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OPINIONS OF MARRIED AND UNMARRIED WOMEN TOWARDS CESAREAN SECTION AND CESAREAN DELIVERY ON MATERNAL REQUEST IN CHANDIGARH, NORTH INDIA

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ABSTRACT

Context: There is an alarming increase in the rate of cesarean section deliveries and cesarean delivery on maternal request in recent years beyond medical reasons. It has economical, physiological and psychological consequences Factors behind decisions regarding acceptance or rejection of CS among women and opinions regarding CS are not clear. Available studies are confined only to married women ignoring unmarried girls in their marriageable age in spite of the fact that they are prospective mothers. **Objectives:** Present study is an attempt to investigate awareness of CS and CDMR with associated factors among married women and unmarried college going girls and to explore their opinions regarding CDMR and reasons of preference towards caesarean sections and demand for cesarean delivery. **Methods:** community based cross sectional study was conducted as a part of MPH dissertation conducted during March- June 2020 at Centre of Public Health, Panjab University Chandigarh among married women and college going girls of Chandigarh. **Results**: Study included 59 (64.8%) unmarried college going and 32 (35.2%) married women with an overall mean age 25.10±4.42 years. Overall awareness of caesarean section was found among 81 (89.0%) and CS as preferred mode of delivery was found among 21(23.1%) women. Overall awareness of CDMR was found among 67(73.6%) women including 47(79.7%) unmarried and 20 (62.5%) married women. association between marital status and awareness of CDMR was not found statistical significant (P=0.08). Family members came out to be the most common source of awareness of CDMR reported by 46(68.6%) women. Awareness pattern of CS and CDMR were not significantly associated with socio-demographic variables based on logistic regression model. **Conclusions and Suggestions:** The study concludes that awareness of CS and CDMR are high in both married and unmarried women irrespective of socio-demographic variables. Large gaps exist among awareness levels, preferred choices and potential demands caesarean rates. There is an urgent need to create awareness and avoiding misconceptions regarding CS and CDMR among married and unmarried women being prospective mothers. Study also suggest the need of health education interventions at college level for unmarried girls regarding delivery options to enable help to be ready for their safe prospective motherhood.

KEYWORDS: Cesarean delivery on maternal request (CDMR); Cesarean section (CS); Prospective mothers; safe

INTRODUCTION

There is an increasing trend in rate of caesarean sections across the world including India for past few years. cesarean section (CS) rate of higher than 10-15% has no justification as per WHO guidelines.[1] Over the years, CS rate has been steadily increasing worldwide above levels that cannot be considered medically necessary.[2] Unnecessary caesarean delivery not only complicate maternal and child health but also put strain on family. In a developing country, like India, increasing use of medical technologies during childbirth is a matter of concern. Several studies conducted across India have also shown an alarming increase in the rate of cesarean section deliveries. According to the National Family Health Survey 4 (2015-16) reports, CS rates in India and Chandigarh were reported to be 17.2% and 22.6% respectively and in a private health facility CS rate was 44%.[3] In a study conducted caesarean section rate was found 37.7% in rural Kerala of South India.[4] Studies reported adverse consequences of CS like morbidity and mortality for mother and baby, costly medical delivery systems and lowered threshold of abnormality detection

among the health care providers. Caesarean section has much higher risk than normal labour.[5,6] Short and long term risk of caesarean deliveries can extend many years beyond the current delivery and affect the health of women, her child, and future pregnancies.[7] In a study assessing morbidities associated with CS, 36.7% of women who underwent CS had reported some or other kinds of morbidities with postpartum anemia as the most commonly observed morbidity (9.2%).[8] Increase in CS rate can be attributed to many medical as well as non medical factors including high acceptability rates among women, personal preferences apart from the clinical indications and possible overuse of medical interventions. Non medical reasons include cesarean delivery on maternal request (CDMR). According to American College of Obstetricians and Gynecologists, CDMR is defined as a cesarean delivery for a singleton pregnancy on maternal request at term in the absence of medical or obstetrical indications that could otherwise have been natural.[9]

Factors behind decisions regarding acceptance or rejection of CS among women and opinions regarding CS are not clear. A study conducted in Pakistan reported factors like unpleasant experiences in previous caesarean sections apart from social and cultural paradigm which are responsible for women to reject caesarean section due to certain beliefs.[10] A study in Nigeria investigated the perception of pregnant women attending a missionary hospital towards CS.[10] A detailed investigation conducted among women in USA provided delivery preference, their reasons, sources of information, feelings about this pregnancy, and opinions about delivery options.[12] Increasing CS rate is an issue of public health concern globally as it may result in economical, physiological and psychological consequences. Increase in CS and CDMR are usually linked with growing urbanization and modern culture. There is lack of literature on awareness and perceptions regarding CS and CDMR among women, more specifically among unmarried women in Indian contexts. Available studies are confined only to married women ignoring unmarried girls in their marriageable age in spite of the fact that they are prospective mothers. Present study in Chandigarh, a highly urbanized city beautiful of India, becomes more relevant. Present study is an attempt to investigate awareness of CS and CDMR with associated factors among married women and unmarried college going girls and to explore their opinions regarding CDMR and reasons of preference towards caesarean sections and demand for cesarean delivery.

MATERIAL AND METHODS

Present community based cross sectional study was conducted during March- June 2020 at Centre of Public Health, Panjab University Chandigarh among married women and college going girls of Chandigarh. Chandigarh is a city in Northern India that serves as the capital of the states of Punjab and Haryana. Chandigarh, a highly urbanized city is located near the foothills of the Shivalik range of Himalayas in North West India. It covers an area of approximately 114km^2. Total population of Chandigarh as per 2011 Census is 1,055,450 of which male and females are 580,663 and 474,787 respectively, making for a density of about 9258 persons per square kilometer.

Study population

The study population included pregnant women, married women never conceived and unmarried college going girls. Currently married women and unmarried college going students of Punjab University age group 18-45 years giving consent were included.

Sample Size

Optimum sample size for the present study was calculated on the basis of anticipated 35.0% overall awareness of CDMR among women reported earlier, assuming 95% Confidence interval and 10% absolute precision. Optimum sample size came out to be 91.

Total sample size was divided into two strata of married women and unmarried girls studying in Panjab University, Chandigarh aged 18-45 years. Convenience sampling was used to select respondents belonging to different groups because of limitations due to study conducted during lockdown period.

The participation of each study subjects was entirely voluntary and informed consent was taken. The subjects were informed about the purpose of study. Confidentiality was maintained. Purpose and utility of survey was explained and verbal consent was taken from respondents. A pretested semi structured interview schedule was used for data collection. Google form was used to collect information on socio-demographic variables like age, parity, marital age, educational status of women background, family income and knowledge, awareness, attitude, preference and opinion regarding CS and CDMR.

Statistical analysis: Data were summarized in percentage for qualitative parameters. Significance of association was tested by using Chi square test. Normal test was used for testing significance of differences between proportions. Kolomogrov-Smirnov test and analysis of variance (ANOVA) were used for testing significance of variability of quantitative parameters in different sub groups. Logistic regression analysis was used for detecting factors associated with awareness of CDMR using adjusted odds ratios (AORs) along with their respective 95% confidence intervals. Data analysis was carried out by using IBM SPSS-25.0 software.

RESULTS

Table-1 presents socio-demographic characteristics of women by marital status. Study included 59 (64.8%) unmarried college going and 32 (35.2%) married women with an overall mean age 25.10±4.42 years. Mean age of

married women was 26.69 ± 3.97 years as compared to that of unmarried college going 22.47±1.83 years and the difference was highly significant (P<0.001)). There were 46 (50.5%) women in the age group 22-25 years including 37(62.7%) unmarried college going and 9 (28.1%) among married women belonging to this age group. Majority in both the groups was from urban background belonging to middle /high SES. There were 67(73.6%) women belonging to nuclear families. Overall awareness of CDMR was found among 67(73.6%) women including 47(79.7%) unmarried and 20 (62.5%) married women who were aware of CDMR. The association between awareness of CDMR and marital status was not found statistical significant.

Table 2 provides opinions regarding CS by marital status. Overall awareness of caesarean section was found among 81 (89.0%) and CS as preferred mode of delivery was found among 21(23.1%) women. Among unmarried women the most preferred mode of delivery was vaginal delivery reported 46(78.0%). Whereas, only 2(6.3%) married women preferred vaginal delivery and majority 22(68.8%) of married women gave no preference of mode of delivery. Overall 63(69.2%) women were of opinion caesarean delivery has some harmful effects and 56 (61.5%) were of the opinion that there may be complications in next vaginal birth after caesarean delivery. There were 45(76.3%) unmarried and 11(34.4%) married women who thought that complication in next vaginal delivery were likely after caesarean delivery .The percentage of unmarried women thinking of complication in next vaginal delivery after C-section was significantly higher than the percentage of married women thinking like this(P<0.001). The second most common opinion regarding caesarean delivery was difficulty in doing physical work after C-section as reported by 32(54.2%) unmarried women and 5(15.6%) married women. The difference was found highly significant (p<0.001). Unmarried and married women also differ significantly regarding other opinions about C-section like lifelong back pain reported by 19 (32.2%) unmarried women and 4 (12.5%) married women and perceived weight gain reported by 19 (32.2%) unmarried and3 (9.4%) married women. About one fourth of studied women were of the opinion that there are chances of C-section in future also if once caesarean delivery is experienced. Less pain in caesarean delivery was opinioned by 29(49.2%) unmarried women and 15(46.9%) married women and the difference was not found statistically significant. There were 16(17.6%) women who were thinking healthy women and healthy baby with caesarean delivery. There were 15(25.4%) unmarried women and 6(18.8%) married women and 21 (23.1%) overall women who are of the opinion that c-section avoids complications. Majority of women 66 (72.5%) wanted to leave the decision regarding mode of delivery for Doctors while 22(24.2%) women were of the opinion that they should have power to decide the mode of delivery. Almost all proportions of unmarried women of these opinions were significantly higher as compared to married women having such opinions. These findings indicate that unmarried women students were having higher degree of perceptions towards complications of caesarian delivery as compared to married women.

Opinions of women regarding cesarean delivery on maternal request (CDMR) by marital status are presented in Table 3. Family members came out to the most common source of awareness of CDMR reported by 46(68.6%) women. Family members came out to the most common source of awareness for 35(83.3%) unmarried women 11(44.0%) married women with highly significant difference (P<0.001) followed by friends reported 47(51.6%) women included 25(59.5%) unmarried and 22(88.0%) unmarried women with highly significant difference (P<0.001). Internet came out to be the source of awareness for 44(48.3%) women and higher percentage of married women (76.0%) who came to know about CDMR through internet as compared to (59.5%) unmarried women. However, the difference between these two proportions was not statistically significant (P=0.12). There were 56(83.6%) women who were of the opinion that CDMR avoid complications in delivery resulting in less painful delivery. The number of unmarried women given this opinion was 39 (92.8%) as compared to 17 (68.0%) married women. These two percentage differ significantly (P=0.008). Also, CDMR as an option for better health of baby and mother was reported by 19(28.3%) women, the percentage of unmarried women regards to this opinion (40.5%) was significantly higher (P<0.001) as compared to married women (8.0%). Opportunity of delivering on lucky day and lucky timing were also reported reasons of CDMR preference over vaginal delivery by 22 (32.8%) and 9 (13.4%) of total surveyed women. Family preference of CDMR was reported by 20(29.8%) women including 7 (16.7%) unmarried and 13 (52.0%) among married women. Side effects of CDMR were reported by 13 (30.9%) unmarried and 8 (32.0%) married women. When asked about their future preference for CDMR, 16(23.9%) women were of the opinion that they would like to prefer CDMR in future also and this percentage was significantly higher (P=0.03) for unmarried women (30.9%) as compared to that for married women (12.0%). There were 24(35.8%) women who were of the opinion that they would like to suggest CDMR for others in spite of the fact that self preference for CDMR in future was reported only by 16(23.9%) women. No significant difference (P=0.51) was observed with regards to this opinion.

Awareness of cesarean delivery on maternal request (CDMR) in relation with socio-demographic characteristics of women is presented in Table-4. Among all women 67(73.6%) were aware of CDMR and remaining 24(26.4%) were not aware of CDMR. Awareness of CDMR was not found to be significant associated with age (P= 0.18). Also mean ages of women aware and not aware of CDMR were not found

statistically significant (P=0.08). There were 72(79.1%) women from urban background among those who were aware of CDMR. There were 56 (83.6%) among aware women who were from urban background. Among studied women 69(75.8%) were belonging to middle/high social economic status. Awareness was not also found significant associated with social economic status (P=0.34). There were 67(73.6%) women belonging to nuclear family. Awareness not found significant associated with type of family. Respondent represented all educational categories. Study included unmarried women presently studying at University level, so larger proportions of women was there at graduation and post graduation levels.

Factors associated with awareness of CDMR on the basis of bivariate analysis are represented in Table -4. Among those who were aware of CDMR, 42 (62.7%) were unmarried women and 25(37.3%) were married. Overall 67(73.6%) women were aware of CDMR and association between marital status and awareness of CDMR was not found statistical significant (P=0.08). Logistic regression analysis of factors responsible for no awareness of CDMR is presented in Table -5 showing adjusted odds ratios along with their respective 95% confidence intervals. Background, social economic status, age, type of family, marital status and educational status were entered into logistic regression model as potential factors of CDMR preference among women. On the basis of logistic regression analysis also, none of these factors showed significant risk in contributing having no awareness of CDMR explained by the logistic regression model. The fitted model was good enough showing no significant variability between observed and expected frequencies (P=0.69). However, low explained variability indicated presence of some other deciding factors responsible for CDMR preference which were not considered in the study. So there is need to explore further research to investigate factors due to which women are giving preference to CDMR over vaginal delivery.

Table-1: socio-demographic characteristics of women by marital status.

Background Characteristics	Marital Status				Total (N=91)	
	Married (N=59)		Unmarried (N=32)			
	No	%	No	%	No	%
Age group						
Age in years						
18-21	8	13.5	4	12.5	12	13.2
22-25	37	62.7	9	28.1	46	50.5
26-35	14	23.7	17	53.1	31	34.1
36-40	0	0.0	2	6.2	2	2.2
Mean ± SD	**22.47±1.83**		**26.69 ± 3.97**		**25.10±4.42**	
						P<0.001
Background						
Rural	10	16.9	23	71.9	19	20.9
Urban	49	83.1	9	28.1	72	79.1
SES						
Middle/High	38	64.3	31	96.9	69	75.8
Low	21	35.7	1	3.1	22	24.2
Type of family						
Nuclear	36	61.0	31	96.8	67	73.6
Joint	23	39.0	1	3.2	24	26.4
Education status						
Middle	4	6.8	3	9.4	7	7.7
10th-12th	2	3.4	10	31.3	12	13.2
Graduate	25	42.4	11	34.4	26	39.6
Post Graduate	25	42.4	7	21.9	32	35.2
Others	3	5.1	1	3.1	4	4.4
Overall						
Aware of CDMR						
Aware	47	79.7	20	62.5	67	73.6
Not Aware	12	20.3	12	37.5	24	36.7
						P= 0.08

Table-2: Opinions of women regarding Cesarean section by marital status.

Opinion	Unmarried (N= 59)		Married (N=32)		Total (N= 91)		P -value
	No	%	No	%	No	%	
Awareness of C-section	50	84.7	31	96.8	81	89.0	
Preference for mode of delivery							
Caesarian	13	22.0	8	25.0	21	23.1	P= 0.75
Vaginal	46	78.0	2	6.3	48	52.7	P< 0.001
No preference	0	.0	22	68.8	22	24.2	P< 0.001
What do you think about C-section							
Think it has harmful effects	50	84.7	13	40.6	63	69.2	P< 0.001
Complication in next vaginal birth after c-section in different	45	76.3	11	34.4	56	61.5	P< 0.001
Loss of blood	18	30.5	13	40.6	31	34.1	P= 0.34
Delayed recovery	25	42.4	5	15.6	30	33.0	P= 0.003
Difficulty to do Physical work	32	54.2	5	15.6	37	40.7	P< 0.001
Lifelong back pain	19	32.2	4	12.5	23	25.3	P= 0.002
Body weight gain	19	32.2	3	9.4	22	24.2	P= 0.004
Chance of C-section in future	20	33.9	3	9.4	23	25.3	P=0.003
Blood transfusion is required	42	71.2	20	62.5	62	68.1	P=0.39
Psychological issues	12	20.3	1	3.1	13	14.3	P=0.005
Healthy baby and mother	11	18.6	5	15.6	16	17.6	P=0.71
Less pain in delivery	29	49.2	15	46.9	44	48.4	P=0.78
Avoids complications	15	25.4	6	18.8	21	23.1	P=0.43
Who should decide mode of delivery							
Doctor	36	61.0	30	93.7	66	72.5	P< 0.001
Self	20	33.9	2	6.3	22	24.2	P< 0.001
Spouse	3	5.1	0	0	3	3.3	P=0.08
Total	**59**	**100.0**	**32**	**100.0**	**91**	**100.0**	

Table-3: Opinions of women regarding cesarean delivery on maternal request (CDMR) by marital status.

Opinion	Unmarried (N= 59)		Married (N=32)		Total (N= 91)		P -value
	No	%	No	%	No	%	
Aware of CDMR							
Yes	42	71.2	25	78.1	67	73.6	
No	17	28.8	7	21.9	24	26.4	
							P= 0.08
If aware, source of awareness	**N= 42**		**N= 25**		**N= 67**		
Family members	35	83.3	11	44.0	46	68.6	P<0.001
Friends	25	59.5	22	88.0	47	51.6	P<0.001
Books	17	40.5	15	60.0	32	35.2	P= 0.05
internet	25	59.5	19	76.0	44	48.3	P= 0.12
Opinions regarding CDMR preference	**N= 42**		**N= 25**		**67**		
Avoid complications in delivery and less pain	39	92.8	17	68.0	56	83.6	P= 0.008
Safe	22	52.4	3	12.0	25	37.3	P<0.001
Better for baby and mother health	17	40.5	2	8.0	19	28.3	P<0.001
Lucky day	12	28.6	10	40.0	22	32.8	P= 0.25
Lucky time	7	16.7	2	8.0	9	13.4	P= 0.24
Family preference	7	16.7	13	52.0	20	29.8	P= 0.05
Has some side effects	13	30.9	8	32.0	21	31.3	P= 0.84
In favor of CDMR	10	23.8	9	36.0	19	22.1	P= 0.20
Would like to give preference in future	13	30.9	3	12.0	16	23.9	P= 0.03
Like to suggest others	14	33.3	10	40.0	24	35.8	P= 0.51

Table-4: Bivariate analysis of factors associated with awareness of cesarean delivery on maternal request (CDMR.

Background Characteristics	Awareness Status				Total N=91	
	Aware N=67		Not Aware N=24			
	No	%	No	%	No	%
Marital Status						
Unmarried	42	62.7	17	70.8	59	64.8
Married	25	37.3	7	29.2	32	35.2
						P=0.08
Age in years						
18-21	8	11.9	4	16.7	12	13.2
22-25	37	55.2	9	37.5	46	50.5
26-35	21	31.3	10	41.7	31	34.1
36-40	1	1.5	1	4.2	2	2.2
Mean ± SD	**24.54±3.88**		**26.33 ± 5.57**		**25.10±4.42**	
						P=0.08
Background						
Rural	11	16.4	8	33.3	19	20.9
Urban	56	83.6	16	66.7	72	79.1
						P =0.07
SES						
Middle/High	52	77.6	17	70.8	69	75.8
Low	15	22.4	7	29.2	22	24.2
						P=0.34
Type of family						
Nuclear	48	71.6	19	79.2	67	73.6
Joint	19	28.4	5	20.8	24	26.4
						P=0.37
Education status						
Middle	7	10.4	0	0.0	7	7.7
10th-12th	5	7.5	7	29.2	12	13.2
Graduate	25	37.3	11	45.8	26	39.6
Post Graduate	26	38.8	6	25.0	32	35.2
Others	4	6.0	0	0.0	4	4.4
Overall	67	73.6	24	26.4	**91**	**100.0**

Table-5: Logistic regression of factors not aware of CDMR.

Variable	Total		AOR (95% CI)for AOR	P-value
	No	%		
Background				
Rural	19	20.9	1.00	reference category
Urban	72	79.1	0.36 (0.11-0.16)	0.08
SES				
Middle/High	69	75.8	1.00	reference category
Low	22	24.2	2.59(0.79-9.4)	0.15
Age				
Upto 25 years	58	63.7	1.00	reference category
Above 25 years	33	36.3	0.76(0.13-0.46)	0.71
Type of family				
Nuclear	67	73.6	1.00	reference category
Joint	24	26.4	1.39(0.35-5.51)	0.64
Marital Status				
Unmarried	59	64.8	1.00	reference category
Married	32	35.2	3.61(0.55-23.5)	0.18
Educational status				
PG/Professionals	36	39.6	1.00	reference category
Graduation and below	55	60.4	2.35(0.75-7.42)	0.14
Constant			0.21	0.05

DISCUSSION

Present study explored opinions regarding CS and CDMR of 91 women including 59 (64.8%) unmarried college going and 32 (35.2%) married women with an overall mean age 25.10±4.42 years. Study reported high awareness level of CS and CDMR of 89.0% and 73.6% respectively. In an earlier study the awareness rate of C-section was reported only among 47.7% women.[13] High CS rate may be due to increasing numbers of institutionalized births in India. -Our study reported less perceived preference of caesarean delivery reported by 23.1% of women as compared to of vaginal delivery preference reported by 52.7% of women. Low preferred choice of CS was reported only by 23.1% women. The existing gap between awareness and perceived preference of caesarean delivery can be explained by perceptions of harmful effects of C-section by 69.2% women. Unmarried women were more likely to have perceptions of complications in next delivery after CS. Considerable number of women was indifferent to preferred mode of delivery. A previous study reported only 8.5% women preferring caesarean delivery and 91.5% vaginal delivery.[13] This finding of our study provides strong evidence that patients' preference is unlikely to be the most significant factor driving the increasing CS rate. Majority of the respondents (72.5%) gave response that the mode of delivery should be decided by doctors (72.5%) followed by women themselves (24.2%) and spouses (3.3%). Highly educated women from urban area were more likely to be aware about C-section. Unmarried and married women varied significantly in terms of perceived harmful effects of CS and decision makers for CS. Higher percentages of unmarried girls were in favour of their more active role in deciding mode of delivery as compared to married women. Perceptions in favors of opting caesarean delivery included it is safe, painless, better for health of baby and mother and other astrological reasons.

Overall awareness of CDMR was 73.6% and 23.2% of women also expressed caesarean section on demand sometimes in future. Also, 49.5% women reported having contacts opted caesarean delivery on demand in the past. An earlier study reported, 2.5% CDMR among C-sections performed in a rural hospital in Kolar.[14] Large proportion of women (26.4%) in our study described themselves as having no information about CDMR. The information received was mainly from family and friends which may not be correct. The most common sources of awareness of CDMR were family members (68.6%) followed by friends (51.6%), internet (48.4%), and books (35.2%). Awareness of CDMR was not found to be significant associated with socio-demographic characteristics of women. However, they varied with respect to sources of awareness and perceptions regarding side effects and opinions regarding CDMR. Unmarried girls expressed opinions more in favour of CDMR than those expressed by married women. High percentages of unmarried girls were of the opinion that CDMR may be helpful in reducing pain and avoiding complications in delivery. Also, they were thinking more that it was better for health of baby and mother. In a study conducted in USA, only 6.1% of women thought that CDMR was 'a good idea' and 81.7% of participants believed that vaginal delivery was a safer alternative for the mother and 72.8% believed that it was safer for the fetus. Socio-cultural reasons like preference of auspicious dates and time, family pressure, and status symbol were also emerged in a few cases. The potential demand for CS was low in the present study and majority of women preferred vaginal delivery. There were some modifiable factors associated with perceived preference to caesarean delivery reported in this study like family preference (22%), thinking it a safe procedure for delivery (27.5%) and less pain during delivery (61.5%). Results indicated that there should be more focus to create awareness among unmarried girls about mode of delivery options because in our study many of them had future preference for caesarean delivery because of several misconceptions.

This study has several merits as it may throw some light on the effect of reproductive decisions of women regarding intended mode of delivery. This study will be helpful in preparing girls for their planned safe motherhood avoiding misconceptions and in avoiding forced decisions on mode of deliveries welcoming decisions of obstetricians regarding mode of deliveries for better reproductive health of women. The findings of the present study may also be helpful in preventing undesired cesarean sections and reducing risk associated with undesired cesarean delivery on demand.

The study has some limitations in terms of high chances of selection bias, respondent bias and high non response rate as the survey was conducted during lockdown period due to covid-19 pandemic. Because of time constraints a more comprehensive survey could not be conducted representing all subgroups as planned. Direct personal interviews also not be conducted and only Google forms were used to fill the desired information. Moreover present study remains silent about practice of CDMR whether awareness will be transformed into practice in future or not? Being opinion based study among unmarried girls also this study could not comment on practice of CDMR. There is an urgent need of more detailed in depth studies on this particular topic for drawing more valid conclusions.

CONCLUSIONS AND SUGGESTIONS

The study concludes that awareness of CS and CDMR are high in both married and unmarried women in study population irrespective of socio-demographic variables. However, large gaps exist among awareness levels, preferred choices and potential demands caesarean rates. There is an urgent need to create awareness and avoiding misconceptions regarding CS and CDMR among married and unmarried women being prospective mothers. Women should be well informed of risks arising during pregnancy to set aside their preference and make an

informed decision to have a CS. Efforts should be made to enable women to choose appropriate method of delivery in consultation with obstetricians being prospective mother and future of the country. Study also suggest the need of health education interventions at college level for unmarried girls regarding delivery options to enable help to be ready for their safe prospective motherhood.

Key Messages

1. High awareness rates of CS and CDMR exist among married and unmarried women.
2. Large gaps exist between awareness of CS and CDMR with respective preferred choices thereof irrespective of socio-demographic characteristics.
3. There is an urgent need of health education among women to avoid misconceptions of CDMR and enhancing informed choices for delivery options.

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REFERENCES

1. World Health Organization. Monitoring emergency obstetric care a handbook. 2009. available from URL:http:///www.who.int/reproductivehealth/publications/monitoring/.../en/ date of accessed 27.7.2020
2. World health organization recommendation on non clinical intervention to reduce unnecessary caesarean section, http://www.who.int//, date of accessed 27.7.2020.
3. National Family Health Survey, India (NFHS-4). 2017. International Institute for Population Sciences (IIPS) and Macro International." Volume I. Mumbai.
4. Divyamol N, Raphael L, KoshyN. Caesarean section rate and its determinants in a rural area of South India. Int J Community Med Public Health, 2016; 3: 2836-40.
5. S N Mukherjee. Rising cesarean section rate. J Obstet Gynecol India, 2006; 56(4): 298-300.
6. Snyman, L. Is the high caesarean section rate a cause for concern? Obstet Gynaecol Forum, 2002; 12(2): 8–13.
7. World health organization statement on caesarean section rates, April 2015, reference number WHO/RHR/15.02, http://www.who.int//, Date of accessed 28.7.2020.
8. Gayathry D, Guthi VR, Bele S, Vivekannada A. A study of maternal morbidity associated with caesarean delivery in tertiary care hospital. Int J Community Med Public Health, 2017; 4: 1542-7.
9. American College of Obstetricians and Gynecologists. Cesarean delivery on maternal request. ACOG Committee Opinion No. 394. Obstet Gynecol, 2007; 110: 1501–1504.
10. Qazi Q, Akhtar Z, Khan K, Khan AH. Pregnant women view regarding cesarean section in Northwest Pakistan. Trop Med Surg, 2013; 1: 105.
11. Amiegheme FE, Adeyemo FO, Onasoga OA. Perception of pregnant women towards caesarean section in Nigeria: a case study of a missionary hospital in EDO, Nigeria. Int J Community Med Public Health, 2016; 3: 2040-4.
12. Romero ST, Coulson CC, Galvin SL. Cesarean Delivery on Maternal Request: A Western North Carolina Perspective. Matern Child Health J., 2011; 16(3): 725-34.
13. Saoji Ajeet, Nayse Jaydeep, Kasturwar Nandkishore, Relwani Nisha. Women's Knowledge, Perception and potential demand towards caesarean section. 2011. National Journal, 2(2): 243-48.
14. Narayanaswamy M, Ambika B, Sruthi T. Cesarean Delivery at Maternal Request in a Rural Medical College Hospital, India. Journal of clinical gynaecology and Obstetrics.