ISSN No:-2456-2165

Determinants of Unintended Pregnancies among Pregnant Women in Kenya: Evidence from Demographic and Health Survey 2014

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Abstract:-
Background: Despite the expanded coverage of contraception use in Kenya, unintended pregnancies form a significant part of public health concerns and is one of the crucial obstacles in Kenya among reproductive women. The main objective of this study was to explore the socio-economic, demographic, and economic factors associated with unintended pregnancies in Kenya.

Methodology: The study drew data from household-based secondary cross-sectional data from Kenya Demographic and Health Survey. The study used descriptive statistics to explore data on unintended pregnancies. A multivariate logistic regression model was used to examine the association between unintended pregnancies among pregnant women in Kenya.

Results: The study found out that unintended pregnancies among women had an association with the obstetric history, socio-economic and demographic characteristics of pregnant women in Kenya, whereby age, marital status, area of residence, education level, wealth quintile, employment status of the pregnant women and whether or not the last birth was a caesarean section, was highly associated with unintended pregnancies at 95% confidence level.

Conclusion: According to the study findings, there is need for the Government and the stakeholders in the reproductive health sector to come up with innovative ways to ensure that women have better access to reproductive health education, which reduce the high rate of unintended pregnancies and risky behaviours among women of the reproductive age. Moreover, counselling and assessment of modern contraceptive methods should also be improved. The study also recommends future qualitative research on women's opinions on why they would have unintended pregnancies.

Keywords:- *Determinants, Unintended, Pregnancy, Women, Kenya.*

I. INTRODUCTION

Unintended pregnancy is a global economic, health, and social challenge for women, men, children, and families of the victims [1]. Unintended pregnancy is a pregnancy that is either mistimed or unwanted[2]. Annually, the world records about 80 million pregnancies that are either mistimed or unwanted. Most unintended pregnancies end up in adverse pregnancy outcomes or unsafe abortions [3]. The majority of the women seek an abortion when they have unexpected pregnancies [4]. Unintended pregnancy is the most common issue affecting adolescent youths and married women due to inadequate contraceptives [5]. Study findings also indicate that unexpected pregnancies result in an uncountable unsafe abortion among married women and adolescent youths, which leads to high maternal mortality and morbidity rates [6-8]. A study in Ethiopia also revealed that most women who experienced unintended pregnancies practice unsafe abortion, which has contributed to many maternal deaths and post-abortion health complications among women of reproductive age in Ethiopia [9].

Unintended pregnancies have contributed to a significant proportion of maternal mental illness, maternal deaths, malnutrition, and vertical transmission of HIV to children in Sub-Saharan African countries [10-12]. Shah, Balkhair [13] indicated that unintended pregnancies are highly susceptible to psychosocial problems, increased stress, lack of prenatal care, and economic disadvantages. In Kenya, studies have shown that having unintended pregnancy is positively associated with maternal death and morbidity [14].

Even though a global decrease in unwanted and mistimed pregnancies was recorded, unintended pregnancy prevalence remains high in developing countries [15]. Globally, 44% of the recorded pregnancies are either unwanted or mistimed [3]. The study further mentioned that for every 1000 women aged 15 to 49 years, there were 62 unintended pregnancies. In the United States, 98 pregnancies were recorded for every 1000 women of reproductive age, and among the 98 pregnancies, 45 pregnancies were unintended [16]. The finding of a study done by Diamond-Smith, Moreau [17] in France indicated that more than one-third of the pregnancies at a given period were unintended. Approximately fourteen million pregnancies recorded yearly in Sub-Saharan Africa are

ISSN No:-2456-2165

unintended [18]. In Kenya, adequate data is yet to be recorded. Upon doing an extensive literature search, there is limited literature on the determinants of unintended pregnancies among pregnant women in Kenya.

In Kenya, the proportion of women (35%) experiencing unintended pregnancies remains high despite the expanded coverage of contraception [2]. Considering the high percentage of unintended pregnancies in Kenya, it is essential to investigate the determinants of totally unwanted or mistimed pregnancies among pregnant women at the national level. Using KDHS's (2014) data, the study examined the determinants of unintended pregnancy among pregnant women in Kenya.

Predisposing Factors for Unintended Pregnancy

Studies have mentioned several factors associated with mistimed and unwanted pregnancies among women. According to the WHO report (2019), most alcohol consumers were more likely to engage in unprotected sex, leading to unintended pregnancies. In addition, alcohol abuse among women is considered a risky behaviour that can lead to adverse pregnancy outcomes [19-21].

Most studies have indicated that some marital statuses are associated with unintended pregnancies: single or divorced women have high chances of experiencing unintended pregnancies compared to married women or those who are living together with their partners [1, 22-24]. Moreover, women with high levels of education are less likely to experience either unwanted or mistimed pregnancies than women with lower education levels [25]. Women with higher levels of education have more knowledge on the available contraception methods and their reproductive systems, thus helping them avoid unintended pregnancies[13, 26]. Women whose Husbands have lower levels of education are more likely to experience either unwanted or mistimed pregnancies [27].

According to a study by Alcott [28] on teenage pregnancies, it was discovered that the major causes of unwanted pregnancies included; lack of education on sex and relationship, lack of access to sexual health services and contraception; and other restrictions such as earlier closure of clinics and reduced working hours at health facilities also inconvenienced women from accessing the services. In addition, this study determined that the absence of effective sex and relationship education implied that people lacked knowledge of what options they have regarding contraception. Another study conducted by Part, Moreau [29] on teenage pregnancies showed that many young women aged 15-19 years had no idea where they could get emergency contraception, which led to unwanted pregnancies since they had no way of preventing them.

A study conducted by Habib, Raynes-Greenow [30] and Dutta, Shekhar [31] in Pakistan and India, respectively, found that not using contraceptives was a contributing factor to the occurrence of unintended pregnancies among teenagers. In addition, Dutta, Shekhar [31] and Gero [32] found that women whose husbands sexually and physically abused them were more likely to experience unintended pregnancies than women who were not. Moreover, Dutta, Shekhar [31] indicated that sociocultural and environmental factors are significant in understanding the determinants of unintended pregnancies in India. Unintended pregnancies are also highly associated with wealth quantile, where the poor are at a higher risk of having an unintended pregnancy than rich women [33]. Studies have shown that women from poor households barely afford effective family planning services [32, 34, 35]. On the other hand, most rich women desire to have a smaller family, making them look for and use available family planning services [27].

II. METHODS

Source of Data

The study used household-based secondary cross-sectional data obtained from Kenya Demographic Household Survey (KDHS), 2014. The data contains information for women and men between the ages of 15 and 49 years in Kenya. According to the demographic and health surveys program, the sample size is generally representative at the national, residential, and regional levels. The Demographic and Health Survey (DHS) program obtained clusters using stratified probability proportional to size sampling methodology from 96251 enumeration areas in the Kenya population and housing (2009). The 2014 Kenya DHS adopted two sub-samples of the fifth National Sample Survey and Evaluation Programme (NASSEP V) frame adopted in 2013. Kenya is divided into 47 counties, created in the constitution of the year 2010. During the NASSEP V frame development, each of the 47 counties were stratified into rural and urban strata. A total of 92 sampling strata were obtained in the 47 counties. Forty thousand three hundred households were sampled from 1612 clusters spread across the country, with 995 clusters in rural and 617 urban areas. The sample was obtained independently using a two-stage cluster design, where at the first stage, the survey drew 1612 enumeration areas from census files, and the second stage involved removing 25 households from each cluster. The interviewers visited only the preselected households, and no replacement of the preselected households was allowed during the data collection period. This study used data from 973 pregnant women in Kenya who answered current pregnancy intension status.

Measures

The study participants were asked questions on their current pregnancy intention status. The study used pregnancy intention status as the outcome variable. Current pregnancy reported as 'wanted then' was considered 'an intended pregnancy, and pregnancy reported as 'wanted later' or 'wanted not at all was considered 'unintended pregnancy'. In categorizing the outcome variable as either intended pregnancy or unintended pregnancy, the study followed a study done among Ethiopian women [36]. The study coded intended pregnancy as 0(zero) and unintended pregnancy as 1(one).

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For independent variables, the study included age(1=15–19; 2=20–24; 3= 25–29; 4=30–34; 5=35–39; 6=40–44, 7=45–49;), type of residence(1=urban, 2=rural), level of education(0=no education, 1=primary, 2=secondary, 3=higher), relationship to household head(1 =head, 2=wife, 3=daughter, 4=daughter-in-law, 5=sister, 6=other relative, 7=not related), household wealth index(1=poorest, 2=poorer, 3=middle, 4=richer, 5=richest), marital status(0 =never in union, 1=married, 2 =living with partner, 3 =widowed, 4 =separated/divorced), occupation(0 =not working, 1 =professional, 2=agricultural-self-employed, 3=household and domestic, 4=services, 5=manual work), ever had a terminated pregnancy(0=no, 1=yes), wanted last child(1=wanted then, 2=wanted later, 3=wanted no more) and last birth a caesarean section(0=no, 1=yes).

III. DATA ANALYSIS

This study used STATA version 14 in data management and data analysis. The study provided a descriptive statistic on obstetric history, demographic and socio-economic characteristics of the respondents. The dependent variable (pregnancy intension status) was categorical with two levels (0=intended pregnancy, 1=unintended pregnancy), making the logistic model suitable for investigating the association between the dependent and independent variables. The study adopted a multivariable logistic regression model showing the statistical association between dependent and independent variables and presented the findings using an odds ratio. Odds ratios show the relative likelihood of experiencing an unintended pregnancy. The reference group has an odd ratio of 1. Odds ratios less than 1(one) show less chance of pregnant women experiencing an unintended pregnancy, while odds ratios more than 1(one) show more possibility of pregnant women experiencing an unintended pregnancy. The study considered the association between the independent and dependent variables significant if the probability value (p-value) was less than 0.05 (95% confidence interval).

IV. RESULTS

Socio-demographic and Economic Characteristics of the Respondents

Table 1 shows socio-demographic and economic characteristics of 973 pregnant women who reported whether the pregnancy they had was intended or unintended. The majority of the women had ages between 20 to 24 years. More than half of the total number of women (65.67%) lived in rural areas (65.67%). Almost half of the women (47.28%) had a primary level of education. 62.18% of the women were wives to the household head. Considering household wealth quintiles, women from the poorest households were the majority (34.12%). More than three-quarters of the women (82.73%) were married. The majority of the women (41.71%) were not working (had no jobs).

Table 1. Socio-demographic and economic characteristics of pregnant women in Kenya

Variables	Frequency(n)	Percent (%)
Age in Groups		
15-19	122	12.54
20-24	275	28.26
25-29	264	27.13
30-34	172	17.68
35-39	102	10.48
40-44	27	2.77
45-49	11	1.13
Type of residence		
Urban	334	34.33
Rural	639	65.67
level of education		
No education	226	23.23
Primary	460	47.28
Secondary	211	21.69
Higher	76	7.81
Relationship to the household head		
Head	193	19.84
Wife	605	62.18
Daughter	76	7.81
daughter-in-law	63	6.47
Sister	9	0.92
other relatives	20	2.06
not related	7	0.72
Wealth Index		
Poorest	332	34.12

ISSN No:-2456-2165

Poorer	182	18.71
Middle	160	16.44
Richer	165	16.96
Richest	134	13.77
Marital status		
never in union	65	6.68
Married	805	82.73
living with partner	61	6.27
Widowed	10	1.03
Separated/divorced	32	3.29
Respondent's occupation (grouped)		
not working	405	41.71
professional/technical/managerial	84	8.65
Clerical	4	0.41
agricultural - self-employed	198	20.39
household and domestic	137	14.11
Services	77	7.93
manual work	66	6.8

Obstetric History of the Respondents

Table 2 shows the current and previous pregnancy history of women in Kenya. The study found that 34.33% of pregnant women in Kenya had an unintended pregnancy, and 13.57% ever had a terminated pregnancy. The majority of the women (74.67%) showed that they wanted the last child then. Only 5.43% of the pregnant women showed that their previous birth was a caesarean section.

Table 2. Obstetric history of pregnant women in Kenya

Variable	Frequency(n)	Percent (%)
Pregnancy unintended		
No	639	65.67
Yes	334	34.33
Ever had a terminated pregnancy		
No	841	86.43
Yes	132	13.57
Wanted last-child		
wanted then	454	74.67
wanted later	128	21.05
wanted no more	26	4.28
Last birth, a caesarean section		
No	575	94.57
Yes	33	5.43

Determinants of unintended pregnancy among pregnant women in Kenya

Table 3 shows results from bivariate and multivariate logistic regression analysis conducted to assess factors associated with unintended pregnancy among pregnant women in Kenya. Age, level of education, household wealth quintiles, occupation of the respondent, and whether the last birth was caesarean section showed a statistically significant association with unintended pregnancy among pregnant women in Kenya at a 95% significance level.

Pregnant women aged 40 to 44 years were about seven times more likely to have an unintended pregnancy than women with ages in the age group 15 to 19 years (AOR.;6.73 95%CI 1.34,33.75). Pregnant women with primary level of education were three times more likely to report cases of unintended pregnancy than pregnant women with no education (AOR; 3.24 95%CI 1.80, 5.85). In addition, pregnant women with secondary education levels were two times more likely to have an unintended pregnancy than pregnant women with no education (AOR; 2.17 95%CI 1.02, 4.58). Regarding household wealth quintiles, women from middle-income households were two times more likely to experience unintended pregnancy than pregnant women from the most impoverished families (AOR;2.13 95% CI 1.12,4.07). Considering occupation, women who were doing manual work were two times more likely to experience unintended pregnancy than women who were not working (AOR; 2.4 95% CI 1.11, 5.2). Pregnant women who wanted last-child no more were seventeen times more likely to experience unintended pregnancy than pregnant who wanted their last child then (AOR; 17.04 95% CI 3.54,82.1). Pregnant women whose last child was wanted later were four times more likely to have unintended

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pregnancy compared to pregnant women who wanted their child then (AOR; 4.11 95% CI 2.58, 6.56). Women whose last birth was a caesarean section were about three times more likely to have an unintended pregnancy than women whose previous birth was normal (AOR; 2.64 95% CI 1.13, 6.15).

Table 3. Determinants of unintended pregnancy among pregnant women in Kenya

	Unintended pregnancy			
Variables	**No**	**yes**	**COR (95%CI)**	**AOR (95% CI)**
Age of the respondent				
15-19(Ref)	63(51.64)	59(48.36)	1	1
20-24	192(69.82)	83(30.18)	0.46(0.3,0.72) **	1.72(0.67,4.45)
25-29	187(70.83)	77(29.17)	0.44(0.28,0.68) *	1.81(0.67,4.86)
30-34	112(65.12)	60(34.88)	0.57(0.36,0.92) **	2.69(0.97,7.41)
35-39	61(59.8)	41(40.2)	0.72(0.42,1.22)	1.99(0.65,6.06)
40-44	16(59.26)	11(40.74)	0.73(0.32,1.71)	6.73(1.34,33.75) **
45-49	8(72.73)	3(27.27)	0.4(0.1,1.58)	1.29(0.04,40.04)
Residence				
Urban (Ref)	233(69.76)	101(30.24)	1	1
Rural	406(63.54)	233(36.46)	1.32(1,1.76)	1.2(0.72,2.01)
Level of education				
no education (Ref)	195(86.28)	31(13.72)	1	1
Primary	249(54.13)	211(45.87)	5.33(3.5,8.12) *	3.24(1.8,5.85) *
Secondary	132(62.56)	79(37.44)	3.76(2.35,6.03) *	2.17(1.02,4.58) **
Higher	63(82.89)	13(17.11)	1.3(0.64,2.63)	1.15(0.32,4.12)
Relationship to the household head				
Head (Ref)	135(69.95)	58(30.05)	1	1
Wife	414(68.43)	191(31.57)	1.07(0.76,1.53)	1.02(0.59,1.76)
Daughter	33(43.42)	43(56.58)	3.03(1.75,5.25) *	1.1(0.34,3.56)
daughter-in-law	43(68.25)	20(31.75)	1.08(0.59,2)	0.77(0.27,2.21)
Sister	5(55.56)	4(44.44)	1.86(0.48,7.19)	1.35(0.05,36.57)
other relative	8(40)	12(60)	3.49(1.36,8.99) **	0.58(0.08,3.95)
not related	1(14.29)	6(85.71)	13.97(1.64,118.6)**	2.64(0.12,58.02)
Household wealth quintiles				
Poorest (Ref)	249(75)	83(25)	1	1
Poorer	84(46.15)	98(53.85)	3.5(2.39,5.13)*	2.28(1.31,3.99)**
Middle	90(56.25)	70(43.75)	2.33(1.57,3.48)*	2.13(1.12,4.07)**
Richer	112(67.88)	53(32.12)	1.42(0.94,2.14)	1.49(0.7,3.14)
Richest	104(77.61)	30(22.39)	0.87(0.54,1.39)	1.02(0.41,2.57)
Marital status				
Married (Ref)	562(69.81)	243(30.19)	1	1
never in union	20(30.77)	45(69.23)	5.2(3.01,9)*	3.15(0.55,17.96)
living with partner	38(62.3)	23(37.7)	1.4(0.82,2.4)	0.86(0.35,2.11)
Widowed	5(50)	5(50)	2.31(0.66,8.06)	1.53(0.22,10.35)
separated/divorced	14(45.75)	18(56.25)	2.97(1.46,6.08)**	2.6(0.6,11.3)
Occupation status				
not working (Ref)	287(70.86)	118(29.14)	1	1
Professional	64(72.73)	24(27.27)	0.91(0.54,1.53)	1.09(0.44,2.7)
agricultural-self employed	119(60.1)	79(39.9)	1.61(1.13,2.31)**	1.01(0.58,1.76)
household and domestic	81(59.12)	56(40.88)	1.68(1.12,2.51)**	1.13(0.61,2.09)
Services	48(62.34)	29(37.66)	1.47(0.88,2.44)	1.42(0.6,3.38)

ISSN No:-2456-2165

manual work	39(59.09)	27(40.91)	1.68(0.99,2.88)	2.4(1.11,5.2)**
Pregnancy termination history				
No (Ref)	558(66.35)	283(33.65)		
Yes	81(61.36)	51(38.64)	1.24(0.85,1.81)	1.11(0.63,1.95)
The last child wanted				
wanted then (Ref)	333(73.35)	121(26.65)	1	1
wanted later	47(36.72)	81(63.28)	4.74(3.13,7.18)*	4.11(2.58,6.56)*
wanted no more	2(7.69)	24(92.31)	33.02(7.69,141.84)*	17.04(3.54,82.1)*
Last birth, a caesarean section				
No (Ref)	366(63.65)	209(36.35)	1	1
Yes	16(48.48)	17(51.52)	1.86(0.92,3.76)	2.64(1.13,6.15)**
*P-Value<0.001; **P-Value<0.05; AOR for Adjusted Odds Ratio; COR for Crude Odds Ratio; Ref. for reference variable				

V. DISCUSSION

The study findings indicated that older women were more likely to experience an unintended pregnancy. These findings agree with previous research, which stated that advanced age is positively associated with unintended pregnancy [31, 37]. The study further showed that as women advance in age, their desire to have more children reduces. However, this contradicts the finding of a survey on "prevalence and determinants of unintended pregnancy among women in Nairobi, Kenya," which found that young women were more likely to experience unintended pregnancy than older women [1, 22].

The study found that pregnant women with primary and secondary levels of education were more likely to experience unintended pregnancy than pregnant women with no education; this is similar to another study done in Nepali that revealed that women with primary or above the secondary level of education were likely to experience unintended pregnancy[8, 15]. Unlike developed countries, schools in developing countries do not teach about reproductive health; thus, most educated women in developing countries lack enough knowledge on reproductive health[38]. On the other hand, the findings from this study contrast with the result of other studies that revealed that women who had a secondary level of education were less likely to experience unintended pregnancy compared to women who never went to school[27, 31, 39].

The findings also indicate that women from poorer and middle-income households experienced unintended pregnancy than pregnant women from the most impoverished household; this concurs with the result of a previous study that revealed that women from more affluent households were less likely to have unintended pregnancy cases, Studies have shown that poverty is associated with an unwanted pregnancy [34, 35]. The study further argued that the poorest women barely afford effective family planning services. Moreover, rich women desire to have smaller families and use available family planning services [27]. According to a study done in ten DHS countries, a more significant proportion of subsidized modern contraceptives is accessible to people living above the poverty line [40].

Moreover, the study found that pregnant women who were doing manual work as their primary occupation were more likely to have an unintended pregnancy than women with no employment. These findings are supported by the conclusions of a study done in Bangladesh that indicated that women who were not working were less likely to experience unwanted pregnancy than women working [39].

According to a previous study on the "impact of unintended childbearing on future generations" by Sawhill, Karpilow [41], women whose last child was unintended were more likely to experience an unintended pregnancy. Furthermore, the findings from the study showed that women whose last birth was a caesarean section were about three times more likely to have an unintended pregnancy than women who had previous normal birth; this contrasts with the findings of another study which posited that there is no association between last pregnancy complications and unintended pregnancy [42].

VI. CONCLUSION

The study sought to identify factors associated with unintended pregnancy among pregnant women in Kenya: Age, mother's education level, household wealth quintile, working status, unintended last child, and a caesarean section in the previous birth. These factors are significantly associated with unintended pregnancy. The study finding raises the need for the Government and stakeholders in reproductive health to develop innovative ways to ensure that women have access to reproductive health education; this reduces unintended pregnancy and risky sexual behaviours among young and older women of reproductive ages. Counselling and access to modern contraceptives should also be improved to ensure that women experience only planned and intended pregnancies. Finally, the study recommends future qualitative research in Kenya to collect women's opinions on why they would experience an unintended pregnancy.

LIMITATION

The study participants' responses about their previous pregnancy history might have been affected by recall bias. The study also noted that some women might not have disclosed complete information regarding their current pregnancy, which consequentially led to underreporting of the dependent variable. Since this study was a cross-sectional study, the findings were limited to the statistical association rather than causality.

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