

## Factors Related to Intention to Undergo Female Sterilization Among Married Women in Rural Kathmandu, Nepal

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### Abstract:

**Background:** Sterilization is most widely used fertility regulation method in Nepal. However, prevalence of uptake of female sterilization in central hilly region is less than the national average. The objective of the study was to explore the number and factors related to intention of married women to undergo female sterilization in rural Kathmandu which lies within central hilly region.

**Materials and Methods:** This is a community based cross-sectional survey research conducted in rural area of Kathmandu valley. Two hundred and forty currently married women with at least one child of any age were interviewed using a structured pre-tested questionnaire.

**Results:** More than four-fifth of the respondents intended to undergo sterilization. Almost two-third of them wanted to limit their family size by taking this option. More than one-third of women not-intending to undergo sterilization feared weakness after sterilization. Age of the respondents, duration of marriage, and number of living children were significantly associated with intention to undergo sterilization. 15-24 years age group were six times more likely to have the intention for sterilization (OR 6.79, CI 2.28-20.19) compared to age 35 years and above group. Mothers with less than 3 living children are about three times more likely to have the intention to undergo sterilization (OR 2.87, CI 1.3-6.33) compared to women with more than 2 living children. Women married for 6 to 10 years were three times more likely to have the intention (OR 3.0, CI 1.09-8.27). However, gender of the living children was not associated with intention to undergo sterilization.

**Conclusion:** There were significant numbers of women intending to undergo sterilization. Age of the mother, number of living children and the duration of marriage were found to be significantly influencing the intention to undergo sterilization. However, as intention refers to future plan, the respondents' intention may change over time. The national family planning program also needs to identify the key factors in accepting the sterilization and target these women to increase utilization.

**Keyword:** Family Planning; Intention; Sterilization, Nepal.

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## Introduction

Sterilization is widely used fertility regulation method in Nepal. About 150 million women around the world use this method as their contraception [1-2] and is primarily used to limit fertility [3-4]. Nepal's family planning services also showed that by limiting births, Nepal can substantially reduce infant and child mortality [5-6]. The trend in contraceptive use suggests that the female sterilization will be the most popular method for years to come.

Nepal Demographic Health Survey 2006 [7] shows that the rural areas in the central hilly region have sterilization prevalence between 7 and 17%, which is lower than the national prevalence of 18%. Although these rural areas have access to a relatively better health care facilities than the peripheral rural areas of the country, the lower uptake of the sterilization method point out the need to assess the factors which are related to their decision on taking up sterilization as their contraceptive choice.

## Methodology

### Study Design and the Participants

Community based cross-sectional survey research was conducted in rural area of Kathmandu valley. The study was designed to explore the number and factors related to intention of married women with at least one child of any age to undergo female sterilization in the future. One remote Village Development Committee (VDC) of Kathmandu valley was purposively selected and its wards were selected through simple random technique.

### Sample Size Calculation

Sample size was determined by applying the formula  $n = Z^2 \alpha/2 * p * q/d^2$ , where  $Z\alpha/2$ , standard normal deviate, is fixed at 1.96, corresponding to 95% CI level,  $p$  is 18%, prevalence of female sterilization according to NDHS 2006 [7], and  $d$  is taken as 5%, absolute sampling error that will be tolerated.

### Data Collection

The data collection was conducted through five data enumerators who were trained by the researcher on the structured pre-tested questionnaire and were sent for data collection with constant supervision and monitoring from the researcher. The first ward of entry in the VDC was selected by simple random technique and the first household was selected by spinning the pen. The interview started from the identified first house and direction for the selection of next house was again done through pen spinning. From there on, interview was taken without skip. However, if the household did not have the included respondent, the house was skipped and next house was taken. The data collection was continued until 240 mothers were interviewed to collect information on general

characteristics, knowledge, attitude, social support, and intention to undergo sterilization.

### Inclusion Criteria

Currently married women of age 15-49 years who have at least one child of any age and who agreed to participate were included in the study.

### Exclusion Criteria

Women who have undergone hysterectomy, women who are infertile, women whose husbands are either infertile or undergone male sterilization and women who have already undergone female sterilization were excluded from the study.

### Outcome Variable

Intention to undergo sterilization was the outcome variable of the study

### Explanatory Variable

General characteristics, knowledge, attitude and social support of the respondents as factors influencing the intention were the explanatory variables of the study.

### Ethical Committee Approval

The study was approved by Research Ethical Committee Mahidol University with a certificate of approval no. 208/2551. The study was carried out in respect of the norms of the Helsinki's Principle. The subjects' participation was strictly voluntary. Informed consent was sought from all the respondents before the interview. The enumerators read the informed consent form to inform the respondents about benefits and harm on taking part in the research. The respondents were asked if they are willing to answer the questions. The information about the study and its objectives stated in the information sheet was given to each interviewee to read before the study. The interviewer read the information for those respondents who could not read. The researcher did everything to ensure strict privacy and confidentiality of the respondents and all the data collected. Dignity of the individual, human rights, and cultural sensitivities were fully maintained.

### Data Management

Data were entered into Epi Info statistical analysis software and exported to SPSS Version 15 for analysis. Descriptive statistics was used to report the frequency and percentage of independent variables. The P value, 0.05, was taken as a cut-off point for significance of independent variables with outcome variable.

## Results

Majority (55%) of the women interviewed were from 25 to 34 years age group. The mean age was about 27 years. The mean duration of marriage of the respondents was 8.2 years with the largest group from 1 to 5 years. Eighty two percent had studied in school and only about 10% had reached higher

secondary or higher. Unlike the respondents, about 26% of their husbands had reached higher secondary or higher. More than half of the respondents (54%) help in the family farm as their occupation and 23% are housewives. Husbands of about (48%) respondents are salary earner revealing a stark contrast in the occupation. The mean age at first marriage was 18.6

years with average number of 2 children. About thirty three percent had only daughter and 38% had both. Thirty two percent desired more children. More than three quarters (77%) of 74% preferring specific gender desired male offspring (Table 1).

**Table 1. Socio-demographic characteristics of women**

<b>General Characteristics</b>	<b>Number</b>	<b>Percentage</b>
<b>Age of the women (completed years)</b>		
15-19	6	2.5
20-24	78	32.5
25-34	132	55
>=35	24	10
<b>Mean = 26.7 S.D. = 4.9 Min = 18 Max = 45</b>		
<b>Duration of marriage (years)</b>		
1-5	90	37.5
6-10	85	35.4
11-15	44	18.3
>15	21	8.8
<b>Mean = 8.2 S.D. = 5.6 Min = 1 Max = 33</b>		
<b>Ever studied in school by women</b>		
Yes	197	82.1
No	43	17.9
<b>Level of education of women (N=197)</b>		
Primary School	49	24.9
Secondary School	48	24.4
High School	79	40.1
Higher Secondary School	18	9.1
>=Bachelors degree	3	1.5
<b>Husband ever studied in school</b>		
Yes	231	96.3
No	9	3.8
<b>Level of education in husbands (N=231)</b>		
Primary School	23	9.6
Secondary School	41	17.1
High School	104	43.3
Higher Secondary School	41	17.1
Bachelor degree	19	7.9

Masters degree	3	1.3
<b>Occupation of the woman</b>		
Helping in family farm	130	54.2
House Wife	56	23.3
Wage Earner	27	11.3
Self Employed	18	7.5
Teacher	7	2.9
Others	2	0.8
<b>Occupation of husband</b>		
Salary Earner	116	48.3
Foreign Worker	43	17.9
Daily wage earner	30	12.5
Own Farming	24	10.0
Self Employed	17	7.1
Trade/Business	6	2.5
Others	4	1.7
<b>Age at first marriage (completed years)</b>		
5-10	1	0.4
11-15	11	4.6
16-20	188	78.3
21-25	40	16.7
Mean = 18.6 S.D. = 2.2 Min = 7 Max = 24		
<b>Number of living children</b>		
1-2	200	83.3
>2	40	16.7
Mean = 1.9 S.D. = 1.0 Min = 1 Max = 6		
<b>Gender of the living children</b>		
Women with son only	71	29.6
Women with daughter only	78	32.5
Women with both son and daughter	91	37.9
<b>Desire to have more children</b>		
Yes	77	32.1
No	163	67.9
<b>Gender preference among (N=77)</b>		
Yes	57	74.0
No	20	26.0
<b>Preferred Gender among (N=57)</b>		
Male	44	77.2
Female	13	22.8

Majority 84.2% of women said they intend to undergo sterilization in the future. "To avoid tension of further pregnancy" was the reason for almost 30% of the women who intend to undergo sterilization. 15% of the group mentioned side effects of temporary contraception as the main reason for

the intention. Almost 16% of women do not intend to undergo sterilization in the future. About 36% believe that sterilization makes them weak and thus they cannot work in the field (Table 2).

**Table 2. Intention and reasons to either accept or to reject sterilization**

Intention	Number	Percent
<b>To Reject</b>	38	15.8
<b>To Accept</b>	202	84.2
<b>Reasons to accept female sterilization (N=202)</b>		
To avoid tension of further pregnancy	59	29.2
To limit the family size resulting in family prosperity	58	28.7
Cannot afford to raise any more children	41	20.3
Side effects of temporary contraceptives	30	14.9
Others	14	6.9
<b>Reasons for rejecting female sterilization (N=38)</b>		
Sterilization makes woman weak	14	36.8
Comfortable with temporary contraceptives	10	26.3
Medical reasons	5	13.2
Failure of the sterilization can result in malformed baby	5	13.2
Others	4	10.5

**Table 3. Relation of various characteristics with intention to undergo sterilization**

Characteristic	Intention to undergo sterilization (N=202)		Intention to reject sterilization (N=38)		P-value
	Number	Percent	Number	Percent	
<b>Age in Years</b>					
15-24	76	90.5	8	9.5	<b>0.001</b>
25-34	112	84.8	20	15.2	
≥ 35	14	58.3	10	41.7	
<b>Duration of marriage (Years)</b>					
1-5	85	94.4	5	5.6	<b>&lt; 0.001</b>
6-10	68	80	17	20	
11-15	37	84.1	7	15.9	
>15	12	57.1	9	42.9	
<b>Education of the woman</b>					
<Primary	74	80.4	18	19.6	0.212
>Primary	128	86.5	20	13.5	
<b>Education of the husband</b>					
<Primary	23	71.9	9	28.1	<b>0.041</b>
>Primary	179	86.1	29	13.9	
<b>Occupation of the woman</b>					
Non Income Generating	158	84.9	28	15.1	0.539
Income Generating	44	81.5	10	18.5	

<b>Occupation of the husband</b>					
<b>Fixed Salary</b>	97	83.6	19	16.4	0.823
<b>Others</b>	105	84.7	19	15.3	
<b>Number of Living Children</b>					
<b>1-2</b>	174	87.0	26	13.0	<b>0.007</b>
<b>&gt;2</b>	28	70.0	12	30.0	
<b>Gender of Living Children</b>					
<b>No live son</b>	70	89.7	8	10.3	0.101
<b>≥1 live son</b>	132	81.5	30	18.5	
<b>No live daughter</b>	63	88.7	8	11.3	
<b>≥1 live daughter</b>	139	82.2	30	17.8	
<b>Level of Knowledge</b>					
<b>Good Knowledge</b>	34	82.9	7	17.1	0.950
<b>Moderate Knowledge</b>	52	85.2	9	14.8	
<b>Poor Knowledge</b>	116	84.1	22	15.9	
<b>Level of Attitude</b>					
<b>Positive Attitude</b>	106	82.2	23	17.8	0.361
<b>Negative Attitude</b>	96	86.5	15	13.5	
<b>Social Support</b>					
<b>Adequate Support</b>	140	85.4	24	14.6	0.455
<b>Inadequate Support</b>	62	81.6	14	18.4	

**Table 4. Regression analysis of selected characteristics with intention to undergo sterilization**

Age in Years	Odds Ratio	CI
<b>15-24</b>	6.79	[2.28, 20.19]
<b>25-35</b>	4.0	[1.56, 10.25]
<b>≥ 35</b>	1	
Number of living Children		
<b>1-2</b>	2.87	[1.3, 6.33]
<b>&gt; 2</b>	1	
Duration of Marriage (years)		
<b>1-5</b>	12.75	[3.66, 44.47]
<b>6-10</b>	3.0	[1.09, 8.27]
<b>11-15</b>	3.96	[1.21, 12.94]
<b>&gt;15</b>	1	

Ninety one percent of the women of the age group 15-24 years intend to undergo sterilization. However, only 58.3% of woman above 35 years age intend to undergo the same. It was found that age of the women is associated with the intention to undergo female sterilization ( $p= 0.001$ ). Duration of marriage

was also associated with intention ( $p=<0.001$ ) as 94% of the women with duration of marriage 1 to 5 years intend to undergo sterilization. Only 57% of women with duration of marriage more than 15 years intend to undergo sterilization. About 28% of the women whose husbands are either not

educated or educated at primary level do not intend to undergo sterilization. About 86% of the women whose husbands are educated more than primary level intend to undergo the procedure. It was found that education of the husband is associated with the intention to undergo sterilization ( $p=0.041$ ). Eighty seven percent of the women with 1-2 children have intention to undergo sterilization. However, only 70% of the women with more than 2 children have the intention to undergo sterilization. Number of living children and the intention to undergo sterilization was found to be associated ( $p=0.007$ ). Contrary to the popular belief, gender of the living children was not found to be associated with intention to undergo sterilization. Knowledge, attitude and Social support were also not associated with the intention (Table 3).

The result showed that 15-24 years age group are six times more likely to have the intention for sterilization (OR 6.79, CI 2.28-20.19) compared with 35 years and above. Mothers with 1 to 2 living children are about three times more likely to have the intention (OR 2.87, CI 1.3-6.33) compared to women with more than 2 living children. Duration of the marriage was also found to be significantly associated with the intention. Women of 6 to 10 years of marriage were 3 times more likely have the intention (OR 3.0, CI 1.09-8.27) (Table 4).

## Discussion

### Factors Influencing Intention

Intention referred to the future plan that a person has thought of undertaking. It did not indicate the prevalence, but merely indicated the prospect of the women getting sterilized in the near future. However, this intention may change over time in the future.

Most of the women intended to undergo sterilization to avoid further pregnancy. Majority of these women were confident that sterilization can effectively prevent pregnancy. Many women also feared side-effects of the temporary contraceptives and thus wanted to adopt sterilization. The high acceptance of sterilization in the current study coincided with the reasons and analysis done by a separate study [8] in El Salvador, which showed that women's decision to undergo sterilization is influenced by three major factors – availability of the method, fear about side effects of other methods, and effectiveness of the chosen method.

### Decision Making

Many women based their decision in relation to their workload and perceived side-effects. Among the women who rejected sterilization, 36.8% said they rejected it because sterilization makes them weak and incapacitated. Similar study [9] conducted in urban slum of Delhi, India, found that 34.4% of the men in the study were prevented by their wives to use sterilization, because the wives believed that sterilization

might get their spouse and only bread-earner bed-ridden. However, a study [10] done among a group of low-income clinic patients planning to be sterilized found that women who desired sterilization chose to do so because they believed in the advantages of sterilization. The decision was not based on their unawareness of the disadvantages of sterilization. Findings in some of the studies on the gender roles between spouses in decision making of the sterilization are very interesting. A study [11] conducted in Nepal revealed that contraceptive responsibility is owned by women. Women get involved in the decision-making process. However, the study also revealed that the women take into account the husband's interest while making decision of contraception. They seek advice from their husbands on timing, the type of method, and also on termination of pregnancy. In addition, misinformation and rumour regarding male sterilization played a role in motivating their wives to opt female methods, the study revealed. In many cases, the wives opt to take on sterilization citing rumour of severe ill-effect of male sterilization. Availability of the family planning greatly influences its use, one study [12] done in Nepal found. The study found that increased availability of the family planning methods with well managed information flow result in increased utilization.

### Association with Intention

The current study found that there is a significant association between age of the women and the intention to undergo sterilization. Age group 15-24 years are found almost 7 times more likely to have intention to undergo sterilization (OR 6.79, CI 2.28-20.19). It also found that the intention decreased as the age of the women increased. Age group 25-35 years are found to be 4 times more likely to have intention (OR 4.0, CI 1.56-10.25) than the age group of more than 35 years. However, in contrast, study [13] done in sterilized woman in Thailand, the sterilization prevalence is seen to be higher in women with higher age group. As current study was only the intention, it would be interesting to see if the intention of the older age group would change over time.

Duration of marriage also had significant association with intention to undergo sterilization. Women with marriage duration 1-5 years were found to be 12 times more likely to have intention (OR 12.75, CI 3.66 - 44.47). Women with duration of 6-10 years in matrimony were 3 times more likely to have intention (OR 3.0, CI 1.09-8.27), and group with 11-15 years of married life were almost 4 times more likely to have the intention (OR 3.96, CI 1.21-12.94). It is seen that the likelihood of intention is higher in group with lower duration of marriage (less than 6 years). This finding is in contrast with a study [14] done in India where the author revealed sterilization was minimally used during first ten years of marriage.

Education of the woman surprisingly had no association with the intention. This was in contrast to the findings of a study

[15] in Nigeria which showed the rates of sterilization increased with the increased level of literacy. Husband's education was significantly related to intention. This finding is in line with a study [14] done in India which found that the couple's acceptance of sterilization is high if husband's education was higher.

The current study did not find any statistical significance with regards to the occupation of either of the spouses and the intention to undergo sterilization although the study [14] in India revealed that occupation of husband and wife both had significant influences in accepting sterilization.

Number of living child was found to be associated with the intention. Women with 1-2 living children were three times more likely to have intention than the ones with more than 2 children. The current study showed that the likelihood of having intention is more in women with low number of children in contrast to the finding in a study [16] in Brazil where women with four or more children were found to be more favourable to opt sterilization than the ones with fewer children. However, unlike the general perception, the gender of the living children was found to be not associated with the intention contrary to the findings in a study [12] done in India where gender of the children did play a role in accepting sterilization. The study found that parents were more likely to accept sterilization if their first child is a boy.

Knowledge, attitude and social support were not found to be statistically associated with intention to undergo sterilization in the current study. Women's misinformation, however, did interfere in women's autonomy when choosing a contraceptive method, a past study [17] in Nepal found. The influence of positive attitude and social support on decision-making of contraceptives too has been shown by number of researches. Women who talk often about their personal matters with their partners or friends, and who are satisfied with the health services they are provided through their clinics, are the ones who hold positive attitude towards contraception, a study [18] has revealed.

## Conclusion

The findings of the study suggested that there are significant numbers of women intending to undergo sterilization. It showed that there were various factors influencing their intention. Age of the mother, Number of living children and the duration of marriage were found to be significantly influencing the intention to undergo sterilization. However, as intention refers to future plan, the respondents' intention may change over time. The national family planning program needs to identify the key factors in accepting the sterilization and target these women to increase utilization. The policy makers and program implementers can make use of the evidence based studies like this and design a program and bring in their sterilization camps to give service of female sterilization.

## Limitation of the Study

The study was done in a small sample population for the intention to undergo sterilization. Moreover, it was conducted in rural population within Kathmandu valley, but not in the vast rural population outside the valley.

## Future Scope of the Study

Further longitudinal research is needed to see if the intention is converted to actual decision to undergo sterilization.

## What is already known on this topic?

Prevalence of sterilization is already known on this topic

## What this study adds?

The study is one of the very few which analysed the intention rather than the prevalence to convey a picture of the demand of sterilization. The study reveals the intention and the factors associated with the intention of the married women with at least one child of any age to either accept or refuse female sterilization as their choice of contraception in the future, irrespective of their status or choice of currently using temporary contraception. This article will benefit project designers, policy makers and public health professionals alike in understanding their intentions and to include these populations while designing the family planning programs.

## Author's Contribution

AD, SN and SP designed the concept, analysed the data, drafted the manuscript, and revised it, Data collection was done by AD.

**Conflict of interest:** There is no conflict of interest in this study.

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