

Unmet need for contraception and its association with unintended pregnancy among Tanzanian women of reproductive age: A secondary analysis of the 2022 Tanzania Demographic and Health Survey

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Abstract

Background

Unintended pregnancies remain a major public health concern, particularly in low- and middle-income countries, where most of the estimated 99 million cases occur annually disproportionately affecting developing countries. Despite improvements in family planning programs, many women with a demand for contraception are unable to access or use modern methods, contributing to high unintended pregnancy rates and adverse maternal and child health outcomes. This study aims to examine the relationship between contraceptive unmet need and unintended pregnancy in Tanzania.

Methods

This study used data from the 2022 Tanzania Demographic and Health Survey (TDHS), a nationally representative cross-sectional survey conducted using a stratified two-stage cluster sampling design. A total of 6,220 women aged 15–49 years were included. The outcome was unintended pregnancy, defined based on pregnancy intention, and the main exposure was unmet need for contraception. Data were analyzed using weighted descriptive statistics and binary logistic regression in SPSS version 25.0. Variables with $p < 0.20$ in bivariate analysis and those identified from literature were included in the multivariable model. Adjusted odds ratios (AOR) with 95% confidence intervals (CI) were reported, and statistical significance was set at $p < 0.05$.

Results

Unmet need for contraception was significantly associated with higher odds of unintended pregnancy (AOR = 3.54; 95% CI: 3.14–4.00; $p < 0.001$). Higher educational attainment was also associated with increased odds, while women aged 25–34 years had lower odds compared to those aged ≥ 35 years. Married women and those with no history of pregnancy termination were less likely to experience unintended pregnancy.

Conclusion

Unmet need for contraception is a strong predictor of unintended pregnancy in Tanzania. These findings highlight the importance of strengthening family planning services and addressing socio-demographic disparities to reduce unintended pregnancies.

Background

About 99 million unintended pregnancies occur annually [1] and 88 million of them take place in low and middle-income countries[2]. According to Alam *et al.* (2022), 40% of pregnancies worldwide are

unplanned, causing approximately 50% of abortions, 13% of miscarriages, and 38% of live births[3], [4]. Family planning programs are expected to increase the satisfaction of demand for contraception, reduce unintended fertility [5], and reduce the risk of unsafe abortion [6], [7].Tshale (2022) reports that 63% of women of reproductive age who are married or in union use contraception globally; however, significant regional variations persist [8].

By reducing the unmet needs for contraceptives, undesirable pregnancies can be prevented, conscientious decisions about pregnancy spacing can be made, and maternal and childhood deaths can be avoided [9], [10], [11]. Unintended pregnancies, along with social problems, pose health risks for the mother and child [12]. To further buttress this point, the majority of maternal deaths occur in the first month postpartum, and the majority of infant deaths occur during their first month of life, making this a critical time in the lives of mothers and their newborn babies [13].

Women in developing countries, especially in Sub-Saharan Africa, have high unmet needs for family planning as well as high unintended rates of pregnancy[14]. A lot of them within the reproductive age in low- and middle-income countries would like to avoid or postpone getting pregnant, but are unable to do so because of the unmet need for contraception [15]. It is estimated that about 220 million women in low- and middle-income countries who wish to avoid future pregnancies are not using modern contraceptive methods[16]. Furthermore, low contraceptive use, particularly in sub-Saharan Africa, has been attributed to factors such as illiteracy, poverty, and limited knowledge and awareness[17].

Despite the great transformation in sexual and reproductive health services in Sub-Saharan Africa(SSA), which has brought about more friendly services for young people, particularly women, adoption of Family planning is still low [18]. Appropriately used contraception remains the most effective strategy for preventing induced abortion and reducing maternal mortality [19]. However, sub-Saharan Africa continues to experience the highest levels of unmet need for contraception compared to other regions, with estimates of 33% in countries such as Burundi [20]. This study seeks to examine the relationship between unmet need for contraception and unintended pregnancy. To achieve this, we utilized data from the most recent Demographic and Health Survey conducted in Tanzania, which provides nationally representative and reliable population health information.

Methods

Study sampling and participants

Data from the 2022 Tanzania Demographic and Health Survey (TDHS) were used. The survey was conducted between February and July 2022 as a population-based cross-sectional study using a stratified two-stage cluster sampling design. DHS surveys are nationally representative household surveys in which women of reproductive age (15–49 years) self-report information on reproductive and maternal health services.

A total of 15,705 households were successfully interviewed. Within these households, 15,699 women aged 15–49 years who were either usual residents or visitors who stayed in the household the night before the survey were eligible for interview. Of these, interviews were completed with 15,254 women. From these, 6,220 women who had at least one live birth in the five years preceding the survey and provided information on pregnancy intention were included in the analysis.

Study Variables

Outcome variable

The primary outcome variable of this study was unintended pregnancy for the most recent pregnancy, categorized as “intended” or “unintended.” Women whose last pregnancy was reported as unintended were coded as 1, and those whose pregnancy was intended were coded as 0.

Explanatory variables

The selection of explanatory variables was guided by previous studies on unmet need for family planning and unintended pregnancy [21], [22], [23]. The main exposure variable was unmet need for contraception (yes/no). Socio-demographic and reproductive characteristics were included as covariates. Socio-demographic and reproductive characteristics were included as covariates.

Age was categorized into 15–19, 20–34, and 35 years and above. Marital status was classified as married or living with a partner. Educational level of women and their partners was grouped as no education, primary, secondary, and higher education. Household wealth index was categorized as poor, middle, and rich, and place of residence as rural or urban. Employment status was classified as working or not working, and household head sex as male or female. Additional variables included a history of a terminated pregnancy (yes/no).

Data analysis

Weighted analyses were performed using SPSS version 25.0 to account for the complex sampling design of the Tanzania Demographic and Health Survey (TDHS) 2022. Sampling weights were applied to ensure national representativeness.

Descriptive statistics were used to summarize the socio-demographic characteristics of the study population. Categorical variables were presented as weighted frequencies and percentages.

Bivariate analysis between unintended pregnancy (outcome) and each independent variable, including unmet need for family planning as the main exposure, was conducted using the Chi-square (χ^2) test. Crude odds ratios (COR) with 95% confidence intervals were estimated using binary logistic regression.

Variables with a p-value < 0.20 in the bivariate analysis, as well as variables considered theoretically relevant based on prior literature, were included in the multivariable binary logistic regression model.

Adjusted odds ratios (AOR) with 95% confidence intervals were reported to identify factors independently associated with unintended pregnancy. All statistical tests were two-sided, and a p-value < 0.05 was considered statistically significant.

Result

The socio-demographic and reproductive characteristics of respondents are presented in Table 1. A total of 6,220 women were included in the analysis. The largest age group was 25–34 years (43.5%), followed by 15–24 years (32.0%) and ≥ 35 years (24.5%). Most women were married (59.4%). Over half had attained primary education (51.2%), while 29.5% had secondary or higher education, and 19.4% had no formal education.

Socioeconomically, 41.1% of participants were from rich households, 39.5% from poor households, and 19.4% from middle-income households. The majority resided in rural areas (70.9%), and 60.5% were currently working. Most households were male-headed (78.3%).

Regarding reproductive characteristics, 80.5% of women reported ever having had a terminated pregnancy. Overall, 27.6% of women had an unmet need for contraception. Nearly one-third of respondents (29.5%) reported that their last pregnancy was unintended.

Table 1
Socio-demographic and reproductive characteristics of the study participants

Variables		Frequency	Percentage
		N= 6220	
Age	15–24	1990	32
	25–34	2706	43.5
	35 and above	1524	24.5
Marital status	Unmarried	2528	40.6
	Married	3692	59.4
Highest educational level	No education	1205	19.4
	Primary	3182	51.2
	Secondary and higher	1833	29.5
Economic status	Poor	2458	39.5
	Middle	1206	19.4
	Rich	2556	41.1
Type of residence	Urban	1813	29.1
	Rural	4407	70.9
Employment status	Working	3764	60.5
	Not working	2456	39.5
Sex of household head	Male	4870	78.3
	Female	1350	21.7
Ever had a terminated pregnancy	Yes	1213	19.5
	No	5007	80.5
Unmet need for contraception	Yes	1715	27.6
	No	4505	72.4
Last pregnancy wanted	Intended	4384	70.5
	Unintended	1836	29.5

A bivariate analysis in Table 2, age, marital status, ever having had a terminated pregnancy, and unmet need for contraception were associated with unintended pregnancy at $p < 0.2$. Age was significantly associated with pregnancy intention ($\chi^2 = 18.63$, $p < 0.001$), with the highest proportion of unintended pregnancy observed among women aged 15–24 years (31.2%). Regarding marital status, unmarried

women had a higher proportion of unintended pregnancies than married women. Women who had ever experienced a terminated pregnancy were more likely to report their last pregnancy as unintended compared to those who had not (33.3% vs. 28.6%; $\chi^2 = 10.39$, $p = 0.001$). Unmet need for contraception showed a strong association with unintended pregnancy ($\chi^2 = 423.38$, $p < 0.001$).

Table 2
Bivariate analysis of factors associated with unintended pregnancy in Tanzania

Study characteristic		Last pregnancy status		Chi-square	P-value
		Intended	Unintended		
Age	15–24	1370 (68.8)	620 (31.2)	18.631	< 0.001
	25–34	1983 (73.3)	723(26.7)		
	35 and above	1031(67.7)	1836 (29.5)		
Marital status	Not married	1752(69.3)	776(30.7)	2.843	0.092
	Married	2632(71.3)	1060(28.7)		
Highest educational level	No education	877(72.8)	328(27.2)	6.766	0.34
	Primary	2252(70.8)	930(29.2)		
	Secondary and higher	1255(68.5)	578(31.5)		
Economic status	Poor	1743(70.9)	715(29.1)	0.528	0.768
	Middle	852(70.6)	354(29.4)		
	Rich	1789(70.0)	767(30.0)		
Type of residence	Urban	1278(70.5)	535(29.5)	0.001	0.992
	Rural	3106(70.5)	1301(29.5)		
Employment status	Working	2668(70.9)	1096(29.1)	0.732	0.392
	Not working	1716(69.9)	740(30.1)		
Sex of household head	Male	3451(70.9)	1419(29.1)	1.558	0.212
	Female	933(69.1)	417(30.9)		
Ever had a terminated pregnancy	Yes	809(66.7)	404(33.3)	10.394	0.001
	No	3575(71.4)	1432(28.6)		
Unmet need for contraception	Yes	878 (51.2)	837(48.8)	423.375	< 0.001
	No	3506(77.8)	999(22.2)		

In the adjusted analysis (Table 3), unmet need for contraception was strongly associated with higher odds of the outcome (AOR = 3.54; 95% CI: 3.14–4.00; $p < 0.001$). Similarly, educational level showed a positive association, as women with primary education (AOR = 1.22; 95% CI: 1.04–1.43; $p = 0.02$) and those with secondary education or higher (AOR = 1.47; 95% CI: 1.22–1.78; $p < 0.001$) had increased odds

compared to those with no education. In contrast, women aged 25–34 years had lower odds of the outcome compared to those aged ≥ 35 years (AOR = 0.76; 95% CI: 0.66–0.87; $p < 0.001$). Likewise, married women were less likely to experience the outcome than unmarried women (AOR = 0.81; 95% CI: 0.72–0.92; $p = 0.001$). Furthermore, women with no history of terminated pregnancy had reduced odds of the outcome (AOR = 0.76; 95% CI: 0.66–0.87; $p < 0.001$).

Table 3
Association between unmet need for contraception and unintended pregnancy in Tanzania.

Variables		COR [95% CI]	AOR [95% CI]	p-value
Unmet need for contraception	No	1	1	1
	Yes	3.34[2.97–3.76]	3.54[3.14–4.00]	< 0.001
Age	15–24	0.94[0.82–1.09]	0.94[0.80–1.09]	1
	25–34	0.76[0.66–0.87]	0.76[0.66–0.87]	< 0.001
	35 and above	1	1.07[0.92–1.25]	0.4
Marital status	Not married	1	1	1
	Married	0.91[0.81–1.02]	0.81[0.72–0.92]	0.001
Economic status	Poor	0.96[0.85–1.08]	0.94[0.82–1.09]	0.42
	Middle	0.97[0.83–1.12]	0.96[0.82–1.13]	0.63
	Rich	1	1	1
Type of residence	Urban	1	1	1
	Rural	1.00[0.89–1.13]	1.01[0.88–1.15]	0.92
Highest educational level	No education	1	1	1
	Primary	1.10[0.95–1.28]	1.22[1.04–1.43]	0.02
	Secondary and higher	1.23[1.05–1.45]	1.47[1.22–1.78]	< 0.001
Ever had a terminated pregnancy	No	0.80[0.70–0.92]	0.76[0.66–0.87]	< 0.001
	Yes	1	1	1

Discussion

This study examines the association between unmet need for contraception and unintended pregnancy, and identifies other factors associated with unintended pregnancy in Tanzania. Almost one-third of respondents (29.5%) reported that their most recent pregnancy was unintended. A similar prevalence of unintended pregnancy has been reported in a study conducted in Ethiopia[24].

The adjusted analysis showed that unmet need for contraception was a strong predictor of unintended pregnancy, with women experiencing unmet need having more than threefold higher odds compared with those without unmet need. This finding aligns with a study from Ethiopia, which reported that women with an unmet need for contraception were more likely to experience an unintended pregnancy than those whose contraceptive needs were satisfied[24]. Overall, this indicates that the unmet need for contraception is a key driver of unintended pregnancy, consistent with evidence reported in Angola and Bangladesh[25]. This may be due to inadequate access to, or inconsistent use of, effective contraceptive methods, as well as barriers such as limited awareness, socioeconomic constraints, and gaps in the provision of family planning services.

Women aged 25–34 years were less likely to experience an unintended pregnancy than those aged ≥ 35 years. This finding is consistent with evidence from Ethiopia showing that younger women have a higher likelihood of unintended pregnancy compared with those aged 35–49 years[24]. However, it contrasts with findings from other studies conducted in the same country, particularly in Jimma and Arsi Negele Woreda[26],[27]. These differences may reflect variations in reproductive intentions and contraceptive use across age groups, as well as contextual factors such as access to family planning services and sociocultural norms.

In this study, married women had lower odds of unintended pregnancy compared with unmarried women. This is consistent with findings from a Kenyan study by Mwango et al., which reported that single or divorced women had a higher likelihood of unintended pregnancy compared to married women[28]. This may be explained by greater stability in partnerships, better communication on fertility intentions, and more consistent contraceptive use among married women.

Educational attainment was associated with unintended pregnancies, with women having primary or secondary education showing higher odds compared to those with no formal education. This finding contrasts with the conclusions of Sedgh et al. (2014), who reported that less-educated women generally experience higher rates of unintended pregnancies[29]. This could be explained by contextual differences in fertility intentions, contraceptive use, or access to family planning services across study settings.

Strengths and limitations of the study

This study used nationally representative data from the 2022 Tanzania Demographic and Health Survey, with a large sample size and weighted analyses, enhancing generalizability and robustness of the

findings. However, the cross-sectional design limits causal inference, and self-reported data may be subject to recall and social desirability bias. Residual confounding is also possible due to unmeasured contextual factors.

Conclusion

This study demonstrates that unmet need for contraception is a strong predictor of unintended pregnancy, highlighting the critical role of improving access to and uptake of family planning services. Socio-demographic factors also play an important role, with higher educational attainment associated with increased odds of unintended pregnancy, while younger age (25–34 years), being married, and having no history of pregnancy termination were associated with lower odds of experiencing unintended pregnancy. These findings suggest that interventions should prioritise addressing unmet contraceptive needs while also tailoring strategies to specific socio-demographic groups to effectively reduce the burden of unintended pregnancy.

Abbreviations

SSA
Sub-Saharan Africa
DHS
Demographic and Health Survey
COR
Unadjusted odds ratio
AOR
Adjusted odds ratio
CI
Confidential Interval

Declarations

Ethics Approval

This study utilized secondary data, and ethical considerations did not require specific approval. However, the authorization to access and use the datasets was granted by the DHS program management.

Consent for publication

Not applicable

Availability of data and materials

Data are available upon request from the Demographic and Health Surveys portal:
https://www.dhsprogram.com/data/dataset_admin/login_main.cfm

Conflict of Interests

There is no conflict of interest

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Authors contributions

BN conceptualized and designed the study, analyzed the data, interpreted the findings, and wrote the manuscript. SN and AK provided guidance on concept development, data analysis, and final manuscript development. The final manuscript was read and approved by all authors.

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