Original Article

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Factors associated with unintended pregnancy at a tertiary hospital, Kathmandu, Nepal: A case-control study

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Abstract

Background: Despite the widely available family planning efforts to reduce the proportion of unwanted pregnancies, the rate of unintended pregnancies is still significantly large in Nepal.

Objectives: To find out the factors associated with unintended pregnancy.

Methods: A case-control study was conducted in Kathmandu Medical College Teaching Hospital. Cases were the women seeking safe abortion services for unintended pregnancy and women with intended pregnancy were controls. Eighty-one cases and eighty-one controls (total 162 women) were included in the study purposively. Face-to-face interview was done to collect data using structured questionnaire. Data were collected from 15th January 2019 to 30th August 2019. Ethical clearance was obtained from institutional review committee of Kathmandu Medical College. Permission for data collection was obtained from the head of the department of Obstetrics and Gynaecology and written informed consent was taken from each respondent. Data were analysed using statistical package for social sciences 20.0 version.

Results: Age below 20 years (AOR: 5.14; 95% CI: 1.14, 23.06) and above 30 years (AOR: 2.59; 95% CI: 1.10, 6.08); primary level education (AOR: 4.46; 95% CI: 1.27, 15.62); and secondary level education (AOR: 2.97; CI: 1.39, 6.34), student by occupation (AOR: 11.40; 95% CI: 3.07, 42.25), three and more gravidity (AOR: 13.82; 95% CI: 4.56, 41.87)) and perceived ideal number of child one (AOR: 4.63; 95% CI: 1.18, 18.10) were associated with increased risk of unintended pregnancy.

Conclusion: Age, education, occupation, gravidity, and perceived ideal number of children were the factors significantly associated with unintended pregnancy.

Key words: Case control study; Nepal; Tertiary hospital; Unintended pregnancy.

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INTRODUCTION

Unintended pregnancy is defined as, "pregnancies that are reported to have been either unwanted or mistimed.[1] It is a major global public health problem with adverse effect for a mother, child, family, society, and country as a whole.[2]

Worldwide, an estimated 44% of pregnancies were unintended between 2010–14.[3] Studies conducted in various developed and developing countries revealed that unintended pregnancies can have serious health, social, and economic consequences.[4,5] Approximately 53.8 million unintended pregnancies occurred each year in Asia.[6]

Nepal has one of the highest maternal mortality rates (239/100,000 live births) in Asia, a high infant mortality

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rate (32/1000 live births), high neonatal mortality rate (21/1000 live births), and 24% of married women have an unmet need for family planning. One of the important factors contributing to the high level of maternal and infant mortality is unintended pregnancy.[7]

Half of all pregnancies in Nepal were unintended in 2014. Nationally, 31% of all pregnancies and 62% of unintended pregnancies ended in an abortion.[8] To prevent unintended pregnancies, it is necessary to understand the factors affecting it. The aim of this study was to assess the factors associated with unintended pregnancy.

METHODOLOGY

A case-control study was conducted in Obstetrics and Gynaecology Ward and Outpatient department of Kathmandu Medical College Teaching Hospital, Sinamangal, Kathmandu, Nepal. Cases were the women having unintended (mistimed and unwanted) pregnancy and seeking safe abortion services within 12 weeks of gestation. Controls were women with intended pregnancy up to 12 weeks of gestation. Women having intended or unintended pregnancy more than 12 weeks of gestation and having any medical problems that may have adverse effects on pregnancy were excluded from the study. Taking odds ratio 2.85, exposed controls 46% (based on findings of previous study),[9] alpha risk 5%, power 90%, and case/control ratio 1, 81 cases-controls set (total 162 women) was needed. Accordingly, 81 cases and 81 controls were selected for the study purposively.

Face-to-face interview technique was used to collect the necessary data using predesigned structured questionnaire. Ethical clearance for the study was obtained from institutional review committee of Kathmandu Medical College (Ref. 10122017). Permission for data collection was obtained from the concerned authority of the college and written informed consent was taken from each respondent after explaining details about study. Data collection was done from 15th January to 30th August 2019. To manage the data, all the collected data were entered in Epidata 3.1 and data were analysed using IBM SPSS Statistics for Windows, version 20 (IBM Corp., Armonk, N.Y., USA). Descriptive statistics like, frequency, percentage, mean, and standard deviation were calculated to present the socio-demographic and obstetric variables of the respondents as well as causes of unintended pregnancy among cases. Chi-square test was applied to observe the association of unintended pregnancy with socio-demographic and obstetrical variables. Logistic regression analysis was done to assess the effects of potential risk factors on occurrence of unintended pregnancy. A p-value of less than 0.05 was considered as the level of statistical significance and the effects of potential risk factors on the occurrence of unintended pregnancy were assessed by odds ratios with 95% confidence intervals.

RESULTS

Majority of the respondents (both case and control) were between age group 20-30 years with the Mean ± S.D. age 27.54 ± 0.828 years and 25.73 ±3.928 years respectively. Majority of the respondents: 47 (58%) cases and 54 (66.6%) controls were Brahmin and Chhetri by ethnicity, majority of the cases (46, 56.8%) had obtained up to secondary level education whereas majority of the controls (60, 74%) had obtained higher secondary and above level education. Similarly, majority of the respondents: 43 (53.1%) cases and 42 (51.8%) controls) were homemaker by occupation and 46 (56.8%) cases and 52 (64.2%) controls had access to health facility, at less than 30 minutes' distance from their current residence by bus. All of the respondents had radio, TV, and mobile in their home, and around 36 (45%) of cases and 48 (60%) of controls had access to internet at home (Table 1).

According to gravidity, majority 45 (55.6%) of the cases, were having three or more gravida whereas more than half of the controls 42 (51.9%) were primigravida. Around one third of the cases 28 (34.6%) had two children and majority of the controls 51 (63%) had no child. Most of the cases 78 (96.3%) responded that their ideal number of children was one and 67 (82.7%) controls responded that their ideal number of children was two. Majority of the respondents: 76 (93.8%) cases and 44 (54.4%) controls desired birth space was 3-5 years. Among the unintended pregnancy, mistimed and unwanted pregnancies were almost equal: 40 (49.4%) and 41 (50.6%) respectively (Table 2).

Most of the respondents: 79 (97.5%) cases and 75 (92.6%) controls had heard about family planning but only around half of the respondents: 40 (50.6%) cases and 41 (51.9%) controls had ever used family planning. Of the family planning methods, only around one third of the respondents: 26 (30.9%) cases and 30 (37%) controls had used modern contraceptives. Majority of the respondents, 46 (56.8%) cases and 42 (51.9%) controls had not heard about emergency contraceptives and only 10 (12.3%) cases and controls had ever used emergency contraceptive pill (Table 3).

Chi-square test was applied to observe the association of unintended pregnancy with socio-demographic and obstetrical variables. Statistically significant association of unintended pregnancy was found with age, educational status, gravidity, number of living children, perceived ideal number children, history of previous unintended pregnancy and history of previous termination of pregnancy ($p < 0.05$) (Table 4).

Bivariate regression analysis showed increased risk of unintended pregnancy with younger and advanced age, having primary and secondary level education, three or more gravidity, perceived ideal number of children one, and previous unintended pregnancy. However, previous unintended pregnancy was not significant while adjusting with other variables. On multivariable logistic regression analysis, age below 20 years (AOR: 5.14 with 95% CI: 1.14, 23.06) and above 30 years (AOR: 2.59 with 95% CI: 1.10, 6.08) had increased risk of unintended pregnancy in reference to age group 20-30 years. Similarly, primary level education (AOR: 4.46 with 95% CI: 1.27, 15.62) and secondary level education (AOR: 2.97 with CI: 1.39, 6.34) were associated with increased risk of unintended pregnancy in reference to higher secondary and above level education. Likewise, increased risk of unintended pregnancy was associated with student (AOR: 11.40 with 95% CI: 3.07, 42.25) in reference to homemaker and self-employed. In the same way, three and more gravidity (AOR: 13.82 with 95% CI: 4.56, 41.87) and perceived ideal number of child one (AOR: 4.63 with 95% CI: 1.18, 18.10) had increased risk of unintended pregnancy (Table 5).

Table 1: Socio-demographic characteristics of the respondents (N = 162)

Variables	Case, n (%) n = 81	Control, n (%) n = 81	p-value
Age (in years)			
Below 20	9 (11.1)	3 (3.7)	
20-30	46 (56.8)	67 (82.7)	
Above 30	26 (32.1)	11 (13.6)	0.002
Mean ± SD	27.54 ± 0.828	25.73 ± 3.928	
Ethnicity			
Brahmin and Chhetri	47 (58)	54 (66.6)	
Janjati	29 (35.8)	16 (19.8)	0.13
Dalit	5 (6.2)	11 (13.6)	
Educational status			
Primary level	12 (14.8)	4 (4.9)	
Secondary level	34(42)	17 (21)	
Higher secondary level	20 (24.7)	27 (33.3)	0.001
Bachelor and above	15 (18.5)	33 (40.7)	
Occupation			
Homemaker	43 (53.1)	42 (51.8)	
Service	12 (14.8)	16 (19.8)	
Business	9 (11.1)	17 (21)	0.04
Students	17 (21)	6 (7.4)	
Internet available at home	36 (44.4)	48 (59.3)	0.04
Time to reach health facility (by bus)			
Less than 30 minutes	46(56.8)	52 (64.2)	0.21
30-60 minutes	35 (43.2)	29 (35.8)	

Table 2: Pregnancy related characteristics of the respondents (N = 162)

Variables	Case n (%) n = 81	Control n (%) n = 81	p-value
Gravidity			
One	24 (29.6)	42 (51.9)	
Two	12 (14.8)	32 (39.5)	<0.001
Three and more	45 (55.6)	7 (8.6)	

Number of living children			
None	24(29.6)	51 (63)	
One	21(25.9)	30 (37)	
Two	28 (34.6)	-	<0.001
Three and more	8 (9.9)	-	
Perceived ideal number of children			
One	78 (96.3)	14 (17.3)	<0.001
Two	3 (3.7)	67 (82.7)	
Desired birth space			
Less than 3 years	5 (6.2)	19 (23.4)	
3-5 years	76 (93.8)	44 (54.4)	0.004
5 years and more	-	18 (22.2)	
Type of unintended pregnancy			
Mistimed	40 (49.4)	-	
Unwanted	41 (50.6)	-	

Table 3: Information related to family planning awareness and practice (N = 162)

Variables	Case n (%) n = 81	Control n(%) n = 81
Heard about contraceptives		
Yes	79 (97.5)	75 (92.6)
No	2 (2.5)	6 (7.4)
Ever use of birth control methods		
Yes	41 (50.6)	42 (51.9)
No	40 (49.4)	39 (48.1)
Types of birth control method used		
None	40 (49.4)	39 (48.1)
Natural	16 (19.8)	12 (14.8)
Hormonal	17 (21.0)	20 (24.6)
Condom	3 (3.7)	8 (9.9)
IUCD	6 (7.4)	2 (2.5)
Heard about emergency contraceptive		
Yes	35 (43.2)	39 (48.1)
No	46 (56.8)	42 (51.9)
Ever used emergency contraceptive		
Yes	10 (12.3)	10 (12.3)
No	71 (87.7)	71 (87.7)

Table 4: Association between selected independent variables and unintended pregnancy (N = 162)

Variables	Unintended n (%)	Intended n (%)	p-value
Age (in years)			
Below 20	9 (11.11)	3 (3.70)	
20-30	46 (56.80)	67 (82.72)	0.002
Above 30	26 (32.09)	11 (13.58)	
Education level			
Primary and secondary	46 (56.80)	21(25.93)	<0.001
Higher secondary and above	35 (43.20)	60 (74.07)	
Occupation			
Homemaker and self-employed	52 (64.19)	59 (72.85)	
Service	12 (14.81)	16 (19.75)	0.04
Student	17 (21)	6 (7.40)	

Gravidity			
Primi	24 (29.63)	42 (51.85)	0.004
Multi	57 (70.37)	39 (48.15)	
Number of living children			
One or none	45 (55.55)	81 (100)	<0.001
Two or more	36 (44.45)	-	
Perceived ideal number of children			
One	78 (96.30)	14 (17.28)	0.005
Two	3 (3.70)	67 (82.72)	
Previous unintended pregnancy			
Yes	16 (19.75)	5 (6.17)	0.01
No	65 (80.25)	76 (93.83)	
Previous termination of pregnancy			
Yes	18 (22.22)	5 (6.17)	<0.001
No	63 (77.78)	76 (93.83)	

Table 5: Multiple logistic regression analysis for factors of unintended pregnancy (N = 162)

Independent variables	COR (95% CI)	p-value	AOR (95% CI)	p-value
Age (in years)				
20-30 (Ref)				
<20	4.37 (1.12, 17.01)	0.03	5.14 (1.14, 23.06)	0.03
>30	3.44 (1.54, 7.65)	0.002	2.59 (1.10, 6.08,)	0.02
Education level				
Higher secondary and above (Ref)				
Primary	5.14 (1.54, 17.17)	0.008	4.46 (1.27, 15.62)	0.01
Secondary	3.42 (1.67, 7.01)	0.001	2.97 (1.39, 6.34)	0.005
Occupation				
Homemaker and self-employed (Ref)				
Student	3.21 (1.18, 8.76)	0.02	11.40 (3.07, 42.25)	<0.001
Service	0.85 (0.36, 1.96)	0.70	2.39 (0.81, 7.04)	0.11
Gravida				
One and two (Ref)				
Three or more	13.21(5.42, 32.19)	<0.001	13.82 (4.56, 41.87)	<0.001
Perceived ideal number of children				
Two (Ref)				
One	5.43 (1.49, 19.71)	0.01	4.63 (1.18, 18.10)	0.02
Previous unintended pregnancy				
No (Ref)				
Yes	3.74 (1.30. 10.77)	0.01	1.35 (0.28, 6.42)	0.69

COR: Crude Odds Ratio, AOR: Adjusted Odds Ratio, CI: Confidence Interval

DISCUSSION

Though family planning services have been made accessible in almost all parts of the country, studies have shown that the number of unintended pregnancies in Nepal is in increasing trend.[7-9] Various factors may affect unintended pregnancy. This study is an attempt to identify the factors associated with unintended pregnancies.

In the present study, the mean age was 27.54 ± 0.828 years and 25.73 ± 3.928 years for case and control respectively. This was comparable with a case-control study conducted in western Iran in which the mean age was 28.7 years in cases and 26.4 in controls.[10] Among the unintended pregnancies, mistimed 40 (49.4%) and unwanted 41 (50.6%) were almost equal in this study which was consistent with a previous study conducted in Nepal in which about one-fifth of the pregnancies

were mistimed and other one-fifth were unwanted.[8] But the findings were in contrast with previous two studies conducted in Nepal and Ethiopia, where the rate of mistimed and unwanted pregnancy was 72.72% and 27.27% and 74.1% and 25.9% respectively.[9,11] This may be because, the cases in this study were from women seeking abortion services for unintended pregnancy.

The main causes of unintended pregnancy were no use of contraceptives (40, 49.4%). Findings were comparable with a study conducted in 36 low and middle-income countries which revealed that 56.3% unintended pregnancies were due to no use of contraception.[12]

In this study, binary regression analysis showed that unintended pregnancy was associated with women's age, education, occupation, gravidity, parity, perceived ideal number of children and previous unintended pregnancy. The findings were comparable with a study conducted in Southern Ethiopia which showed that, on the binary logistic regression analysis, women's age, previous unintended pregnancy, number of pregnancies, education, and the desired number of children, were associated with unintended pregnancy.[13] On multivariable logistic regression analysis, age below 20 years had increased risk of unintended pregnancy (AOR: 5.14; 95% CI: 1.14, 23.06). The findings was comparable with a study conducted in Canada in which women who were less than 20 years of age at the time of their pregnancy were more likely to experience an unintended pregnancy (OR: 4.43; 95 % CI: 2.59, 7.58).[14] In this study, primary level education (AOR: 4.46 with 95% CI: 1.27, 15.62) and secondary level education (AOR: 2.97 with CI: 1.39, 6.34) were associated with increased risk of unintended pregnancy in reference to higher secondary and above level education which is consistent with a study conducted in sub-Saharan Africa which revealed that primary [AOR = 1.99; 95% CI = 1.69–2.33] and secondary [AOR = 2.30; 95% CI = 1.90–2.78] levels of education had higher chance of unintended pregnancy.[15]

Women's perception of whether the pregnancy was intended or unintended can be changed over time. The information is more likely to be accurate if data collection is done in the early stage rather than in the late stage of pregnancy. Thus, this study enrolled the cases who were seeking safe abortion services within 12 weeks of gestation for absolute unintended pregnancy. Similarly, the controls were also from within 12 weeks of pregnancy to obtain actual information. But the study was conducted taking a small sample size using purposive sampling technique. Thus, the findings may not be the representative.

CONCLUSION

Unintended pregnancy was significantly associated with younger and advanced age of women, having primary and secondary level education, who were studying at the time of their pregnancy, having three and more gravidity, and perceived ideal number of children as one. The main cause of unintended pregnancy was no use of modern contraceptives irrespective of various socio-demographic backgrounds. Thus, awareness program should be carried out focusing on importance of contraceptives in order to motivate the couple to use modern contraceptives.

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