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Magnitude and factors associated with unintended pregnancy among women attending antenatal care in ABUBEF clinics, Burundi

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ABSTRACT

INTRODUCTION: Unintended pregnancy is a serious public health concern in both industrialized and developing countries. The unintended pregnancy rate in Burundi was 43%, and the pregnancy-related mortality rate was 334 maternal deaths per 100,000 live births for the 7 years preceding DHS-III, 2016-2017. Therefore, this study aimed to determine the magnitude and factors associated with unintended pregnancy among women attending antenatal care in the Association pour le Bien-Etre Familial (ABUBEF) clinics in Burundi.

METHODS: An institution-based cross-sectional study was conducted among pregnant women who attended Antenatal natal care (ANC) in ABUBEF clinics. A single population proportion formula was used to obtain the sample size. Univariate, bivariate, and multivariate analyses were employed to examine the existence of a relationship between the outcome and the independent variables.

RESULTS: Out of 411 women of reproductive age attending ANC at ABUBEF clinics, 30.2% of them reported experiencing an unintended pregnancy. Maternal age [AOR = 0.40; 95% CI: 0.23–0.69], marital status [AOR = 0.50; 95% CI: 0.29–0.87], parity [AOR=4.85; 95% CI: 2.72–8.63] and number of living children [AOR =6.2; 95% CI: 1.53–25.14] were associated with unintended pregnancy.

CONCLUSION: Our study revealed that the magnitude of unintended pregnancy was 30.2% among women who attended ANC at ABUBEF clinics. The maternal age, marital status, parity, and the number of living children were associated with unintended pregnancy. A comprehensive sex education program and ensuring access to affordable and diverse contraceptive methods to empower individuals to make informed choices can help prevent unintended pregnancies.

Keywords: Antenatal care, unintended pregnancy, Burundi

INTRODUCTION

Unintended pregnancy is a serious public health concern in both industrialized and developing countries[1]. Over 85 million women worldwide experience unplanned pregnancies every year [2,3]. Between 2015 and 2019, more than 121 million unintended pregnancies each year were

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recorded, and 61% of these unplanned pregnancies resulted in abortions [4].

In America, even though there has been significant progress over the years, some groups still experience greater rates of unintended births than women in other age groups, such as adolescents aged 15-19 years [5,6]. In New Zealand (2008), there were an estimated 95,335 pregnancies, 53% of which were unintended, resulting in 24,131 births [7]. The percentage of unintended pregnancies stopped by abortion increased from 1990-1994 to 2015-2019 by 26% in Middle Africa, 44% in Eastern and Western Africa, and 72% in Southern Africa [8]. The incidence rate of unintended pregnancies varied significantly across countries, ranging from 10.8% in Nigeria to 54.5% in Namibia, based on a multicountry analysis. Married women were found to be six times more likely to report unintended pregnancies compared to women who had never married [9]. Another study conducted between 2010 and 2018 in 10 sub-Saharan African countries using data from the most recent demographic and health surveys revealed that the frequency of unplanned pregnancies was 22.4%, with Angola having the greatest prevalence at 46.6% and the Gambia having the lowest at 10.2% [10].

Approximately 214 million women of reproductive age in developing countries who wish to avoid pregnancy do not use a modern form of contraception, making them significantly less in control of whether and how many children they will have and when they will have them [11].

The literature has shown that by reducing the unmet needs for contraceptives, undesirable pregnancies can be prevented, and maternal and childhood deaths can be avoided [12–14]. Kumar attributed reasons for low contraceptive usage, especially in sub-Saharan Africa, to include illiteracy, poverty, and lack of knowledge and awareness [15].

Several studies in Africa have shown that factors related to unintended pregnancy include age, place of residence, marital status, ethnicity, employment status, educational status, number of living children, monthly income, parity, gravidity, knowledge of contraceptives, distance from a health facility, history of stillbirth and accessibility of contraceptives [16–18].

Burundi continued to rank ninth globally in terms of both its high growth (3.2%), and fertility (5.5 children per woman) rates in 2017 [19,20], and the infant mortality rate (IMR) is reported to be 47 deaths of 1000 live births [21]. According to the Guttmacher Institute, between 2015 and 2019, there were 582,000 pregnancies in Burundi. A total of 249,000 (43%) of these were unplanned pregnancies, and 65,000 of those resulted in abortions [22]. Studies conducted on unintended pregnancy in Burundi are very limited; therefore, this study aimed to determine the magnitude and factors associated with unintended pregnancy among women attending ABUBEF clinics.

METHODS

Study design and study area: An institution-based cross-sectional study was conducted from March 05 to July 29, 2023, at 2 clinics of the Association pour le Bien-Etre Familial (ABUBEF), which is a nonprofit organization established in 1991 that supports the efforts of the government of Burundi in sexual and reproductive health. It is made up of members and volunteers and is one of the member associations of the International Planned Parenthood Federation.

Sample size determination: A single population proportion formula was used to obtain the sample size. The percentage of unintended pregnancies (43%)[23], at the 95% confidence interval, and the 5% margin of error were the assumptions that were employed. A final sample of 411 women was obtained after adding 10% for the nonresponse rate.

Data collection: A systematic sampling technique was used to select study participants based on the consecutive arrival of pregnant women attending ANC. The questionnaire was adopted from previous publications on the subject, and the tool was pretested on 5% of the sample size before data collection in the field to harmonize the content and concepts of the tool with the local context, and corrections were made accordingly.

The tool contains a structured questionnaire prepared in English and then translated into the local language. Face-to-face interviews were used to collect data from the respondents.

The outcome variable was unintended pregnancy, which was categorized as “No” or “Yes”.

Previous research on unintended pregnancy served as the basis for the selection of independent factors [24]. Sociodemographic and obstetric factors were included in the following explanatory variables. Age was categorized into three age groups within the 10-year range (15-24, 25-34, 35+), and marital status was recorded with two response options (unmarried and married). Regarding the

highest educational level for our respondents and husband/partner level, four levels were considered (no education, primary, secondary, and higher education). We also included household wealth quintile (poor, middle, or rich), type of residence (rural or urban), religion (Christian or Islamic), distance to a health facility (<=5 km or >5 km), and employment status (not working or working). The number of living children was grouped into three categories (0-2, 3-4, and >5), as was parity (1,2-4,5 and above).

Data analysis: All the data were recorded and sorted in Microsoft Excel, cleaned, and then imported to IBM SPSS version 25.0 for analysis. Univariate analysis was performed using frequencies and percentages to describe the demographic characteristics of the respondents and unintended pregnancy. Binary and multivariable logistic regression analyses were performed to examine the association between the dependent and the independent variables. A p-value of <0.05 on a binary logistic regression was

Table 1: Sociodemographic and obstetric characteristics of the study participants

Variables		Frequency	Percentage
Age	15-24	133	32.4
	25-34	225	54.7
	35 and above	53	12.9
Marital status	Unmarried	167	40.6
	Married	244	59.4
Highest educational level	No education	20	4.9
	Primary	82	20
	Secondary	237	57.7
	Higher	72	17.5
Husband/partner's education level	No education	11	2.7
	Primary	52	12.7
	Secondary	245	59.6
	Higher	103	25.1
Economic status	Poor	23	5.6
	Medium	33	8
	Rich	355	86.4
Type of residence	Rural	18	4.4
	Urban	393	95.6
Employment status	Not working	87	21.2
	Working	324	78.8
Religions	Christian	313	76.2
	Muslim	98	23.8
Distance to health facility (km)	<= 5Km	341	83
	>5Km	70	17
Number of living children	0-2	317	77.1
	3-4	69	16.8
	5 and above	25	6.1
Parity	1	254	61.8
	2-4	127	30.9
	5 and above	30	7.3

used to select candidate variables for multivariable logistic regression analysis as well as to declare statistical significance. The goodness of fit of the final model was tested by a Hosmer–Lemeshow p-value > 0.05.

Ethical approval was obtained from the UI/UCH Ethics Committee (UI/EC/0125).

RESULTS

Of the 411 women of reproductive age who participated in this study, 54.7% were aged 25-34 years, and 59.4% were married. More than half of the participants (57.7%) had a secondary education level, as did their husbands/partners (59.6%). The majority (86.4%) were rich people in the household

Table 2: Association between sociodemographic and obstetric characteristics and unintended pregnancy

			Unintended Pregnancy		
Variables		**COR [95% CI]**	**No (%)**	**Yes (%)**	**P Value**
Age	15-24	1.00	86(64.7)	47(35.3)	1.00
	25-34	0.62[0.39-0.99]	168(74.7)	57(25.3)	**0.045**
	35+	1.11[0.57-2.14]	33(62.3)	20(37.7)	0.759
Marital status	Unmarried	1.00	126(75.4)	41(24.6)	1.00
	Married	1.58[1.02-2.46]	161(66.0)	83(34.0)	**0.041**
Educational level	No education	1.00	13(65.0)	7(35.0)	1.00
	Primary	1.31[0.46-3.74]	55(67.1)	27(32.9)	0.617
	Secondary	1.19[0.60-2.37]	168(70.9)	69(29.1)	0.615
	Higher	1.00[0.56-1.78]	51(70.8)	21(29.1)	0.993
Husband/ partner's education level	No education	1.00	6(54.5)	5(45.5)	1.00
	Primary	1.85[0.53-6.51]	37(71.2)	15(28.8)	0.338
	Secondary	0.90[0.43-1.87]	173(70.6)	72(29.4)	0.776
	Higher	0.92[0.56-1.52]	71(68.9)	32(31.1)	0.755
Economic status	Poor	1.00	12(52.2)	11(47.8)	1.00
	Medium	0.70[0.33-1.47]	21(63.6)	12(36.4)	0.341
	Rich	1.60[0.54-4.74]	254(71.5)	101(28.5)	0.392
Type of residence	Rural	1.00	12(66.7)	6(33.3)	1.00
	Urban	1.17[0.43-3.18]	275(70.0)	118(30.0)	0.765
Occupation	Not working	1.00	49(56.3)	38(43.7)	1.00
	Working	0.47[0.29-0.76]	238(73.5)	86(26.5)	**0.002**
Religion	Christian	1.00	214(68.4)	99(31.6)	1.00
	Islamic	0.74[0.44-1.24]	73(74.5)	25(25.5)	0.25
Distance to health facility (km)	<= 5Km	1.00	238(69.8)	103(30.2)	1.00
	>5Km	0.99[0.57-1.74]	49(70.0)	21(30.0)	0.973
Number of living children	0-2	1.00	225(71.0)	92(29.0)	1.00
	3-4	0.80[0.44-1.46]	52(75.4)	17(24.6)	0.464
	5 and above	3.67[1.59-8.46]	10(40.0)	15(60.0)	**0.002**
Parity	1	1.00	200(78.7)	54(21.3)	1.00
	2-4	2.74[1.72-4.35]	73(57.5)	54(42.5)	**< 0.001**
	5 and above	4.23[1.94-9.21]	14(46.7)	16(53.3)	**< 0.001**

quintile, and 95.6% were residents in urban areas. Regarding employment status, the majority of the participants were employed (78.8%), and in terms of religion, 76.2% were Christians. Moreover, 61.8% were primiparous, 77.1% had 0-2 living children, and 83% traveled a distance of <= 5 km to reach a nearby health facility (Table 1).

The overall magnitude of unintended pregnancy was 30.2% among women of reproductive age attending ABUBEF clinics.

The results of the bivariate analysis shown in Table 2 indicate that maternal age, marital status, employment status, number of living children, and parity were associated with unintended pregnancy.

In this study, multivariate logistic regression analysis revealed that unintended pregnancy was significantly associated with maternal age, marital status, parity, and the number of living children.

The findings of this study in Table 3 revealed that

Table 3: Multivariate logistic regression of the factors associated with unintended pregnancy

Variables		AOR	P-Value	95% CI
Age	15-24	1.00	1.00	1.00
	25-34	0.40	**0.001**	[0.23-0.69]
	35 and above	0.58	0.216	[0.24-1.38]
Occupation	Not working	1.00	1.00	1.00
	Working	0.93	0.794	[0.53-1.63]
Marital status	Unmarried	1.00	1.00	1.00
	Married	0.5	**0.013**	[0.29-0.87]
Parity	1	1.00	1.00	1.00
	2-4	4.85	**< 0.001**	[2.72-8.63]
	5 and above	1.46	0.584	[0.38-5.62]
Number of living children	0-2	1.00	1.00	1.00
	3-4	0.62	0.207	[0.30-1.30]
	5 and above	6.2	**0.011**	[1.53-25.14]

women aged 25-34 years were 60% less likely to experience unintended pregnancy than those aged 15-24 years [AOR = 0.40; 95% CI: 0.23–0.69]. Married women were 50% less likely to have an unintended pregnancy than were their counterparts [AOR = 0.50; 95% CI: 0.29–0.87], and multiparous women with 2-4 deliveries were 4.8 times more likely to experience unintended pregnancy compared with primiparous women[AOR=4.85; 95% CI: 2.72–8.63]. Moreover, mothers with 5 or more living children were 6 times more likely to experience unintended pregnancy than those who had two or fewer children [AOR =6.2; 95% CI: 1.53-25.14] (Table 3).

DISCUSSION

This study was carried out to determine the magnitude of unintended pregnancy and the factors associated with unintended pregnancy among women receiving ANC in ABUBEF clinics, in Burundi. Among women attending ANC, 30.2% of women attending ANC experienced unintended pregnancy. The magnitude of unintended pregnancies at ABUBEF clinics is comparable to that observed in other African countries, as evidenced by studies conducted in Maichew Town, Northern Ethiopia (29.7%) [24], and Southwest Nigeria (29%) [25]. However, the magnitude of unintended pregnancy in ABUBEF clinics was found to be less than that of the Ilu Gelan District, Western Ethiopia (55%) [26], Nepal (54.5%) [27], Kenya (41%) [28], the Wolaita zone (36.6%) [25], and the West Wollega Oromia region (36.5% [29]. This could be attributed to differences in the populations studied and the sizes of the samples used.

This study revealed that women aged 25-34 years

were 60% less likely to experience unintended pregnancy than those aged 15-24 years [AOR = 0.40; 95% CI: 0.23–0.69]. This finding is in line with the results of a multilevel analysis study conducted in Ethiopia using EDHS 2016 data, which indicated that mothers aged 20-34 and 35-49 years were less likely to have an unintended pregnancy than mothers aged 15-19 years [30]. This can be attributed to inconsistent contraceptive use and shifting priorities related to career, relationships, and family planning, whereas women aged between 15-19 years are more focused on fertility awareness and proactive contraception.

Our findings indicated that married women were 50% less likely to have unintended pregnancy compared to unmarried women [AOR = 0.50; 95% CI: 0.29–0.87]. This finding aligns with a study conducted in the Oromiya Region, East Ethiopia, which found that single women were more likely to become pregnant unintentionally [29].

In addition, the results of the current study were consistent with those of previous studies conducted in Ethiopia [24,31,32] and Kenya [17], where unmarried women had an increased likelihood of having an unintended pregnancy. This can be attributed to the conservative beliefs and cultural norms that discourage premarital sex, and the use of contraceptive methods stems from concerns about judgmental attitudes and social condemnation.

However, a multicountry analysis of demographic and health surveys by Ameyaw et al. to determine the prevalence and determinants of unintended pregnancy in sub-Saharan Africa revealed that married women were 6 times more likely to report unintended pregnancy than women who had never married [9]. Compared with primiparous women, multiparous women with 2-4 deliveries [AOR=4.85; 95% CI: 2.72–8.63] were 4.8 times more likely to experience unintended pregnancy. This result is in line with other studies that found that multiparous mothers had higher odds of unintended pregnancy; in other words, higher parity was associated with a greater chance of unintended pregnancy [30,33]. This may be due to a lack of sex education and reproductive health awareness, as they may not be sufficiently informed to make informed decisions about their fertility.

According to this study, women who had 5 or more living children were 6 times more likely to experience unintended pregnancy than those who had two or fewer children. This finding is not different from that of a study conducted in Maichew, Ethiopia [24]. This may be due to factors such as contraceptive failure, changing fertility perceptions, limited access to healthcare, and desires for additional children.

This exploratory study in ABUBEF clinics, Burundi, represents the first attempt to assess the magnitude and associated factors of unintended pregnancy in this setting. However, the study's findings are limited by a small sample size and, therefore, cannot be generalized to the entire country. A large sample size incorporating a mixed-method study design would provide more information about unintended pregnancy.

CONCLUSION

Our study revealed that 30.2% of women who attended ANC in ABUBEF clinics experienced unintended pregnancy. Unintended pregnancy was associated with maternal age, marital status, parity, and the number of living children. Therefore, these high-risk groups might receive additional attention. Reducing the frequency of unintended pregnancies requires increasing women's access to maternal health services and sexual and reproductive health rights education.

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