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PREVALENCE AND TRIGGERING FACTORS ASSOCIATED WITH UNINTENDED PREGNANCY IN SOUTH ASIA AND SUB-SAHARAN AFRICA: EVIDENCE FROM DEMOGRAPHIC AND HEALTH SURVEY DATA

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Abstract

Unintended pregnancy is a global social health concern among women from developing countries. It plays a significant role in the women's health condition, their children, and their family economy, particularly in South Asia (SA) and Sub-Saharan Africa (SSA). The prime concentration of this study was to explore the prevalence of unintended pregnancy and point out the factors associated with unintended pregnancy in the women from the SA and SSA regions. This study utilized the Demographic and Health Survey (DHS) data of 35 developing countries from the SA and SSA region for analysis purposes. Univariate analysis was conducted to calculate the prevalence, and bivariate and multivariate analyses were applied to explore associated factors of unintended pregnancy. Results revealed that unintended pregnancies accounted for 20.50 % of combined data of the SA and SSA region. There were 17.40% and 25.10% unintended pregnancies found in SA and SSA countries. Binary logistic regression indicated that the age of the respondent (OR=1.28, CI=1.20-1.36) was a highly influential factor for unintended pregnancy in the selected countries. Besides this variable, place of residence, educational level, family size, household head, wealth index, age at first birth, contraceptive method, and current residence with a partner were found to be significant critical factors in determining the risk of unintended pregnancy in both regions. Several intervention programs on reproductive and maternal health care, such as increasing awareness among teenage women from the rural areas, and women with wealthy family backgrounds, are highly recommended to reduce the risk of unintended pregnancy.

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Introduction

Unintended pregnancy has become one of the significant social and public health problems all around the world since it can lead to induced abortion and create difficulties, which are typically caused by the lack of abortion healthcare professionals, notably in resource-constrained regions(Ganatra et al., 2017). Generally, unintended pregnancy can be described as a situation in which a woman just doesn't want to get conceived at that moment or at any point in the future(Amin Shokravi et al., 2009). Unintended pregnancies have an undesirable impact on women's everyday lives and have a negative effect on their families and society. Evidence suggests that 121 million unintended pregnancies happened from 2015 to 2019, with a worldwide average of 64 unwanted pregnancies per 1000 women of reproductive age(Bearak et al., 2020). A significant number of unplanned pregnancies result in abortion, with the global abortion rate standing at 39 per 1000 women aged 15 to 49 years(Bearak et al., 2020).

Unintended pregnancy rates have decreased globally(Bearak et al., 2018; Sedgh et al., 2014), but the rate of decline is insufficient, and it continues to be a global health issue. In Asia and Sub-Saharan Africa, the rate of unintended pregnancies is still 25.4% (Darroch et al., 2011) and 33.9% (Bain et al., 2020), respectively. According to the literature, millions of women in Sub-Saharan Africa choose to avoid having children (Hubacher et al., 2008). Several studies, including individuals from several Sub-Saharan African countries, found that over 90% of them are aware of at least one method of contemporary birth control. Furthermore, depending on the region and age group of the respondent, 10 to 65% of women said that their last delivery was unintended. Abortion rates in the Sub-Shaharan regions are high, notably in East Africa [10], with verifiable evidence of unmet contraceptive needs exceeding 30% in several countries in Sub-Saharan Africa(Cleland et al., 2006). Pregnancy is, in fact, the most harmful health event for women in Sub-Saharan Africa, with a lifetime risk of death owing to pregnancy of one out of sixteen(Who, 2000).

Unintended pregnancy is a complex and time-consuming problem to handle in any location, particularly in Asia and Sub-Saharan Africa, because the vast majority of unintended pregnancies are likely the result of a lack of accessibility or refusal of birth control policies. Furthermore, the individuals residing in these regions are not aware of the factors that are associated with unintended pregnancy. Therefore, this study aims to find out the prevalence and influencing factors of unintended pregnancy in low and middle income countries in South Asian and Sub-Saharan African regions. Moreover, we focus on revealing the influential difference of different influencing factors between the selected couontreis of South-Asia and Sub-Saharan Africa.

Material and Methods

Data sources

DHS was used to gather secondary data sources. The measure provides access to all data files. Data from the DHS program is available on the internet(Islam & Barna; program, 2020). DHS is a nationally representative cross-sectional housekeeping survey of homes to acquire demographic and health data. The survey is based on a stratified sample of households in two stages. We extracted the characteristics from the Individual Women's Record (IR) dataset using literature. Then, in each of the 35 SA and SSA nations, we preserved the same variables and combined them(Lloyd & Mensch, 2008). Only the most recent standard DHS data were used from six South Asian (SA) countries and twenty-nine Sub-Saharan African countries. The six South Asian countries are as follows: Bangladesh (2017-2018), Pakistan (2017-2018), Nepal (2016), Afghanistan (2015), Maldives (2016-2017), and India (2015-2016). Where twenty-nine Sub-Saharan African (SSA) countries are as follows: Angola (2015-2016), Benin (2017-2018), Burkina

Faso (2010), Burundi (2016-2017), Cameroon (2018), Chad (2014-2015), Comoros (2012), Congo (2011-2012), Cote d'lvoire (2011-2012), Eswatini (2006-2007), Ethiopia (2016), Gabon (2012), Gambia (2013), Ghana (2014), Guinea (2018), Kenya (2014), Lesotho (2014), Liberia (2013), Madagascar (2008-2009), Malawi (2015-2016), Mali (2018), Namibia (2013), Niger (2018), Nigeria (2012), Rwanda (2014-2015), Sao Tome and Principe (2008-2009), Senegal Continuous (2019), Sierra Leone (2019), South Africa (2016). The main reason for selecting these twenty-nine nations was because data on some of the demographic and behavioral parameters of interest could only be found in these countries. Some South Asian and Sub-Saharan African countries were dropped from the study due to a lack of relevant information. The analysis of this study is fixed with current ever-married women aged 15 to 49 years (N= 44,848). The analysis included 43,219 observations, and due to missing data 1,629 women were cropped.

Dependent variable

The preliminary result of the study was pregnancy wanted status. Pregnancy wanted was enumerated as the dependent variable for this study. It was measured by asking the respondents to repeal their intentions regarding the last pregnancy. The DHS record had a query for women as "current pregnancy wanted," and it had three types of answers, namely: 'then', 'later' and 'not at all'. For ingenuousness, we have categorized into two groups as follows: 'then' for 'intended (0)'; 'later or not at all' for 'unintended (1)'.

Independent variables

To conduct the analysis, we have categorized the selected influential variable into different categories. The variable respondent's age is classified as early marriage and not early marriage. The other chosen variables are categories like-residence (urban, rural), educational level (no education, primary, secondary & higher), family size (less than equal to four, more than four), household head (male, female), wealth index (poor, middle, rich), age at first birth (teenage pregnancy, not teenage pregnancy), using a contraceptive method (no, yes), current residence with a partner (staying elsewhere, living with a partner), number of children (no childrean, 1-2 childrean, 3 or more chilrean), media access (no, yes) were enumerated as independents variables(Islam et al., 2020; Noor et al., 2012)

Statistical analysis

Bivariate analysis (Pearson's $\chi 2$) was presented to assess the relationship between the dependent and independent variables. In order to find the influencing factors for unintended pregnancy among women, we used Binary Logistic Regression (BLR) model(Hilbe, 2009; Tranmer & Elliot, 2008) as we categorize the outcome variable into two categories. Logistic regression generates the coefficients (and its standard errors and significance levels) of a formula to predict a logit transformation of the probability of the presence of the characteristic of interest:

$$logit\ (p) = b_0 + b_1X_1 + b_2X_2 + \cdots + b_kX_k \tag{1}$$

where p is the probability of the presence of the characteristic of interest. The logit transformation is defined as the logged odds:

$$Odds = \frac{p}{1-p} = \frac{Probality\ of\ presence\ of\ characteristic}{Probality\ of\ absence\ of\ charecteristic} \tag{2}$$

and

$$logit\ (p) = loglog(\frac{p}{1-p}) \tag{3}$$

Rather than choosing parameters that minimize the sum of squared errors (like in ordinary regression), estimation in logistic regression chooses parameters that maximize the likelihood of observing the sample values.

Results

From the following Figure 1, it can be shown the distribution of unintended pregnancies in thirty-five countries in two regions. 20.50% of unintended pregnancies were found in all countries, whereas 17.40% of unintended pregnancies were found in South Asian countries and 25.10% in Sub-Saharan African countries. The prevalence of unintended pregnancies was arrayed from 9.90% in Lesotho to 63.10% in Sao Tome and Principe. 17.40% were unintended, whereas in the South Asian countries, 25.10% were unintended in Sub-Saharan African countries, and the prevalence of unintended pregnancy was 20.50% for the combined regions.

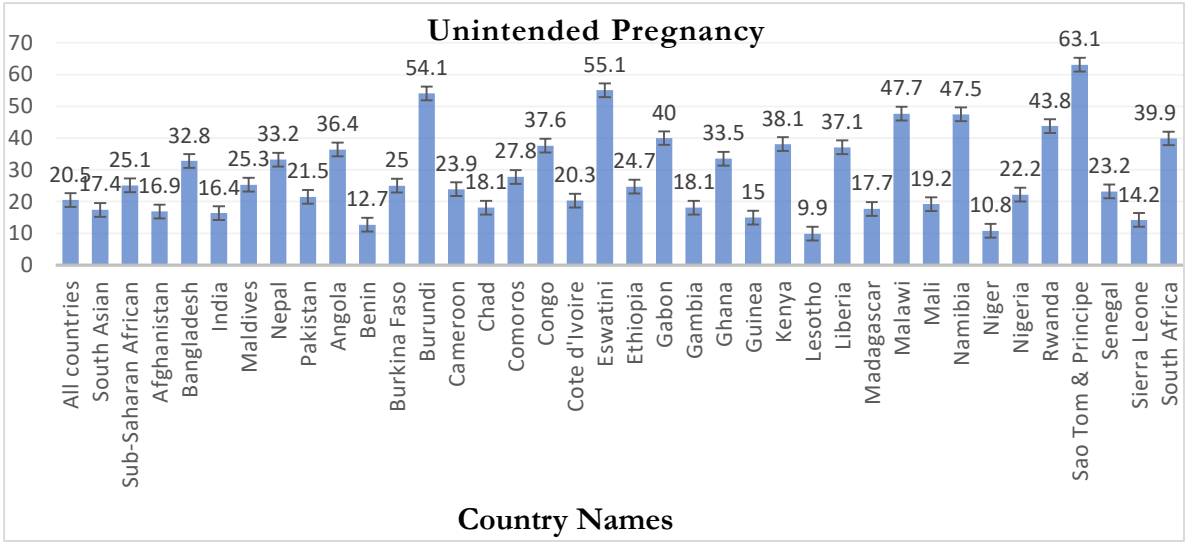

Figure 1. Prevalence of unintended pregnancy among women in developing countries.

Table 1 clearly shows that 79.5% of respondents have intended pregnancy, but 20.5% are not. Among our respondents, most of the residents are from rural areas, 73.9%, and 18.6% are early married. Although the educational level plays a fundamental role, our study shows that 47.7% of respondents have no education, 18.6% have only the primary level, and 33.6% of respondents are secondary & higher educated. 71.1% of the respondents have more than four family members. Most of the household heads of our respondents are male(88.1%), and most of them are poor (47.8%). About 38.2% of respondents had teenage pregnancies, and only 38.2% of respondents use the contraceptive method. 88.5% of respondents live with a partner, and most of the respondents (68.2%) have three or more children, and only 33.6% of the household do not have media access. Again, the South Asian countries, 82.6%) of respondents are intended for pregnancy, whereas in the Sub-Saharan African countries, 74.9% of respondents are intended for pregnancy. In South Asian countries, only 24.2% of early married respondents, whereas in Sub-Saharan African countries, only 10.5% of respondents' age is early married. Among our respondents for both regions, most of the residents in South Asian countries are from rural areas, 75.4%; whereas in Sub-Saharan African countries are from rural areas, 71.7%.In South Asian countries, 43.4% of the respondents have no education, and 43.3% of

respondents have secondary & higher education. In contrast, in the Sub-Saharan African countries, 54.0% of respondents have no education, and 19.5% of respondents have secondary & higher education. In South Asian countries, 72% of the respondent has a family size is more than four; whither in Sub-Saharan African countries, the respondent's family size of more than four is 69.7%. Only 10.0% of the household head is female the South Asian countries where, in the Sub-Saharan African countries, 14.8% are female. African countries, 51.5% of teenage pregnancies. In South Asia, only 27.0% of respondents are using the contraceptive method, whither in the Sub-Saharan African regions, 54.6% of respondents are using a contraceptive method. Among the South Asian region respondents, 90.5% are living with a partner. In contrast, in the Sub-Saharan African area, 85.5% of respondents are

Table 1. Percentage distribution of women for baseline characteristics from South Asian and Sub-Saharan Africa and their combined data

Variables		South Asian (N=25,697)	Sub-Saharan African (N=17,521)	South Asian and Sub-Saharan African (combined)
	Categories	Frequency (%)	Frequency (%)	Frequency (%)
Pregnancy wanted	Intended	21234(82.6)	13126(74.9)	34361 (79.5)
	Unintended	4463(17.4)	4395(25.1)	8858(20.5)
Respondent's age	Early marriage	6213(24.2)	1847(10.5)	8060(18.6)
	Not early marriage	19485(75.8)	15674(89.5)	35159(81.4)
Residence	Urban	6316(24.6)	4961(28.3)	11278(26.1)
	Rural	19381(75.4)	12560(71.7)	31941(73.9)
Educational level	No education	11155(43.4)	9467(54.0)	20622(47.7)
	Primary	3427(13.3)	4633(26.4)	8060(18.6)
	Secondary & higher	11116(43.3)	3421(19.5)	14537(33.6)
Family size	Less than equal to four	7204(28.0)	5306(30.3)	12510(28.9)
	More than four	18493(72.0)	12215(69.7)	30708(71.1)
Household head	Male	23131(90.0)	14930(85.2)	38060(88.1)
	Female	2567(10.0)	2591(14.8)	5159(11.9)
Wealth index	Poor	12557(48.9)	8082(46.1)	20639(47.8)
	Middle	5142(20.0)	3546(20.2)	8688(20.1)
	Rich	7998(31.1)	5894(33.6)	13892(32.1)
Age at 1st birth	Teenage pregnancy	7481(29.1)	9020(51.5)	16501(38.2)
	Not teenage pregnancy	18217(70.9)	8501(48.5)	26717(61.8)
Using contraceptive method	No	18760(73.0)	7951(45.4)	26711(61.8)
	Yes	6937(27.0)	9570(54.6)	16507(38.2)
Current residence with partner	Staying elsewhere	2438(9.5)	2544(14.5)	4981(11.1)
	Living with partner	23260(90.5)	14977(85.5)	38237(88.5)
No of children	No children	559(2.2)	211(1.2)	770(1.8)
	1-2 children	12277(47.8)	703(4.0)	12980(30.0)
	3 or more children	12862(50.0)	16607(94.8)	29469(68.2)
Media access	No	8136(31.7)	6375(36.4)	14510(33.6)
	Yes	17562(68.3)	11146(63.6)	28708(66.4)

living with a partner.50.0% of respondents have respectively 1-2 children and three or more children in the South Asian regions; where 4.0% and 94.8% of respondents have respectively 1-2 children and three or more children in the Sub-Saharan African regions. In the South Asian area, only 31.7% of respondents have no media access. In contrast, 63.6% of respondents have media access in the Sub-Saharan African regions.

We used the chi-square test to investigate the association between our dependent variable, unwanted pregnancy, and several selected independent variables in bivariate analysis. There is a significant association between respondent age and unwanted pregnancy, i.e., the p-value is 0.000 with the value of chi-square 30.007. Residence, educational level, family size, wealth index, using the contraceptive method, and no of children are also significant associations with dependent variable unwanted pregnancy where p-values are 0.000 and chi-square are respectively 25.107, 408.254, 27.672, 19.538, 244.62 and 61.360. The household head is also significant with unwanted pregnancy with p-value 0.008, and chi-square 6.972, age at first birth is significant with an unwanted pregnancy at p-value 0.007 and chi-square 7.271, current residence with a partner is also significant with an unwanted pregnancy at p-value 0.044 and chi-square 4.074. Here only media access is not significant with the dependent variable where the p-value is 0.112 with the value of the chi-square 2.528. Table 2 dictates that respondent age, place of residence, educational level, family size, wealth index, using a contraceptive method, and media access are significant in an unwanted pregnancy for both South Asian and Sub-Saharan African regions. Where household head, age at 1st birth, no of children are not significant for South Asian regions but significant for Sub Saharan African regions. Again, it is clear from the table that respondent's current residence with a partner is not substantial for both areas.

Table 03 represents that for South Asian regions, not early married respondents (OR=0.574., CI=0.534-0.617) have lower odds of having unintended pregnancy, but in Sub-Saharan African regions (OR=1.314, CI=1.159-1.489) have higher odds of unwanted pregnancy compared to early married respondents and for combined, (OR= 0.782, 95% CI=0.737-0.831) has lower odds to unwanted pregnancy. In both South Asian regions and Sub-Saharan African regions, rural respondents (OR=0.765, CI=0.701-0.835) and (OR=0.885, CI=0.810-0.968) have lower odds to urban lower odds than urban and also for combined (OR=0.781, CI=0.735-0.831) has less likely to unwanted pregnancy than the reference category urban respondents. In the South Asian regions, primary educated respondents (OR=1.104, CI=0.998-1.220) have higher odds of having unintended pregnancy, and secondary & higher educated respondents (OR=0.821, CI=0.752-0.895) has lower odds of having unintended pregnancy than not educated respondents. On the contrary, the highest odds of having unintended pregnancy occur among primary educated (OR=2.095, CI=1.932-2.273) and secondary & higher (OR=1.522, CI=1.375-1.686) respondents, respectively, compared to not educated respondents in the Sub-Saharan African regions. And for combined data, primary educated respondents (OR= 1.711, CI=1.609-1.820) and secondary & higher educated respondents (OR=1.057, CI=0.990-1.128) are more likely to have unwanted pregnancies than no educated respondents. More than four family size respondents have higher odds compared to a family size less than four in the South Asian region (OR=1.585, CI=1.463-1.717) and Sub-Saharan African regions (OR=1.009, CI=0.935-1.089) respectively and also for combined data, (OR=1.206, CI=1.143-1.273) is more likely to have unwanted pregnancy than respondent with family size less than four. For the South Asian region, respondent with a female household head has (OR=0.971, CI=0.864-1.092) lower odds whereas the Sub-Saharan African region (OR=1.168, CI=1.038-1.313) has higher odds than the respondent with male household head and also for combined data, (OR=1.087, CI=1.002-1.178) respondent with female household head has higher odds of having an unintended pregnancy. Lower odds occurred among respondents from middle families (OR=0.821, CI=0.748-0.901) and rich families (OR=0.977, CI=0.882-1.083), respectively, compared to the respondent from a poor families in the South Asian regions and also in the Sub-Saharan African areas, a respondent from middle-class family (OR=0.962, CI=0.877-1.056) and rich family (OR=0.716,

Table 2. Prevalence of the women's pregnancy status for the selected predictors by using chi-square association

Variables	South Asian (N=25,697)			Sub-Saharan African (N=17,521)			South Asian and Sub-Saharan African (combined)		
	Pregnancy status		Chi-square value (p-value)	Pregnancy status		Chi-square value (p-value)	Pregnancy status		Chi-square value (p-value)
	Intended, n (%)	Unintended, n (%)		Intended, n (%)	Unintended, n (%)		Intended, n (%)	Unintended, n (%)	
Respondent's age			195.964 (0.000)			18.264 (0.000)			30.007 (0.000)
Early marriage	4770 (18.6)	1443 (5.6)		1459 (8.3)	388 (2.2)		6229 (14.4)	1831 (4.2)	
Not early marriage	16465 (64.1)	3020 (11.8)		11667 (66.6)	4007 (22.9)		28132 (65.1)	7027 (16.3)	
Residence			8.607 (0.003)			9.055 (0.003)			25.107 (0.000)
Urban	5143 (20.0)	1174 (4.6)		3639 (20.8)	1322 (7.5)		8781 (20.3)	2496 (5.8)	
Rural	16092 (62.6)	3290 (12.8)		9487 (54.1)	3072 (17.5)		25579 (59.2)	6362 (14.7)	
Educational level			55.591 (0.000)			396.742 (0.000)			408.254 (0.000)
No education	9114 (35.5)	2041 (7.9)		7618 (43.5)	1849 (10.6)		16733 (38.7)	3889 (9.0)	
Primary	2728 (10.6)	699 (2.7)		3021 (17.2)	1612 (9.2)		5749 (13.3)	2311 (5.3)	
Secondary & higher	9392 (36.5)	1723 (6.7)		2487 (14.2)	934 (5.3)		11879 (27.5)	2658 (6.2)	
Family size			107.015 (0.000)			5.758 (0.016)			27.672 (0.000)
Less than equal to four	6235 (24.3)	969 (3.8)		3912 (22.3)	1394 (8.0)		10147 (23.5)	2364 (5.5)	
More than four	14999 (58.4)	3494 (13.6)		9214 (52.6)	3000 (17.1)		24214 (56.6)	6494 (15.0)	
Household head			1.186 (0.276)			6.817 (0.009)			6.972 (0.008)
Male	19093 (74.3)	4037 (15.7)		11238 (64.1)	3691 (21.1)		30332 (70.2)	7729 (17.9)	
Female	2141 (8.3)	426 (1.7)		1888 (10.8)	703 (4.0)		4029 (9.3)	1129 (2.6)	
Wealth index			24.135 (0.000)			18.358 (0.000)			19.538 (0.000)
Poor	10232 (39.8)	2326 (9.1)		6004 (34.3)	2077 (11.9)		16236 (37.6)	4403 (10.2)	
Middle	4331 (16.9)	811 (3.2)		2596 (14.8)	950 (5.4)		6927 (16.0)	1461 (4.1)	
Rich	6671 (26.0)	1327 (5.2)		4527 (25.8)	1367 (7.8)		11198 (25.9)	2694 (6.2)	
Age at first birth			0.094 (0.759)			7.511 (0.006)			7.271 (0.007)
Teenage pregnancy	6173 (24.0)	1308 (5.1)		6836 (39.0)	2184 (12.5)		13009 (30.1)	3492 (8.1)	
Not teenage pregnancy	15061 (58.0)	3156 (12.3)		6290 (35.9)	2211 (12.5)		21351 (49.4)	5366 (12.4)	
Using contraceptive method			27.430 (0.000)			92.077 (0.000)			244.621 (0.000)
No	15643 (60.9)	3117 (12.1)		6231 (35.6)	1720 (9.8)		21874 (50.6)	4837 (11.2)	
Yes	5591 (21.8)	1346 (5.2)		6895 (39.4)	2674 (15.3)		12486 (28.9)	4021 (9.3)	
Current residence with partner			0.995 (0.319)			0.041 (0.839)			4.074 (0.044)
Staying elsewhere	1996 (7.8)	441 (1.7)		1910 (10.9)	634 (3.6)		3906 (9.0)	1075 (2.5)	
Living with partner	19238 (74.9)	4022 (15.7)		11217 (64.0)	3761 (21.5)		30454 (70.5)	7783 (18.0)	
Number of children			3.183 (0.204)			71.208 (0.000)			61.360 (0.000)
No children	415 (1.8)	108 (0.4)		153 (0.9)	58 (0.3)		604 (1.4)	166 (0.4)	
1-2 children	10188 (39.6)	2088 (8.1)		433 (2.5)	271 (1.5)		10621 (24.6)	2359 (5.5)	
3 or more children	10595 (41.2)	2267 (8.8)		12541 (71.6)	4066 (23.2)		23136 (53.5)	6333 (14.7)	
Media access			22.063 (0.000)			15.93 (0.000)			2.528 (0.112)
No	6590 (25.6)	1549 (6.0)		4883 (27.9)	1491 (8.5)		11473 (26.5)	3037 (7.0)	
Yes	14644 (57.0)	2918 (11.4)		8243 (47.0)	2903 (16.6)		22887 (53.0)	5821 (13.5)	

Table 3 Binary logistic regression analysis of the women's pregnancy status from South Asian and Sub-Saharan African countreis

Variables	South Asian (N=25,697)			Sub-Saharan African (N=17,521)			South Asian and Sub-Saharan African (combined)		
	OR	P-Value	95% CI	OR	P-value	95% CI	OR	P-value	95% CI
Respondent's age									
Early marriage (ref)									
Not early marriage	0.574	0.000	0.534-0.617	1.314	0.000	1.159-1.489	0.782	0.000	0.737-0.831
Residence									
Urban (ref)									
Rural	0.765	0.514	0.701-0.835	0.885	0.008	0.810-0.968	0.781	0.000	0.735-0.831
Educational level									
No education (ref)									
Primary	1.104	0.054	0.998-1.220	2.095	0.000	1.932-2.273	1.711	0.000	1.609-1.820
Secondary & higher	0.821	0.000	0.752-0.895	1.522	0.000	1.375-1.686	1.057	0.098	0.990-1.128
Family size									
Less than equal to four (ref)									
More than four	1.585	0.000	1.463-1.717	1.009	0.822	0.935-1.089	1.206	0.000	1.143-1.273
Household head									
Male (ref)									
Female	0.971	0.628	0.864-1.092	1.168	0.010	1.038-1.313	1.087	0.044	1.002-1.178
Wealth index									
Poor (ref)									
Middle	0.821	0.000	0.748-0.901	0.962	0.414	0.877-1.056	0.903	0.002	0.846-0.963
Rich	0.840	0.000	0.763-0.925	0.716	0.000	0.651-0.786	0.803	0.000	0.752-0.858
Age at first birth									
Teenage pregnancy (ref)									
Not teenage pregnancy	1.060	0.120	0.985-1.140	1.011	0.774	0.939-1.088	1.026	0.314	0.976-1.079
Using contraceptive method									
No (ref)									
Yes	1.297	0.000	1.206-1.395	1.276	0.000	1.189-1.371	1.415	0.000	1.347-1.486
Current residence with partner									
Staying elsewhere (ref)									
Living with partner	0.962	0.514	0.856-1.081	1.097	0.134	0.972-1.238	0.974	0.533	0.897-1.058
Number of children									
Number of children (ref)									
1-2 children	0.885	0.274	0.711-1.102	1.263	0.185	0.894-1.785	0.791	0.011	0.661-0.947
3 or more children	0.765	0.033	0.635-0.981	0.802	0.161	0.589-1.092	0.921	0.358	0.777-1.098
Media access									
No (ref)									
Yes	0.923	0.051	0.852-1.000	0.115	1.065	0.985-1.152	0.986	0.616	0.933-1.042

ref= Reference Categoreis; CI= Confidence Interval; OR = Odds Ratio; P-value = Probabilibty value

CI=0.651-0.786) have lower odds compared to low-income family respondents, and for combined data, among middle family respondent (OR=0.903, CI=0.846-0.963) and wealthy family respondent (OR=0.803, CI=0.752-0.858) both have lower odds of unwanted pregnancy than respondent from a poor family. For both South Asian regions (OR=1.060, CI=0.985-1.140) and Sub-Saharan African regions (OR= 1.011, CI=0.939-1.088) no pregnant teenage respondents have lower odds of having unintended pregnancy but for combined regions, not pregnant teenage respondents (OR= 1.026, CI= 0.976-1.079) have higher odds of unwanted pregnancy than adolescent pregnancy. For both South Asian Regions (OR=1.297, CI=1.206-1.395) and Sub-Saharan African regions (OR=1.276, CI=1.189-1.371), respondents who are using a contraceptive method have higher odds of having unintended pregnancies. Again for combined data (OR=1.415,

CI=1.347-1.486), the respondent has higher odds than the respondent who are not using a contraceptive. Respondents who live with a partner have lower odds in South Asia (OR=0.962, CI=0.856-1.081), but in the Sub-Saharan region (OR= 1.097, CI= 0.972-1.238) have higher odds were for combined data (OR= 0.974, CI= 0.897-1.058) has lower odds of having an unintended pregnancy. In the South Asian regions, lower odds come up among respondents with 1-2 children (OR=0.885, CI=0.711-1.102) and respondents with three or more children (OR=0.765, CI=0.635-0.981), respectively whereas in Sub-Saharan African region, higher odds come up among respondent with 1-2 children (OR=1.263, CI=0.894-1.785) and lower odds among respondent with three or more children (OR=0.802, CI=0.589-1.092) respectively. Combined data shows a lower odds of having unintended pregnancy among respondents with 1-2 children (OR=0.791, CI= 0.661-0.947) and three or more children (OR=0.921, CI= 0.777-1.098), respectively than the respondent with no children. Both South Asian regions (OR=0.923, CI=0.852-1.000) and Sub-Saharan African regions (OR=0.115, CI=0.985-1.152), as well as for combined data (OR= 0.986, CI= 0.933-1.042) respondents with media access have lower odds of having unintended pregnancy compared to respondents who have no media access.

Discussion

This study's primary goal is to identify unintended pregnancy prevalence and triggering factors in Sub-Saharan Africa and South Asian countries. Although unintended pregnancy is a widespread issue all over the world, our main concern in this study is Sub-Saharan Africa and South Asian countries. From the bivariate analysis, it has been shown that respondent's age, place of residence, educational level, family size, wealth index, using a contraceptive method, and media access were significantly associated with unintended pregnancy. This study indicated that 20.50% of unintended pregnancies were found in all countries, whereas 17.40% were in South Asian countries and 25.10% in Sub-Saharan African countries.

Our study found that the respondent age, which is not early marriage, has less likelihood of having unintended pregnancy than the respondent who got early marriage. These results are very similar to some studies in which unintended pregnancy is higher among the younger women of the teenage group and decreases with the rising age of the women(Geda & Lako, 2011). The current study shows that there is a significant relationship between women's educational level and unintended pregnancy. This current study result contradicts some other's articles in Japan, Kenya, and Nepal, respectively, which show there is no association between women's education with the incident of unintended pregnancy(Goto et al., 2002; Habte et al., 2013; Kassa et al., 2012). In general, higher educated women are more conscious about their married life. In our study, rural respondents are more likely to have an unintended pregnancy than urban respondents. Our study found that rural respondents are more likely to have an unintended pregnancy than urban respondents. These results coincide with other results(Auzzir et al., 2014; Habib et al., 2017; Santelli et al., 2009). This difference may occur due to lack of facility, lack of knowledge, and lack of education. Our study also found a significant association between wealth index and unintended pregnancy, which contradicts a previous study conducted in Pakistan that reported no statistically significant association between unintended pregnancy and wealth index(Habib et al., 2017). But many authors found a significant association between wealth index and unintended pregnancy(Kamal & Islam, 2011; Rashid & Shifa, 2007; Sedgh et al., 2006), but this study found that women in the lowest wealth quintile experienced higher odds of unintended pregnancy than women with the highest wealth quintile(Ameyaw et al., 2019). This result contradicts our study because our study found that middle and wealthy respondents are more likely to have an untended pregnancy than poor respondents. Notably, respondents with more than four family sizes are more likely to have an unintended pregnancy than respondent with a family size of less than four. Similar results were found in a few studies(Begum et al., 2010; Habib et al., 2017; Habte et al., 2013; Vickers, 2017). This is because women who had more children had a higher likelihood of unintended pregnancy(Santelli et al., 2009; Shaheen et al., 2007; Stephenson et al., 2008). Our study also found that women who used contraceptive methods were less likely to have an unintended pregnancy compared to who did not. These findings are supported by few studies conducted in Sub-Saharan Africa and central India(Ameyaw et al., 2019; Roy et al., 2003). This is because contraceptive use greatly influences to decrease the of unintended pregnancies among respondents in both regions. Both South Asian regions and Sub-Saharan African regions and combined data respondents with media access have lower odds of having unintended pregnancy than respondents who have no media access. Similar results can be found in several studies(Admasu et al., 2018; Wulandari et al., 2021). Media access can increase the awareness of about unintended pregnancy and reduce the frequency among the respondent.

Conclusion

According to our findings, the overall rate of unwanted pregnancy was greater among women in Sub-Saharan African nations than in South Asian countries. Unintended pregnancy was more common among women from the urban area with higher educational level, extended family size, female household head, a respondent from higher family backgrounds, age at first birth, contraceptive use, and present residence with a partner. Because unwanted pregnancies have risen, it is critical for women to be aware of their contraception options. Governments and public entities in these nations should work together to raise awareness of this issue. Particularly need to focus on the more affected group to reduce the unintended pregnancy. This study has some limitations, like we could not be able to add some essential variables due to

the unavailability and missing information of those variables in the DHS data set, and the data set is cross-sectional data. Besides this, the vital point is that we have addressed 35 developing countries from South-Asian and Sub-Saharan African countries. This study shows the regional differences in influencing factors on unintended pregnancy, which was another strong point.

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Ethical approval

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Conflict of interest

The authors have no conflicts of interest to declare.

Consent to participate

Not applicable

Data and material availability

Data are available upon request from DHS data.

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