

Dose Maternal Health Really Matter?

A Study of Indian Menopausal Women

1. Introduction:

Maternal mortality forms just the tip of the obstetric health problems of women. A substantial number of women in India die each year during pregnancy and at child birth. For every woman who dies, many other suffer serious injuries, at times permanently as a result of pregnancy (Brecher 1969 and Alauddin 1986). A study from Nigeria found, that for every woman who dies of maternal causes, 15 suffer from permanent disabilities and serious impairments (Harrison 1985; Measham and Rochat 1987). Based on some of these estimates, it has also been calculated that there are 8.25 million mother with morbidities each year worldwide (Walsh et.al. 1989). Although these estimates though may appear to be crude and unreliable but point out the magnitude of the problems of maternal health in particular and overall health of women in general. However, the World Health Organization Technical Group's report on reproductive morbidity has recommended that the highest research priority should be given to determine the prevalence of obstetric morbidity (WHO 1990). In developing countries, it is estimated that more than 40 percent of pregnancies results in complications, illness or permanent disability of mothers (WHO 1992a). However, in depth analysis of policies and programme related to maternal health indicates that maternal mortality has been the integral part of Public Health, where as maternal welfare especially disabilities related to child birth has not been focused.

'Life cycle' approach, though often talked about, is seldom adopted under research studies. Very few or negligible attempts have been made to integrate the life cycle approach in health system meant for women; neither on policy level nor on institutional level. From 'womb to tomb', a woman leads her life susceptible to numerous hazards, both, of direct and indirect nature, with a rippling effect. Increase in life expectancy in developing countries has added more complexity. Anciently, the age of 45 was considered old; today it marks the beginning of period we call midlife – menopause, a critical landmark in a woman's life. Accompanying symptoms of this alter the functions of the body system. However, symptoms aggravate, if woman undergoes hysterectomy or early menopause.

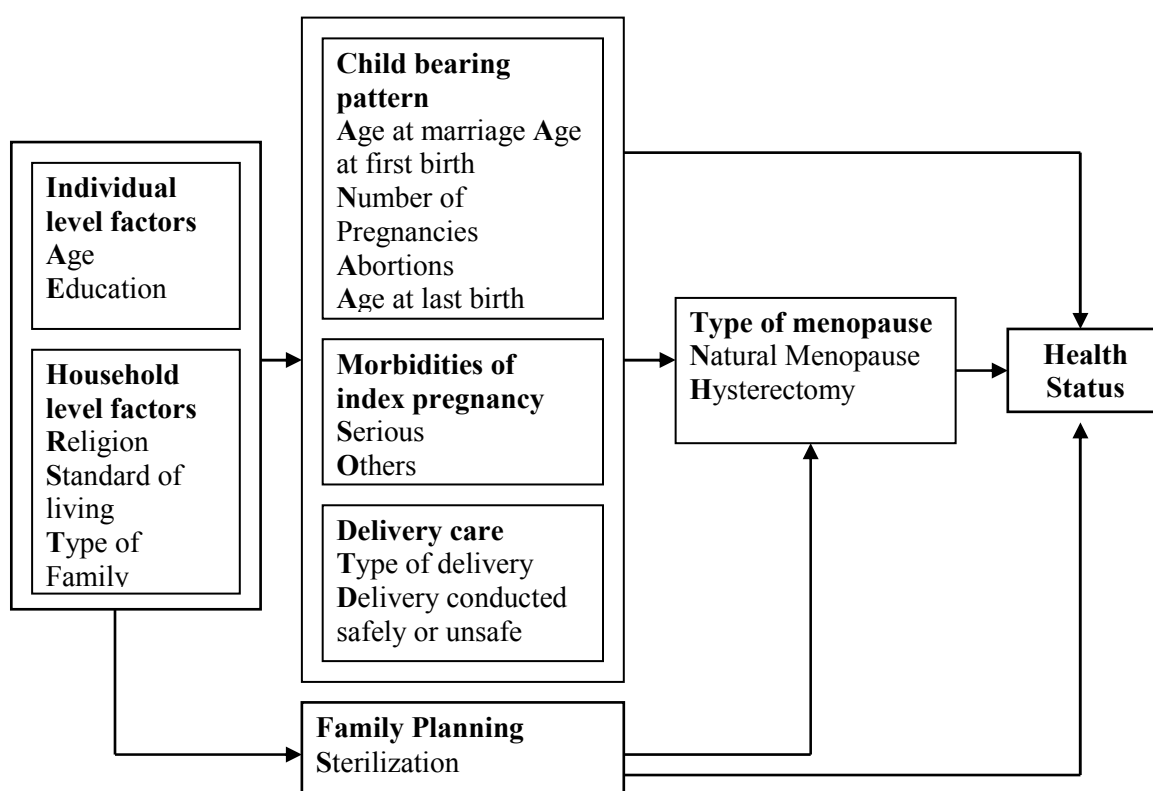
The dysfunctions in mother's health may not only effect during reproductive years, but these factors may play a decisive role towards the health after procreation and age and the type of menopause. In this scenario, the authenticity of post procreation health has become critical in the era of increased life expectancy. Therefore, the present paper makes an attempt to look into the magnitude of the poor maternal health from the perspective of menopausal women while addressing the following research question "what are the lasting effects of poor Maternal Health?". The specific objectives of the paper are:

- To analyze the effect of poor maternal health on type of menopause.
- To analyze the effect of poor maternal health o post menopausal health status.

2. Methodology:

A community based cross-sectional study was conducted on 247 menopausal women from district Moradabad in Western Uttar Pradesh, India under an independent Project. Open-ended questionnaire was used for data collection. The study has covered data on various background characteristics, pregnancy, menstrual and menopausal history, current health status of post menopausal women at the time of survey and attitude towards menopause. Reproductive history was tracked from the age at first marriage to the last conception and delivery. The impact of characteristic of last delivery on type of menopause and post menopausal health status has been measured in the analysis. The specific conceptual framework illustrates the detailed particulars of the probable association (Figure 1).

Figure 1. Conceptual Framework



The sample has been divided into two categories as Natural menopause and Hysterectomy. The WHO definition has been utilized for drawing the categories. The definitions used in the paper are:

- **Natural Menopause:** The permanent cessation of menstruation resulting from the loss of ovarian follicular activity followed by 12 months of consecutive amenorrhea.
- **Hysterectomy:** The cessation of menstruation followed by either surgical removal of uterus or unilateral or bilateral oophorectomy (removal of ovaries).
- **General Health Status:** In order to assess the overall health status of women, a twenty-eight item General Health Questionnaire (self-administered, designed to detect those with a diagnosable psychiatric disorder) was used (Goldberg, 1972). It represents two major classes of phenomena: namely, 1) the inability to carry out one's normal 'healthy'

functions, and 2) the appearance of new phenomena of a distressing nature. Weighted score has been divided into High Score (Poor) and Low Score (Good), while using the threshold of 5/6.

Cross tabulation and logistic regression was applied to see the effect of various maternal health characteristics on type of menopause and health status of women.

3. General Characteristics of the Sample:

The average age of the sample was 47.0 years. Only 27 percent of the sample was non-literate. Nearly half of the sample belonged to medium standard of living, where as nearly 27 percent was in high standard of living. Majority (82 percent) of the women in the sample were Hindu. Only 17 percent of the respondent was engaged in one or other wages earning activities. Eighty seven percent of the respondent in the sample had live births with a mean of 4.8 pregnancies and 0.6 abortions. Around 83 percent of the sample attained menopause naturally whereas 17 percent had hysterectomy. The average natural menopausal age of the sample was 42 years and 38.5 years for hysterectomized women. More than half of the sample was scored with poor health status on General health Index at the time of survey.

4. Analysis:

4.1.1 Reproductive characteristics and type of menopause

Literature reveals that in the study of menopause, specific emphasis has been given to the reproductive history of women. Accordingly, an attempt was made to examine the various maternal health characteristics with type of menopause (Table 1).

Number of pregnancies and age at marriage did not present significant variation by type of menopause. Abortion, age at first pregnancy and age at last delivery had shown significant variation between natural menopause and hysterectomy. Nearly one third of the respondent had abortion in their reproductive life. The distribution of abortion among natural menopausal and hysterectomized women revealed that approximately seventy percent of women with hysterectomy had one or more abortion in their life as compared to only 27 percent among natural menopausal women. Mean number of abortion among both the group was 0.5 and 1.1 (natural menopause and hysterectomy respectively).

The ages at which, a woman begins and terminates childbearing, forms an important demographic variable as higher age at first pregnancy and the lower age at last birth are the indicators of lower fertility. Table 1 gives the percentage distribution of age at first pregnancy and age at last birth by type of menopause. Analysis indicates that majority of the women their first delivery after the age of 20 years. However, 44 percent of women with hysterectomy had their first pregnancy before the age of 20 as against of 28 percent in natural menopausal women. The distribution was statistically significant. The relationship between the age at last live birth and natural menopause and hysterectomy also turned to be significant. A majority of the women in the hysterectomy group had their last live birth before or at the age of 28 years.

4.1.2 Characteristics of last delivery and type of menopause

Table 1 also shows the distribution of pregnancy, delivery and post delivery complications during the last birth according to type of menopause. Complications have been divided into two sections serious ones and other complications (Fortney & Smith, 1996) (Annex 1). Approximately 16 percent of women had complications during pregnancy, whereas the proportion of mothers who suffered during delivery and post delivery was 18 and 12 percent respectively. While cross tabulating pregnancy complications by type of menopause, it was found that higher proportion of women who had undergone hysterectomy had complications than those who had not. The differences appeared to be prominent. A fairly high proportion of women with hysterectomy had serious pregnancy (30 vs. 13 percent), delivery (25 vs. 17 percent) and post delivery complications (18 vs. 11 percent) compared to natural menopausal women.

The percentage distribution of place of delivery, type of delivery and safe or unsafe delivery by type of menopause can be seen in Table 1. More than fifty percent of the deliveries were institutional based as compared to 47 percent home deliveries. A majority of them were conducted safely (72 percent). In the sample, only nine percent deliveries were from caesarean section. Interesting results emerged, when the distribution of these indicators with the type of menopause was considered. Three of these delivery characteristics showed significantly distribution between natural menopause and hysterectomy. A majority of the deliveries in the hysterectomy group were institutional deliveries. Twenty percent of the deliveries were through caesarean section among hysterectomized women compared to only seven percent among women with natural menopause. Ninety percent of hysterectomized women had safe deliveries as compared to only 68 percent of natural menopausal women.

4.1.3 Sterilization and Type of Menopause

The global prevalence of female sterilization is quite high and rising. In the study too, quite a large proportion of women used sterilization as a contraceptive method. The respondents, during the interview, motivated to find the association between the sterilization and menopause. The results of the cross tabulation indicates that the incidence of sterilization was significantly on the higher side (44 percent) among the women with hysterectomy than natural menopausal women (29 percent).

4.1.4 Logistics Regression Analysis

Table 2 presents the impact of reproductive characteristics on type of menopause. Four separate models were applied in order to compute the effect of number of pregnancies, abortion, age at 1st pregnancy and age at last delivery (independent variable) separately on type of menopause (dependent variable). Model 5, which combines all four models, exhibits the interaction effect of all characteristics while controlling the effect of background variables.

It is clear that gravidity did not have any significant effect on dependent variable. However, women with history of abortion had six times higher chances to undergo hysterectomy in comparison to those who did not have such history. If women conceived for the first time before the age of 20, her chances for undergoing hysterectomy increased greatly juxtapose to those conceiving after the age of 23 years. In cases of women having their last delivery after the age of 28 years, the chances of hysterectomy reduced.

The estimates, which emerged from the last model, show a contradictory picture in terms of number of pregnancies. Women with less number of pregnancies (<4) had higher probability to undergo hysterectomy. The higher influence of abortion in the model might have reflected on the results, as abortion emerged to be the most influential characteristics (8 times higher chances to be in hysterectomy). Age at first pregnancy was also significantly affecting natural menopause and hysterectomy, however, the odds declined. None other than these variables could remain significant with the dependent variable.

In Table 3 logistic regression analysis has been used to analyze the impact of various morbidities during last birth on the type of menopause. Four models were regressed for all the three (pregnancy, delivery and post delivery) complications separately with specific direct predictor (age of mother at birth) and lastly for all together.

Results based on the different models showed that while controlling the effect of age of the mother at last birth with pregnancy complications, women with the serious complications during pregnancy were more likely to have hysterectomy than those who did not. To elaborate with the delivery and post delivery complications, which also had positive impact on the outcome of variable; the result however did not establish significant association. In three of the models, age of the mother at last birth had a significant but negative impact on the result variable. Model 4 shows the combined effect of all the examined characteristics with socio-economic characteristics. The results showed that the effect of all the three complications declined marginally. The relation of dependent variable with pregnancy complications remained significant. None of the other characteristics had significant association with dependent variable.

Table 4 represents the regression analysis of various delivery characteristics on type of menopause. Three models were regressed while considering type of delivery, pregnancy complications and age at last delivery, safe or unsafe delivery.

As it is being said that safe delivery is good for a mother as well as for child. However, from the present analysis, it can be seen that safe delivery increases the probability of having hysterectomy. It can be assumed that the health of the mother before last delivery must have been deteriorated, therefore she has to under go safe delivery, as it has been observed that women in UP prefer to go for home deliveries.

In model 2, while controlling the effect of pregnancy complications and age at last delivery, it can be seen that women who had caesarean delivery were more likely to have hysterectomy. However, Model 3 which represents the effect of all the characteristics together along with background characteristics it can be seen that except safe delivery and pregnancy complication, none of the characteristics remained significant. The other socio-economic characteristics of the women did not turn out to be significant.

4.2.1 General Health Status

General Health Score was calculated from the 28 item questionnaire. To analyze the consistency of the scale, a reliability (α) test has been carried out for over all scale. The reliability test gave sufficiently enough alpha values (0.9038) to justify the reliability of the

scale. More than half the women were assessed with high score on General Health Index in the sample, indicating the poor mental health at the time of survey.

Table 5 presents the general health status of ever married women by all considered maternal health characteristics including type of menopause. A significant variation could be observed with all the variables except type of delivery and age at last delivery. A glance at the variables reveals that women with lower age at marriage, lower age at first pregnancies, higher number of pregnancies, history of abortion, pregnancy, delivery and post delivery complications, sterilization and hysterectomy had poor health status of final cessation of menstruation.

Specifically, 65 percent of women, who married before the age of 18 year were scaled with high score on general health status as compared to only 49 percent women with higher age at marriage. Approximately similar variation can be observed for age at first pregnancy. Three fourth of the respondent with more than four pregnancies had poor health status as compared to women who had less than four pregnancies. Similarly a very high proportion of the respondents with a history of abortion (68 percent) attained poor health status after menopause as compared to those without history of abortion. More than seventy percent of women with complications during their last child birth suffered with poor health status after they reached menopause than those who did not have complications. Sixty four percent of the women with sterilization had poor health status at the time of survey. Hysterectomy operation significantly enhanced the chances of being in poor health status. Seventy three percent of hysterectomized women were scaled on high score on overall index in comparison to 50 percent women with natural menopause.

4.2.2 Logistic regression analysis (Table 6) has been carried out to see the effect of various maternal health characteristics and type of menopause on General Health Status. Various models were applied. The results of the analysis show that the type of menopause had a positive association with General Health Score. Hysterectomized women had nearly three times higher chances of being in worse health status than natural menopausal women (Model 1). In model 2 five characteristics viz. age at marriage, first pregnancy and last delivery, number of pregnancies and history of abortion were regressed together. It can be seen than women married after the age of 18 years reduces the chances of being in poor health status. Similarly higher number of pregnancies and history of abortion increased the probability to be in poor health status as compared to other.

Separate regression models (3, 4, and 5) have been applied for pregnancy, delivery and post delivery complication. The results of the regression analysis support the results from cross tabulation. While keeping all the characteristics (characteristics of last delivery, reproductive history) together with background characteristics (Model 6), it can be seen that age at marriage, and number of pregnancies turned insignificant, whereas, the effect of age at last delivery, pregnancy and post delivery complications reduced in the model.

Similarly sterilization had significantly associated with the dependent variable (Model 7). Two women with sterilization had poor health status after menopause against of only one woman with no sterilization. While regressing the sterilization with background characteristics, a reduction in odds and significant level can be observed in the model 8.

All the characteristics together were regressed with the dependent variable in the model 9. While controlling all the characteristics, the odds ratio for type of menopause declined a little. It can be seen that type of menopause, age at marriage, age at last delivery, abortion history, delivery and post delivery complications were extensively associated with the General Health Index. The positive effect of literacy status can be observed in all the models.

5. Discussion:

In the life cycle approach, the life of a woman can be divided into various stages, which starts from foetus to infant, early childhood, late childhood, puberty, reproductive ages, menopausal years and old age, representing a link between each other. There are various health programmes and policies exist nearly for all segments of life except for late childhood and menopausal years. However, menopause, among them, is considered as a signpost of midlife and often seen as an indicator to the aging process in a woman's life. It begins with the onset of several long and short term symptoms. A majority of the women usually remain ill informed and even completely uninformed about the changes taking place in their body during the period. Women suffer silently with various unwelcome health problems, later blaming them as a sign of aging. However, in developed society, increased life expectancy and implementation of health care programs in relation to the issue has created tremendous awareness among women towards menopause and its attending syndrome in developed societies. On the contrary developing world remained silent on the issue.

This period of women's life occur immediately after the end of reproductive period indicating a transition from reproduction to non-reproduction. Many of the changes during the phase are very silent and gradual except menstrual cycle. However, there comes the issue of poor maternal health. Health programmes and campaign in India usually talk about maternal mortality, whereby disabilities occur during the childbearing process have never been focused. This leaves various unanswered questions behind viz. what happen to the mothers with disabilities related to childbirth, when they enter in their other phase of life? Why services are not being provided effectively, when, majority of health care programme focuses on maternal health? Why health care programs / policy are not there for all segments of life. Why can't maternal health care services be extended to the mothers in menopause or middle age, those are facing consequences of poor maternal health? And above all why are we allowing the problem to aggravate?

As the menopausal years are closely related to the reproductive years, therefore the present paper has tried to see the magnitude of the issue from the perspective of menopausal women while addressing the research question "The lasting effects of poor Maternal Health?". The present paper has hypothesised that poor maternal health may lead to poor menopausal health.

The results of the analysis show that abortion and age at 1st pregnancy (<20 years) were extremely important characteristics in deciding the type of menopause. This indicated a fall in women's health much earlier than the operative stage. Higher age at last delivery (>28 years) also effected the type of menopause. Lisken (1992) observed that the minor complaints during pregnancy and child birth are rarely addressed, even though these conditions may significantly impair women's well being and affect their ability to work. Pregnancy and childbirth related complications are considered to be the integral part of the women's life, and

they are seldom addressed unless they become extremely serious. Hysterectomized women experienced comparatively more serious pregnancy, delivery and post delivery complications than women with natural menopause during their last child birth. Along with this, quite a larger proportion of hysterectomized women attained caesarean delivery and safe delivery*.

The analysis demonstrates that being in contact with health professionals for child bearing increases the chances of hysterectomy at early ages. This fact can not be concluding as it is. Nevertheless, one interesting and equally worrisome feature, which emerged from the study, is that women who underwent hysterectomy had poor health before undergoing operation. The health may be shattered by various events such as abortions and lower age at first pregnancy etc.

Among hysterectomized women, sterilization induced the chances of attaining hysterectomy at the early ages. This finding gets support from the study by Hillis, et.al. (1998) and Petersons, Wilcox (1995). Hillis, et.al. in 1998 conducted a study on the risk of hysterectomy among sterilized than non-sterilized women in United States. He studied 7,174 sterilized women and 544 women whose husbands had undergone vasectomy. The author arrived at the conclusion that in general, the chances of being in hysterectomy are nearly 4.6 times higher among the women who had tubal sterilization compared to the women whose husbands underwent vasectomy regardless the age at sterilization. This reflects the long term health effect of sterilization upon menstrual function and the increased risk of hysterectomy. In other words, sterilization has an adverse effect on the menstrual cycle of the women, which disturbs menstrual regularity and can heighten the chances of hysterectomy.

There has been much debate about the relation of the psychiatric health associated with menopause and also about the use of estrogen preparations to treat these symptoms. Ballinger (1975) tried to screen a group of women from the general population aged 40-55 years for psychiatric illness and its relation to menstrual changes and the events and factors which possibly contribute to the emergence of symptoms while using the 60 item General Health Questionnaire in six general populations. The survey of 539 women indicated a high prevalence of minor psychiatric illness among women (29 percent). This compared with 33 percent of consecutive patients presented at a general psychiatric surgery (Goldberg and Blackwell, 1970) and 50 percent of the new patients aged 40-55 years at gynecological out patient clinic (Ballinger, 1975).

In this context, 54 percent of the respondent in the present study had minor psychiatric illness as these respondents were scored on the high score of General Health Index. Several studies have also revealed the similar findings. A study from Bangladesh concluded that women attain poor health after menopause and they assigned menopause to be the basic reason behind it (Chowdhury & Alam 2000). However, opposite to this, although not as a part of present paper, the respondents in the survey ascribed aging process to be the cause of developing poor health instead of menopause. Unawareness and lack of information lead them away from the real cause.

* 1. Institutional Delivery
2. Home delivery assisted by the skilled personals.

Various characteristics affected general health status of women. Mainly higher proportion of hysterectomized women was scaled on higher score on overall General Health Index. Abortion was also one of the major factors affecting the health of post menopausal women. Sterilization, pregnancy, delivery and post delivery complications, early age at marriage were the other variables which had adverse effect on the health of women after menopause. Therefore, it can be seen that poor health status is associated with poor reproductive health characteristics. The following narration is given by a woman regarding her sufferings and agony.

Since the last five years that I am tensed as if I am under nausea. I suffer with constipation, blood pressure and severe leucorea. It is ok in winters but in summers, it is intolerable to the extent of madness. Abortion has ruined my life. I went for abortion and family planning operation to private surgeon. The doctor denied saying that I had caesarean delivery; therefore it would not be good to go for abortion. Disagreeing with the doctor, I however, went to a government hospital and had abortion. They even performed the family planning operation. Five bottles of blood were transfused to me. The stitches suppurred. After this ordeal, the menstrual cycle got completely disturbed. It became irregular. It continued for about five years; blood transfusion became a routine. I became anaemic. My life was ruined. What to do? I did not understand. Hysterectomy followed thereafter. My mother also had the same problem. (Translated)

On the basis of the analysis and discussion, it can be said that menopause poses a big challenge to the healthy aging of a woman as it is known to alter many functions of the body. Menopause occurs at a time when women are also experiencing other life changes and responsibilities associated with the aging. The health management that women require and the diseases to which they are susceptible vary with the life stage. Segmentation of health can never lead to a healthy life. There is a need to adopt a holistic approach to health means adapting “Life Cycle Approach”. It indicates that there is a need to look beyond the perspective in terms of Providing Health Care, as maternal health not only affects health during reproductive ages, but also vibrates beyond reproduction. Foundation of disability is often laid during the initial age. Hence, RIGHT Interventions need to be focused on the earlier stages while considering the later stage of a woman’s life (FUTURE). There exists a need for cause and benefit analysis as if interventions are done while considering the future in mind, cost and benefits of the intervention will be very different and wide. Above all there is an immense need research on the various issues on the menopausal women similarly considering a very broad spectrum. Hence, this neglected area “Middle Age” should be emphasized and included in the policy documents besides the maternal health.

Therefore, strong emphasis needs to be laid on to improve medical facilities to impart better services in accordance to changing need of women. Or else, it is possible that, health problems of middle-aged women would remain out of the social focus and may even aggravate further. A multidisciplinary approach towards studying about menopause related problems needs be adopted. Hysterectomies performed across the country should be audited properly in order to trace out the unwarranted operations and put a check on them.

Acknowledgement:

I would like to thank to Prof. Rajiv Govil, Head Dept. of Economic, SM Collage Chandausi, and Dr. Ankur Sarin, Indian Institute of Management, Ahmedabad for their valuable suggestions. The Junior Research Fellowship awarded by the University Grant Commission is also acknowledged for providing the financial assistance pertaining to the research. I would also like to thank to all my respondents for their outstanding response and love.

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Table 1. Percent distribution of women aged 25-50 years by reproductive history according to type of menopause.

Characteristics	Natural Menopause	Hysterectomy	Total
Number of Pregnancies			
Less than 4	46.8	56.1	48.4
More than 4	53.2	43.9	51.6
Mean	4.8	4.7	4.8
Abortion***			
Yes	27.4	68.3	34.2
No	72.7	31.7	65.9
Mean no of A	0.5	1.1	0.6
Age at first pregnancy*			
Less than 20	28.1	43.9	30.7
20 and above	71.9	56.1	69.3
Age at last delivery+			
Less than 28	48.3	65.0	51.0
More than 29	51.7	35.0	49.0
Age at Marriage			
Less than 18	30.7	29.3	30.5
More than 18	63.9	70.7	69.5
Complication during.....			
Pregnancy**			
Serious	12.9	30.0	15.8
Other	87.1	70.0	84.2
Delivery			
Serious	16.9	25.0	18.3
Other	83.1	75.0	81.7
Post Delivery			
Serious	10.9	17.5	12
Other	89.1	82.5	88
Place of delivery **			
Home Delivery	51.7	25.0	47.3
Institutional Delivery	48.3	75.0	52.7
Type of delivery **			
Normal delivery	93.0	80.0	90.9
Caesarean delivery	7.0	20.0	9.1
Delivery conducted **			
Safely	68.2	90.0	71.8
Unsafe delivery	31.8	10.0	28.2
Had Sterilization+	28.8	43.9	31.3
Total	205	41	246

Significant Level Chi-square: *** p<.000; ** p<.01; * p<.05; + p<.10

Table 2. Impact of Reproductive Characteristics on Type of Menopause

Reproductive Characteristics	Reference Category	Exp B				
		Model 1	Model 2	Model 3	Model 4	Model 5
No of Pregnancies						
> 4	< 4	0.689				0.292*
Abortion						
Abortion	No abortion		5.731***			9.389***
Age at 1st pregnancy						
> 20	Less than 20			0.499*		0.296*
Age at last delivery						
29 and above	Less than 28				0.502+	0.905
Had Sterilization						
Yes	No				1.937+	2.283+
Age at Marriage						
> 18 years	<18 years					1.595
Religion						
Other	Hindu					1.156
Women's Education						
Literate	Non-Literate					1.048
Standard of living						
Medium	Low					1.488
High						1.097
Type of Family						
Joint	Nuclear					1.486
Constant		0.348	0.087	0.633	212.8	0.924
-2 log likelihood		220.5	197.5	217.1	0.268	173.2
Total		246	246	244	241	241
Significant Level: *** p<.000; ** p<.01; * p<.05; + p<.10						
Dependent variable: Natural Menopause (0) Hysterectomy (1)						

Table 3. Impact of various morbidities during last birth on type of menopause

Characteristics	Reference Category	Exp β			
		Model 1	Model 2	Model 3	Model 4
Complication during...					
Pregnancy					
Serious	Other	3.232**			2.816*
Delivery					
Serious	Other		1.521		1.017
Post delivery					
Serious	Other			1.783	1.573
Age of mother at birth					
More than 28	< than 28	0.449*	0.518+	0.496+	0.557
Religion					
Other	Hindu				0.978
Women's Education					
Literate	Non-Literate				1.198
Standard of living					
Medium	Low				1.632
High					1.822
Type of family					
Joint	Nuclear				1.294
Constant		0.221	211.9	0.249	0.080
-2 Likelihood		205.4	0.242	211.5	201.9
Total		241	241	241	241
Significant Level: ** p <0.01; *p <0.05; + <0.10					
Dependent variable: Natural Menopause (0) and Hysterectomy (1)					

Table 4. Impact of various delivery characteristics during last birth on type of menopause

Background characteristics	Reference Category	Exp β		
		Model 1	Model 2	Model 3
Delivery conducted...				
Safe delivery	Unsafe delivery	3.371*		3.342+
Type of delivery				
Caesarean delivery	Normal delivery		2.486+	2.261
Pregnancy Complications				
Serious	Other	2.862*	2.931*	2.533*
Age at delivery				
More than 28	Less than 28	0.521+	0.485+	0.617
Religion				
Other	Hindu			1.430
Women's Education				
Literate	Non-Literate			1.012
Standard of living				
Medium	Low			1.178
High				1.508
Type of family				
Joint	Nuclear			1.540
Constant		0.078	0.079	0.014
-2 Likelihood		202.3	199.5	194.9
Total		241	241	241
Significant Level: *p <0.05; + <0.10				
Dependent variable: Natural Menopause (0) and Hysterectomy (1)				

Table 5. Percent of women aged 27-52 years by High Score on General Health Index according to various reproductive characteristics and type of menopause

Characteristics	%	Total	Characteristics	%	Total
Age at Marriage**			Delivery Complications**		
< 18 Years	65.3	75	Serious	70.5	44
>18 Years	48.5	171	Not Serious	49.7	197
Age at First Pregnancy+			Post Delivery Complication**		
< 20 Years	61.3	75	Serious	75.9	29
> 20 Years	50.3	169	Not Serious	50.5	212
Age at Last Delivery			Type of Delivery		
< 28 Years	55.3	123	C- Section	59.1	22
> 28 Years	51.7	118	Normal Delivery	53	219
Number of Pregnancies *			Had Sterilization*		
Less than 4	45.4	119	Yes	63.6	77
More than 4	61.4	127	No	49.1	169
Abortion **			Type of Menopause**		
Yes	67.9	84	Natural Menopause	50	206
No	46.3	162	Hysterectomy	73.2	41
Pregnancy Complications**			Total	53.8	247
Serious	76.3	38			
Not Serious	49.3	203			
Chi-square Significant Level: *p <0.05; ** p <0.01; ***<0.000					

Table 6. Impact of type of menopause and reproductive characteristics on general health status of women age 25-50 years

Selected factors	Reference									
	Category	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Type of Menopause										
Hysterectomy	NM	2.727**								2.294+
Age at Marriage										
>18 Years	< 18 Years		0.474*				0.536			0.490+
>20 Years	< 20 Years		1.125				1.258			1.436
Age at Last Delivery										
>28 Years	< 28 Years		0.649				0.505+			0.540+
Gravidity										
More than 4	< than 4		1.889+				1.749			1.696
Abortion										
Yes	No		2.474**				2.677**			2.340*
Pregnancy Comp.										
Serious	Not Serious			3.319**			2.184+			2.156
Delivery Comp.										
Serious	Not Serious				2.409*		2.664*			2.871*
Post Delivery Comp.										
Serious	Not Serious					3.084*	2.493+			2.498+
Delivery was through										
C-Section	Normal D						0.980			1.028
Safe Delivery										
Yes	No						1.186			1.154
Sterilization										
Yes	No							1.813*		1.731
Age										
44-49	< than 44						1.079			1.285
Women's Education										
Literate	Non-literate						0.590**			0.595*
Religion										
Others	Hindu						1.176			1.290
Standard of Living										
Medium	Low						0.767			0.680
High							0.635			0.557
Type of family										
Non-nuclear	Nuclear						1.023			0.883
Constant		1.000	1.812	0.971	0.990	1.019	0.895	0.965	3.596	0.438
-2 Log likelihood		333.3	310.4	322.9	326.5	325.9	286.1	335.2	326.1	279.6
Number of Women		247	246	241	241	241	241	246	246	241

Significant Level: +p<.10; *p<0.05; ** p<0.01; ***<0.000

Dependent Variable: General Health Status Poor (0) Low score, (1) High Score.

Annex - 1
Specific Morbidities of Index pregnancy covered in Questionnaire

<i>Ante-partum</i> <i>(Pregnancy complications)</i>	<i>Intra-partum</i> <i>(Delivery Complications)</i>	<i>Post-partum</i> <i>complication</i>
Life threatening or serious complications		
Haemorrhage	Haemorrhage	Haemorrhage
Fits/Convulsion	Prolonged labour	High fever
Anaemia	Obstructed labour	Foul smelling discharge Convulsion
Other complications		
Swelling of hands and feet	Premature labour	Lower abdominal pain
Paleness	Breach presentation	Severe headache
Visual disturbance	Other problems	Other problems
Weakness or no moment of foetus		
Abnormal position		
Other problems		