable development. Reproductive health challenges among the youth, including high fertility rates and maternal, and infant morbidity, and mortality, impede progress toward Uganda's Vision 2040 (Ministry of Health, 2002).

Investing in Adolescent and Youth Sexual and Reproductive Health and Rights (AYSRHR) is recognized as economically beneficial and essential for achieving national development goals (Dlamini, et al., 2019). Despite the Health Sector Development Plan's goal to reduce teenage pregnancy to 14%, the current rate stands at 25%, posing a substantial challenge to the country's development aspirations (Ministry of Health, 2002). The negative impact of adolescent pregnancy on the country's GDP further underscores the urgency of addressing this issue (Dlamini, et al., 2019).

The study acknowledges the gaps in existing policies, such as the Uganda National Adolescent Health Policy of 2004, which fell short of meeting its targets. Information deficits on Sexual and Reproductive Health and Rights (SRHR) expose youth to unintended pregnancies and contribute to high fertility rates (SRHR Alliance, 2016). Overlooking men's role in fertility management and the lack of clarity on abortion rights for females pose additional challenges (Yeboah, Kwankye, & Faustina, 2021; Moreau, 2017).

Considering the country's formidable challenges arising from elevated fertility rates, which pose a substantial impediment to the realization of Vision 2040, addressing the urgency of managing the fertility of the 15-29 age group becomes imperative. The research is rooted in the hypothesis that implementing effective strategies in this regard is indispensable for achieving the targeted population growth rate of 2.4. In undertaking the vital task of investigating the determinants of pregnancy among females aged 15-29, this research contributes to the ongoing discussion on fostering sustainable demographic outcomes for the nation and the pursuit of its desired middle-income status.

Pregnancy determinants among young people 15-29 years of age

The literature elucidates numerous factors contributing to the prevalence of pregnancy among young people. These factors encompass education level, information access, wealth index, residence, and age. This study specifically delves into those factors intricately connected to the core focus of our research.

Education

As women's educational attainment increases, the concern regarding teenage pregnancy diminishes, while their likelihood to seek prenatal care at a health facility during pregnancy rises. The age at which individuals engage in their first sexual experience and the under-5 mortality rate appears to decrease with the mother's level of education. Additionally, the use of contraceptives and modern family planning methods tends to rise in correlation with the mother's educational level (Moreau, 2017; UNFPA, 2017). Higher levels of education are associated with lower observed fertility levels (Adhikari, Lutz, & Samir KC, 2023; Agbaglo et al., 2022; Uganda Bureau of Statistics (UBOS) and ICF, 2017). Despite the minimum age of sexual consent being 18 years, young people in Uganda initiate sexual activity at an early age, with the median age at first sex for female adolescents (15–19 years) around 16.5 and for male adolescents (15–19 years) around 18 (Neema, Musisi, & Kibombo, 2004). This early engagement in sexual activity is a matter of public concern, as it often leads to unprotected sex (Ministry of Health, 2004), unwanted pregnancies, and subsequently, an increase in fertility (Ministry of Education and Sports, 2020). Reports indicate that one in three girls in the developing world is married by the age of 18 (USAID, 2023). Educated women are more inclined to delay childbearing (Yeboah, Kwankye, & Faustina, 2021; Ministry of Education and Sports, 2020) as they possess better information and are more willing to challenge traditional values regarding the desire for more children (Adhikari, Lutz, & Samir KC, 2023). Education not only expands choices and opportunities but also enhances participation in the labor market, increases the use of contraception (Orwa et al., 2023), improves productivity and incomes, and acts as a catalyst for a country's growth and development (Ministry of Education and Sports, 2020). The opportunity cost of childbearing tends to be higher for educated women (Adhikari, Lutz, & Samir KC, 2023; Lerch, 2017).

Literacy and Information Access

Dlamini et al. (2019) emphasize the crucial importance of investing in Adolescent Sexual and Reproductive Health and Rights (ASRHR) to enable countries to harness the economic benefits associated with planned population growth. Unplanned pregnancies among young people are linked to various factors, including a lack of access to information (SRHR Alliance, 2016). Yakubu and Waliu (2018) attribute this lack of access to information among young people to a distortion of the true purpose of contraceptives, often perceived as intended only for married individuals. The household plays a significant role as a key provider of reproductive health information (Masemola-Yende & Sanah, 2015). Additionally, other sources of information on reproductive health include media outlets such as radio and television (Masemola-Yende & Sanah, 2015). However, it is important to note that access to information does not guarantee that young individuals will utilize it. Some youths, driven by economic motivations, may choose to get pregnant to please their partners.

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Residence

Women residing in urban areas exhibit a higher propensity to deliver in well-equipped healthcare facilities and actively adopt modern family planning methods. Notably, urban women tend to have a lower fertility rate compared to their rural counterparts (Agbaglo et al., 2022; Monari, Orwa, & Agwanda, 2022; Dimbuene & Maketama, 2015). The prevalence of teenage childbearing is consistently lower in urban settings than in rural regions (Dlamini et al., 2019; Uganda Bureau of Statistics (UBOS) and ICF, 2017). The availability of numerous healthcare facilities and contraceptive services in urban areas empowers women to strategically plan for their desired family size (Moreau, 2017; Neema, Musisi, & Kibombo, 2004). The inclination towards lower fertility rates among urban women can be attributed to various factors, including the high cost of living, and increased educational attainment (Adhikari, Lutz, & Samir KC, 2023; Orwa, Gatimu, Ariho, Temmerman, & Luchters, 2023; Lerch, 2017), and greater wealth (Agbaglo et al., 2022). Conversely, young females residing in rural areas often face economic challenges and are more likely to engage in behaviors that expose them to elevated risks of pregnancy (Maharaj, 2022). The urban advantage in access to healthcare facilities and family planning resources contributes significantly to the observed disparities in reproductive health outcomes between urban and rural women.

Wealth

Women belonging to the most affluent demographic exhibit an increased likelihood of delivering in well-equipped healthcare facilities. On average, they tend to have fewer children compared to their counterparts in economically disadvantaged households (Orwa, Gatimu, Ariho, Temmerman, & Luchters, 2023; Agbaglo et al., 2022; Yeboah, Kwankye, & Faustina, 2021). This phenomenon is noteworthy, especially in the African context, where a prevalent strategy is to bear more children as a safeguard against potential losses. However, the accessibility of healthcare services not only assures a healthier future for the offspring but also diminishes the imperative to have a larger family. Notably, under-5 mortality rates are lower among mothers in affluent households, and there is a higher prevalence of the use of modern family planning methods in such settings (Uganda Bureau of Statistics (UBOS) and ICF, 2017). Additionally, a higher proportion of households in urban areas possess mobile phones and radios, while those in rural areas predominantly own agricultural land or engage in farming activities (Uganda Bureau of Statistics (UBOS) and ICF, 2017). The informal nature of employment among the youth exposes them to heightened risks of sexual exploitation, often leading to unintended pregnancies and abortions (Neema, Musisi, & Kibombo, 2004).

Contraceptive use

The African Women's Development and Communication Network (FEMNET) recently reported that over 55% of women aged 15-19 lack access to modern contraception, and encounter challenges in obtaining adequate post-natal care (FEMNET, 2022). Factors contributing to Sexual and Reproductive Health and Rights (SRHR) limitations encompass restrictive policies, corruption, and religious and cultural barriers (Moreau, 2017). In a study on the determinants of adolescent fertility in Kenya, it was uncovered that adolescents using contraceptives tend to experience earlier childbirth compared to non-users (Monari, Orwa, & Agwanda, 2022), raising questions and prompting further investigation. This finding aligns with Moreau's (2017) study, associating married, working individuals and those who use contraceptives with a higher fertility likelihood. This challenges the conventional notion linking contraceptive use with delayed childbirth. The higher prevalence of contraceptive use is attributed to factors like availability, access, and sensitization (Dlamini, et al., 2019). Yet, even with the knowledge available, adolescents face limitations due to concerns about side effects, cost, a desire for children, and misinformation (Monari, Orwa, & Agwanda, 2022; Reproductive Health Uganda, 2015; Neema, Musisi, & Kibombo, 2004). Moreover, other studies underscore a socioeconomic aspect, revealing that contraceptive use as a method of birth control is more common among wealthier women (Agbaglo, et al., 2022; UNFPA, 2017). This nuanced exploration provides a comprehensive understanding of the complex dynamics connecting contraceptive usage and fertility.

Age of the person

Primary contributors to disability and mortality among women aged 15 to 19 in Uganda encompass pregnancy-related complications, abortion, and childbirth (Neema, Musisi, & Kibombo, 2004). Although Uganda permits abortion under specific circumstances (FEMNET, 2022), the legal landscape regarding pregnancy termination remains ambiguous (Moreau, 2017; Center for Reproductive Rights, 2012). The prevalence of unsafe abortions stands at an estimated 54 per 1000 women of reproductive age annually (FEMNET, 2022, p. 4; Neema, Musisi, & Kibombo, 2004). Adolescent pregnancies contribute significantly, constituting 24% of maternal deaths (Reproductive Health Uganda, 2015), with a daily toll of 210 deaths related to pregnancy and childbirth (Waiswa, 2020). Elevated childhood mortality prompts couples to expand their desired family size, aiming to ensure a minimum number of preferred children reach adulthood (Yeboah, Kwankye, & Faustina, 2021). This preference for more children poses health risks for both children and mothers (Orwa, Gatimu, Ariho, Temmerman, & Luchters, 2023). Current age emerges as a determinant of adolescent childbearing in Kenya (Monari, Orwa, & Agwanda, 2022). Effectively managing the fertility rate among the youth could alleviate the country's dependency burden, enhancing the potential for demographic dividends. This outcome hinges on prudent investments in the nation's young population (USAID, 2023; Dlamini, et al., 2019; Ministry of Health, 2004).

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Household size

Effective communication between parents and their children plays a pivotal role in a comprehensive sexual reproductive health program. Regular parental engagement enhances the likelihood of empowering children to make well-informed decisions regarding their reproductive health. The absence of parental guidance and counseling is linked to an elevated risk of adolescent pregnancy (Yakubu & Waliu, 2018). Parents must guide the use of phones, identified as a key factor influencing adolescent pregnancy (Yakubu & Waliu, 2018). The household is recognized as the primary source of information for reproductive health (Masemola-Yende & Sanah, 2015). In African families, the desire for a male child is a prevalent belief that can fuel the inclination towards early pregnancies among young people. The societal value placed on sons, grounded in cultural, economic, and social reasons, is notable in traditional settings (Dlamini et al., 2019). Notably, a study by Orwa et al. (2023) evaluated factors associated with a change in lifetime fertility among married women of reproductive age in Kenya from 2003 to 2014. Focusing on women aged 15–49 years who were married or in a union, the findings indicated that women who had experienced the loss of one or more children in the past were more likely to have an increased number of children.

Methodology

Study Design

This is a cross-sectional study using secondary data from the Uganda Demographic and Health Survey (UDHS) for 2016. The Demographic and Health Surveys (DHS) Program is an international initiative managed by ICF in Rockville, Maryland, USA. According to the Uganda Bureau of Statistics (UBOS) and ICF International, inc. (2017), the 2016 UDHS sample underwent a two-stage stratification and selection process. Initially, 697 Enumeration Areas (EAs) were chosen from the 2014 Uganda National Population and Housing Census, comprising 162 EAs in urban and 535 in rural areas; a cluster from the Acholi subregion was excluded due to land disputes. In the second stage, households were listed from April to October 2016 in each of the 696 accessible EAs. Institutional living arrangements were excluded. Large EAs were segmented, and one segment was selected for the survey with probability proportional to size. The final representative sample included 20,880 households, randomly selecting 30 from each EA or EA segment. Sample Enumeration Areas (EAs) were allocated using power allocation with a slight adjustment to meet DHS survey requirements. Sample EAs were independently selected from each stratum, using probability proportional to size. All women aged 15-49, permanent residents, or overnight visitors in selected households were eligible for the interview. Of 19,088 eligible women in surveyed households, interviews were conducted with 18,506, achieving a 97% response rate.

Study Setting

This research utilizes data from the Demographic and Health Survey (DHS) conducted in Uganda, a landlocked country in East Africa situated astride the equator. Uganda shares borders with Kenya to the east, Tanzania to the south, Rwanda to the southwest, the Democratic Republic of Congo to the west, and South Sudan to the north, encompassing a total area of 241,039 square kilometers. The 2016 UDHS covered all 112 districts in the country, organized into 15 sub-regions: South Central, North Central, Kampala, Busoga, Bukedi, Bugisu, Teso, Karamoja, Lango, Acholi, West Nile, Bunyoro, Tooro, Kigezi, and Ankole. For analytical purposes in this study, some sub-regions are amalgamated into larger Eastern, North, and Western regions. Eastern comprises Busoga, Bukedi, and Bugisu, North includes Teso, Lango, and West Nile, while Western includes Bunyoro, Tooro, Kigezi, and Ankole. The data analysis is focused on the seven regions of Kampala, South Central (Central 1), North Central (Central 2), Eastern, Karamoja, North, and Western and the data collection period spanned six months, from June 20, 2016, to December 16, 2016. This involved the collaborative efforts of 21 field teams, each consisting of a team leader, a field data manager, three female interviewers, one male interviewer, one health technician, and one driver (UBOS and ICF International, Inc., 2017).

Participants

According to UBOS and ICF International, Inc. (2017), the 2016 UDHS included 20,910 households from 697 clusters, ensuring national representation. Women aged 15-49 from chosen households and those staying overnight were interviewed. In one-third of households, eligible men aged 15-54 were also surveyed. Among the interviewed households, 19,088 eligible women were identified, and 18,506 were interviewed, achieving a 97% response rate. In the male survey subsample, 5,676 eligible men were identified, and 5,336 were successfully interviewed, yielding a 94% response rate. Rural areas had higher response rates for both men (95%) and women (98%) compared to urban areas (men: 90%, women: 95%).

Bias

In the analysis, researchers identified potential bias associated with the last two categories of the literacy level variable. The variable comprised five categories, namely 'cannot read at all,' 'able to read only parts of a sentence,' 'able to read the whole sentence,' 'no card with the required language,' and 'blind/visually impaired. To mitigate the potential for distortion in the results, the decision was made to exclude the final two categories ('no card with the required language' and 'blind/visually impaired'). Consequently, the analysis focused exclusively on the first three categories of the literacy level variable, with the excluded categories omitted from the final analysis.

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Study Size

While the 2016 DHS survey interviewed over 18,000 women and over 5,000 men, this study specifically targets young women aged 15 to 29. According to the survey this category comprised 11,137 individuals who were interviewed. However, after thorough data cleaning and selecting appropriate model specifications, the final sample for analysis was reduced to 10,900 young women.

Statistical Methods:

Outcome variable

The dependent variable is "ever got pregnant," encompassing all females aged 15 to 29 who have experienced pregnancy. This includes those currently pregnant, those who terminated a pregnancy, and those with children. This binary variable is coded as "1" for those who have ever been pregnant and "0" for those who have never been pregnant.

Predictors

The dependent variables include Regions, level of education, literacy level, frequency of reading newspapers or magazines, frequency of listening to radio, frequency of watching television, residence, religion, wealth index, contraceptive use, respondent's age, household size, and whether the young female owns a phone. The variable Region had 15 sub-regions as mentioned above, we regrouped some of these and remained with seven regions. Kampala, Central 1 (South Central), Central 2 (North Central), Eastern, Karamoja, North, and "education has six categories: no education, incomplete primary, complete primary, incomplete secondary, complete primary, and higher coded from 0 to 5 respectively. "No education" is the base category. This variable is chosen for its ability to highlight dropouts, who are more likely to experience pregnancies.

The literacy level variable comprises five categories: cannot read at all, able to read only parts of a sentence, and able to read the whole sentence, no card with the required language, and blind/visually impaired. Only the first three categories were used and the last two were dropped to avoid bias in the results. The absence of cards in the required language or visual impairment does not accurately reflect someone's ability to read or write. These two variables cannot even be categorized as "cannot read at all."

We have three other variables that measure accessibility to information, and they measure the awareness of the respondent. These include the frequency; of reading newspapers or magazines, listening to the radio, and watching television. Each of these variables has three categories; not at all, less than once a week, and at least once a week. They are coded as 0, 2, and 3 respectively. "Not at all" is the base category. The residence variable is a binary with rural coded as 0 and urban coded as 1. Rural is used as the reference category.

Another independent variable is religion which has 14 categories. Those who do not have any religion, Anglicans, Catholics, Muslims, seventh day Adventists, Orthodox, Pentecostal/born-again/evangelical, Baptists, Presbyterians, mammals, Jehovah's Witness, Salvation Army, traditional and others. In the analysis, those with no religion are excluded to avoid any bias in the results. The Anglicans, Catholics, Muslims, and Seventh-day Adventists are retained, while the remaining groups are re-categorized as 'others'.

The wealth index is another independent variable used in the analysis. It has five categories: poorest, poorest, middle, richer, and richest. This variable is used as a proxy for the wealth of households. The variable is coded 1 to 5 respectively. Another variable used was contraceptive use. This variable originally indicated the different methods of contraceptive use including pills, male condoms, injections, and eleven other methods. It also indicated the number of respondents who do not use contraceptives. The variable was regenerated as a binary variable coded with a "0" for those who do not use it and a "1" for those who use contraceptives.

Respondent's age variable. This variable originally included seven categories (up to 45-49) but when women above 29 years of age were dropped, only three categories remained namely 15-19, 20-24, and 25-29. In the analysis, 15-19 is used as the base category. Household size is another variable that we use in the analysis. The variable denotes the total household count, encompassing both usual residents and overnight visitors listed in the household schedule who stayed the previous night. The last variable was "whether the respondent owns a mobile phone". It is coded "0=No" and "1=Yes".

Model

Multiple logistic regression for the binary outcome variable, "ever got pregnant," was employed where predictors are dummy variables. This model estimates the odds of a young female having ever been pregnant, contrasting it with the odds of never having been pregnant. Logistic regression allows us to analyze the relationship between predictor variables and the likelihood of the binary outcome, providing insights into factors influencing the rapid occurrence of pregnancy among young females aged 15 to 29 in Uganda. The model is tested for specification using the Hosmer-Lemeshow goodness-of-fit test in groups of 10 and the null hypothesis of good model fit was accepted given the F-statistic and the p-value.

Ethical considerations

The study uses secondary data collected by UBOS and researchers do not doubt that ethical considerations were dealt with appropriately.

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Results:
Descriptive Statistics

Table 1: Descriptive Statistics

Variable	Have never gotten pregnant	Ever got pregnant	Chi-Square	P-value
Region				
Kampala	0.4684	0.5316		
Central 1	0.3917	0.6083		
Central 2	0.3311	0.6689		
Eastern	0.3732	0.6268		
Karamoja	0.3202	0.6798		
North	0.3843	0.6157		
Western	0.3624	0.6376	41.16	0.004
Total	**0.3756**	**0.6244**		
Education level				
No education	0.1555	0.8445		
Incomplete primary	0.3647	0.6353		
Complete primary	0.2886	0.7114		
Incomplete Secondary	0.4291	0.5709		
Complete secondary	0.4825	0.5175		
Higher education	0.4481	0.5519	198.17	0.000
Total	**0.3756**	**0.6244**		
Literacy level				
Cannot read	0.2216	0.7784		
Able to read part of a sentence	0.3253	0.6747		
Able to read the whole sentence	0.4416	0.5584	400.68	0.000
Total	**0.3756**	**0.6244**		
Frequency of reading newspaper/magazine				
Not at all	0.3368	0.6632		
Less than once a week	0.4456	0.5544		
At least once a week	0.5372	0.4628	221.38	0.000
Total	**0.3756**	**0.6244**		
Frequency of listening to Radio				
Not at all	0.4043	0.5957		
Less than once a week	0.3886	0.6114		
At least once a week	0.3596	0.6404	18.04	0.002
Total	**0.3756**	**0.6244**		
Frequency of watching Television				
Not at all	0.346	0.654		
Less than once a week	0.403	0.597		
At least once a week	0.4427	0.5573	79.9	0.000
Total	**0.3756**	**0.6244**		

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Table 2: Descriptive Statistics-Continued

Variable	Have never gotten pregnant	Ever got pregnant	Chi-Square	P-value
Type of residence				
Rural	0.4164	0.5836		
Urban	0.3594	0.6406	30.69	0.001
Total	**0.3756**	**0.6244**		
Religion				
Anglican	0.3794	0.6206		
Catholic	0.3666	0.6334		
Muslim	0.3406	0.6594		
Pentecostal/born again/evangelical	0.4188	0.5812		
Other	0.4459	0.5541	26.28	0.004
Total	**0.3756**	**0.6244**		
Wealth index				
Poorest	0.292	0.708		
Poorer	0.326	0.674		
Middle	0.3761	0.6239		
Richer	0.3974	0.6026		
Richest	0.4446	0.5554	141.16	0.000
Total	**0.3756**	**0.6244**		
Contraceptives				
Does not use contraceptives	0.4603	0.5397		
Use contraceptives	0.1324	0.8676	957.08	0.000
Total	**0.3756**	**0.6244**		
Age				
15-19	0.7462	0.2538		
20-24	0.2123	0.7877		
25-29	0.0604	0.9396	4137.1	0.000
Total	**0.3756**	**0.6244**		
Number of household members				
One-three	0.2849	0.7151		
Four-six	0.2916	0.7084		
Seven-ten	0.5504	0.4496		
Above10	0.5039	0.4961	665.74	0.000
Total	**0.3756**	**0.6244**		
Owns a mobile phone				
No	0.4377	0.5623		
Yes	0.2836	0.7164	265.62	0.000
Total	**0.3756**	**0.6244**		

Tables 1 and 2 present descriptives of Chi-square test results. The Chi-square test results consistently reject the null hypothesis of no significant association between categorical variables and the dependent variable at a one

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percent significance level. In terms of descriptives from Table 1 above, variations in the proportions of young individuals experiencing pregnancy were observed across regions, with Karamoja having the highest rate at 68%, followed by Central 2 (67%), Western (64%), North (62%), Eastern (63%), Central 1 (61%), and Kampala (53%). The overall possibility of pregnancy for all regions is 62%. The likelihood of females experiencing pregnancy decreases with higher levels of education, dropping from 84% for those with no formal education to 55% for individuals with higher educational attainment. This underscores the significant role of education in addressing teenage pregnancy.

In terms of literacy levels, a larger proportion of young females (78%) have ever got pregnant. This percentage reduces with an increase in literacy levels. Of those who can read part of a sentence, 67% have ever got pregnant while only 55% of those who can read the whole sentence have ever got pregnant. On the other hand, the three variables for awareness give mixed statistics. For frequency of reading newspapers and frequency of watching television, the chances of getting pregnant reduce with the increase in awareness, with 66% and 65% for those who do not read/watch at all to 46% and 56% for those who read/watch at least once a week, respectively. However, for the frequency of listening to the radio variable, the chances of pregnancy increase with awareness from 60% for those who do not listen at all to 64% for those who listen at least once a week.

In terms of literacy levels, a larger proportion of young females who cannot read (78%) have ever got pregnant. This percentage reduces with an increase in literacy levels. Of those who can read part of a sentence, 67% have ever got pregnant while only 55% of those who can read the whole sentence have ever got pregnant. On the other hand, the three variables for awareness give mixed statistics. For frequency of reading newspapers and frequency of watching television, the chances of getting pregnant reduce with the increase in awareness, with 66% and 65% for those who do not read/watch at all to 46% and 56% for those who read/watch at least once a week, respectively. However, for the frequency of listening to the radio variable, the chances of pregnancy increase with awareness from 60% for those who do not listen to the radio at all to 64% for those who listen to the radio at least once a week.

From Table 2 above, the prevalence of young females who have been pregnant is higher in urban areas (64%) than in rural areas (58%), possibly explained by higher mobile phone ownership in urban areas. The study extends beyond the teenage years, considering the transition to adulthood, where females in this age range may feel more prepared for parenthood. Analysis of the impact of residence on young female pregnancy suggests no significant relationship between urban and rural living arrangements. The prevalence of teenage pregnancies varies significantly among religious groups, with the highest rates observed among Muslims (66%), Catholics (63%), Anglicans (62%), Pentecostals (58%), and others (55%).

The likelihood of ever having been pregnant decreases as the wealth quintile of young females increases, ranging from 71% among the poorest to 56% among the wealthiest quintile. Interestingly, contraceptive use appears associated with a higher probability of experiencing pregnancy, with 87% of contraceptive users having ever been pregnant compared to 54% among non-users. As young females transition from adolescence (15-19) to emerging adulthood (20-24) and adulthood (25-29), the likelihood of ever being pregnant increases to 25%, 79%, and 94%, respectively. The peak percentage among those aged 25-29 corresponds to the period when individuals often complete their education, secure employment, or enter into marriage. Additionally, the frequency of ever getting pregnant is highest among those with small household sizes (71% for sizes 1-3) compared to larger households (49% for sizes with ten members and above). Similarly, owning a mobile phone is associated with a higher percentage of ever having been pregnant (72%) compared to those without a mobile phone, emphasizing the need to study the impact of mobile phone usage on young people.

Estimated Results

Table 3: Factors determining pregnancy among young people aged 15-29.

Variable	OR (95%CI)	Std. Err.
Region		
Central 1	1.40(0.96,2.05)*	0.27
Central 2	1.98(1.26,3.11)**	0.46
Eastern	1.58(1.09,2.28)**	0.3
Karamoja	0.74(0.46,1.18)	0.18
North	1.00(0.69,1.47)	0.19
Western	1.19(0.83,1.71)	0.22

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Education Level		
Incomplete primary	0.94(0.63,1.39)	0.19
Complete primary	1.31(0.84,2.05)	0.3
Incomplete Secondary	0.70(0.45,1.09)	0.16
Complete secondary	0.26(0.14,0.50)**	0.09
Higher	0.18(0.11,0.29)**	0.04
Literacy Level		
Able to read part of a sentence	0.77(0.62,0.97)**	0.09
Able to read the whole sentence	0.45(0.37,0.55)**	0.05
Frequency of reading newspaper/magazine		
Less than once a week	0.77(0.64,0.93)**	0.07
At least once a week	0.50(0.40,0.63)**	0.06
Frequency of listening to Radio		
Less than once a week	1.16(0.94,1.45)	0.13
At least once a week	1.42(1.22,1.64)**	0.11
Frequency of watching Television		
Less than once a week	0.94(0.76,1.17)	0.1

Statistical Significance: ** p<0.05, * p<0.10

Table 4: Factors determining pregnancy among young people aged 15-29-Continued

Variable	OR (95%CI)	Std. Err.
At least once a week	0.87(0.69,1.11)	0.11
Residence		
Urban	1.13(0.94,1,37)	0.11
Religion		
Catholic	1.18(1.02,1.36)**	0.09
Muslim	1.44(1.14,1.82)**	0.17
Pentecostal/born again /evangelical	0.85(0.69,1.04)	0.09
Other	0.63(0.35,1.13)	0.19
Wealth Index		
Poorer	0.78(0.65,0.94)**	0.07
Middle	0.53(0.42,0.65)**	0.06
Richer	0.44(0.35,0.56)**	0.05
Richest	0.37(0.28,0.48)**	0.05
Contraceptive use		
Use contraceptives	3.48(2.84,4.26)**	0.36
Age group		
20-24	13.44(11.46,15.77)**	1.09
25-29	74.91(57.87,96.97)**	9.85
Household size		
four-six	0.69(0.58,0.81)**	0.06
seven-ten	0.35(0.29,0.43)**	0.04
above10	0.55(0.41,0.72)**	0.08
Ownership of a mobile phone		
Yes	1.39(1.15,1.69)**	0.14
Constant	0.88(0.51,1.52)	0.25

***Statistical Significance**: ** p<0.05, * p<0.10*

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Discussion of Results

As Table 3 above, results show that the likelihood of young people experiencing pregnancy is higher among those residing in Central1 and 2, as well as the Eastern region (OR=1.40, 95% CI 0.96-2.05; OR=1.98, 95% CI 1.26-3.11; OR=1.58, 95% CI 1.09-2.28), respectively, compared to those living in Kampala region. Kampala region, being predominantly urban, exhibits lower odds of young people ever experiencing pregnancy, as supported by existing literature (Agbaglo et al., 2022; Monari, Orwa, & Agwanda, 2022; Dlamini et al., 2019; Dimbuene & Maketama, 2015).

Educational attainment plays a crucial role in shaping the likelihood of pregnancy among young people. Those who have completed secondary education or attained higher education are less likely to experience pregnancy (OR=0.26, 95% CI 0.14-0.50; OR=0.18, 95% CI 0.11-0.29) compared to those with no education. This finding aligns with previous studies indicating a negative relationship between education levels and observed fertility (Adhikari et al., 2023; Agbaglo et al., 2022; Yeboah et al., 2021). Extended education correlates with delayed first sexual intercourse, marriage, pregnancy, and subsequently, childbearing. The literature suggests that limited pregnancy among the educated may be attributed to increased contraceptive use (Orwa et al., 2023; Moreau, 2017; UNFPA, 2017) and the high opportunity cost associated with childbearing (Adhikari et al., 2023; Lerch, 2017).

The frequency of reading newspapers or magazines is associated with the likelihood of pregnancy among young females. Those who read less than once a week exhibit a 23% decrease in the odds of pregnancy (OR=0.77, 95% CI 0.64-0.93), while those reading at least once a week show a 50% decrease (OR=0.50, 95% CI 0.40-0.63). These results support increased access to sexual reproductive health information and services among young people (FEMNET, 2022; SRHR Alliance, 2016). The variable for literacy levels yields similar results to the frequency of reading newspapers variable, further emphasizing the role of education in reproductive health outcomes. Conversely, the more young people listen to the radio, the higher the odds of ever experiencing pregnancy. Those who listen to the radio at least once a week are 1.42 times more likely to have ever experienced pregnancy compared to non-listeners (OR=1.42, 95% CI 1.22-1.64). This emphasizes the need to regulate the information provided to young people through radio and potentially incorporate more sexual reproductive health information in radio programming (FEMNET, 2022; SRHR Alliance, 2016).

Religious affiliation also influences the odds of ever experiencing pregnancy among young people. Catholics exhibit higher odds compared to Anglicans (OR=1.18, 95% CI 1.02-1.36), and Muslims are even more likely to have experienced pregnancy compared to Anglicans (OR=1.44, 95% CI 1.14-1.82). The findings regarding Catholics may reflect their proportional representation in the general population, where they outnumber Protestants. For Muslims, the explanation may be linked to the polygamous nature of most Muslim families. Additionally, the odds of young people ever experiencing pregnancy decrease with the household's quintile, with the richest being less likely compared to the poorest. The odds for different quintiles are observed as follows: poorer OR=0.78, 95% CI 0.65-0.94; middle OR=0.53, 95% CI 0.42-0.65; richer OR=0.44, 95% CI 0.35-0.56; and richest OR=0.37, 95% CI 0.28-0.48. This finding aligns with previous studies (Orwa et al., 2023; Agbaglo et al., 2022; Yeboah, Kwankye, & Faustina, 2021).

Contrary to expectations, young people using contraceptives are more likely to have ever experienced pregnancy compared to non-users (OR=3.48, 95% CI 2.84-4.26), supporting previous studies (Monari, Orwa, & Agwanda, 2022; Moreau, 2017). As age increases, the odds of experiencing pregnancy also increase, with the emerging adulthood group (age 20-24) being 13.44 times more likely compared to the age group 15-19 (OR=13.44, 95% CI 11.46-15.77). The odds further increased to 74.91 (OR=74.91, 95% CI 57.87-96.97) for young people transitioning into adulthood (age group 25-29) compared to the reference group 15-19. This is expected given that most young people complete schooling around 23 years, likely to be employed, married, and starting a family during the 25-29 age range.

Family size also plays a role in the likelihood of young people experiencing pregnancy. Those in households of four to six members are 31% less likely to have ever experienced pregnancy than those with fewer than four members. The likelihood reduces further to 65% less likely, for households with seven to ten members. However, as the household size grows beyond ten members, the likelihood, though still less compared to the reference group, becomes less pronounced 45% less likely (OR=0.55, 95% CI 0.41-0.72). The discrepancy between family size and the incidence of pregnancy may be explained within the African cultural context, where people associate family size with social status (Dlamini et al., 2019).

Surprisingly, young people who own a mobile phone are 39% more likely to have ever experienced pregnancy compared to those without a mobile phone (OR=1.39, 95% CI 1.15-1.69). This raises questions about the purposes for which youth use mobile phones. Alternatively, this may be explained by the fact that mobile phone owners are more likely to be either in emerging adulthood or transitioning to adulthood, ready to take on childbearing responsibilities. These findings underscore the multifaceted nature of factors influencing the reproductive experiences of young people and highlight the need for targeted and comprehensive interventions in sexual and reproductive health education and services.

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Table 3: Test for goodness of fit

The data was tested for goodness of fit using the Hosmer-Lemeshow test.

Number of observations	10900
population size	10978.5
F(9,675)	0.58
Prob>F	0.8108

Ho: The model fits the data. The results are not significant indicating a good fit for the data. The null hypothesis is upheld.

Generalizability

The findings of this study should be interpreted with caution as they may not be universally applicable. The research was confined to a specific demographic, namely young females aged 15-29 years, who participated in the 2016 Uganda Demographic and Health Survey (UDHS) conducted by the Uganda Bureau of Statistics. Therefore, the generalizability of the results to other populations or age groups may be limited.

Conclusion

This study, utilizing the 2016 Uganda Demographic and Health Survey (UDHS), has shed light on the high prevalence of pregnancy among young people aged 15-29 in Uganda. The findings underscore the urgent need for effective interventions to address this issue, as the elevated fertility rates pose a potential obstacle to the country's development. The inverse relationship between education levels and pregnancy incidence highlights the importance of educational empowerment.

Recommendations

***Government Interventions*:** Government initiatives that encourage planned families and delayed first childbirth are strongly recommended. Strengthening the provision of free education, extending it up to at least the secondary level, is crucial to reducing the likelihood of pregnancy among young people.

Access to Sexual Reproductive Health Information: Enhancing access to sexual reproductive health information and services is pivotal. Making this information more accessible through literature like newspapers and magazines focused on sexual and reproductive health education is commended. For those unable to read, organizing sexual reproductive health camps and supporting peer educators can effectively disseminate information.

Economic Empowerment: Acknowledging the economic disparity in pregnancy incidence, interventions such as education and income-generating projects should be established or reinforced, particularly for individuals with lower economic status. Additionally, making sexual and reproductive health services more accessible and affordable is crucial to mitigating misinformation.

Sensitization Campaigns: Sensitization campaigns should focus on delivering accurate content on sexual reproductive health. This includes educating the youth on the appropriate use of mobile phones and ensuring that radio programs are censored to prevent the dissemination of misleading information leading to risky sexual behaviors.

Targeted Interventions for Transitioning into Adulthood: Recognizing the high likelihood of pregnancy during the transition into adulthood (25-29), targeted interventions with a focus on planned family initiatives are essential. These measures can contribute to achieving the demographic dividend associated with planned population growth, potentially yielding significant economic benefits, as estimated by Dlamini et al. (2019).

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Limitations

Given that this is a Cross-sectional survey it limits the ability to establish causality as associations observed in the data may not necessarily imply causation, and changes over time cannot be established. In addition, it does not provide insights into change dynamics or individual experiences' trajectory. Understanding how certain factors evolve and their impact on outcomes requires longitudinal data.

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