The Effect of Cessation of Menstruation on Physical Health: A study of Indian Women

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Background

Hysterectomy is the second most frequently performed major surgical procedures on women all over the world, next only to cesarean section. Women who undergo hysterectomy face a multitude of physical and psychosocial problems both before and after the hysterectomy. The present study explores the effects of hysterectomy on the quality of life of women on selected morbidities. It was seen that all women, regardless of the circumstances that lead to the hysterectomy and the type of surgery, faced varying degrees of physical and psychosocial problems. Physical problems like vaginal dryness, soreness, etc. were reported. Hysterectomy with ovarian conservation is associated with cardiovascular risk factors, particularly obesity. Obesity may contribute to the underlying gynecologic conditions leading to hysterectomy; however, surgical selection may also play a role [1]. Hysterectomy has been associated with a higher frequency of cardiovascular risk factors, such as hypertension, hyperlipidemia, and obesity at the time of the surgery [2-6]

Menopause onset marks the end of a women's reproductive stage in life and the start of a time of permanently lowered estrogen exposure that is increasingly recognized as having significant health implications. Earlier age at onset of natural menopause (ANM) is associated with reduced risk of breast cancer [7] ovarian cancer [8] and, by contrast, with an increased risk of cardiovascular disease [9] atherosclerosis [10] stroke [11] and osteoporosis [12]. Overall, all-cause mortality is reduced by 2% with each increasing year of ANM [13, 14].

ANM appears to vary across different regions, countries, and ethnic groups; this may be due to genetic variation [15,16]. However, ANM may also reflect differences in socioeconomic position and environmental, lifestyle, reproductive, or early childhood factors [17]. Socio-economic position and lifestyle factors that may affect the timing of menopause include education, occupation, income, smoking, physical activity, and body mass index (BMI) [18]. Of these, smoking has been consistently recognized to have an association with earlier menopause [19].

Objectives

1) To assess the level and pattern of morbidities among hysterectomies and menopausal women.
2) To analyze the relationship between menstrual statuses of women with selected morbidities.

Data source and methodology: -

Data source: - Fourth round of National Family Health Survey (NFHS-IV) conducted in 2015-16 has been used to assess the objectives. NFHS is similar to DHS survey. NFHS-4 provides information on population, health, and nutrition for India and each state /union territory and District. In all, 28,586 Primary Sampling Units (PSUs) were selected across the country in NFHS-4, of which fieldwork completed in 28,522 clusters. A total of 601,509 households were successfully Interviewed, with a response rate of 98%. From the interviewed households, 723,875 eligible women age 15-49 were identified for interview. Interviews with 699,686 women were completed with a 97% response rate.

Variable Description: -

The outcome variable has made dichotomous having categories "having a hysterectomy" and "not having a hysterectomy."For menopause there, the question asked for female "When did your last menstrual period start?" from this question I have defined that women who are not menstruating more than 6 six months they are in menopause except pregnant women, hysterectomy women, never menstruating women and before last birth. Some other dependent variables were BMI, Obesity, Diabetes, Asthma, High blood pressure, Heart diseases, Thyroid, Cancer.

Independent variable

To examine the association of hysterectomy and menopause with various socio-economic, demographic factors, the covariates used in the analysis were age, education completed, occupation, marital status, place of residence, religion, caste, wealth index, age at marriage, age at first cohabitation, age at first birth, parity, occurrence of sterilization, age at sterilization, insurance status and empowerment status

Methodology

Bivariate and multivariate statistical tools have been used to find the association between dependent and Independent Variables. Further Propensity Score Matching techniques have been used to find the prevalence of different morbidities among hysterectomies women, menopausal women, and menstruating women.

4.4 Results and discussion

A plethora of literature suggests that some of the women reported improvement in their quality of life post-hysterectomy. However, some of the women reported that they face more complication after hysterectomy. Through this research work, we have found that the women who have undergone a hysterectomy, 19 percent of those women had hypertension, and 40 percent of women had prehypertension. In the case of menopausal women, the prevalence of hypertension is 20.6 percent, and the prevalence of pre-hypertension is 38 percent. In the case of menstruating women, the prevalence of

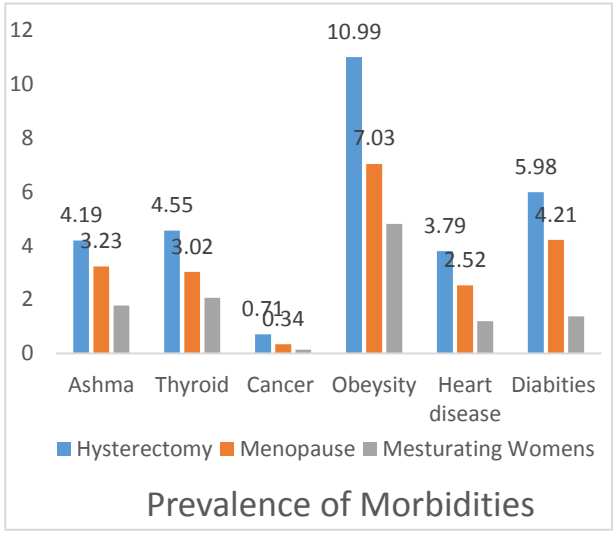

Figure 4.1 Prevalence of Morbiditoes among hysterectomies, menopausal and mensturating women (15-49

hypertension is 8.7 percent. In figure 4.1, the prevalence of different diseases such as asthma, thyroid, cancer, heart disease, and diabetes are highest in women who had undergone hysterectomy followed by menopausal and menstruating women. After adjusting the background characteristics of women, hypertension, heart diseases, obesity, and diabetes are significantly associated with hysterectomy and menopause. Women with hysterectomy were found to be 24 percent more likely to have hypertension compare to menstruating women. Women who are in menopause have 36 percent more chances to have hypertension. In the case of heart diseases, women undergone a hysterectomy are approximately two times more likely to have heart disease compare to menstruating women. Whereas in the case of menopausal women, the likelihood of developing heart disease is 3 percent more than the menstruating women. The hysterectomy is significantly associated with obesity and diabetes. Therefore, hysterectomies women have 38 percent more chances to get obesity compared to menstruating women. The chances of diabetes are approximately two times higher in hysterectomies women, and 57 percent higher in menopausal women compare to menstruating women. We have found through propensity score matching, The comparative study between women undergone hysterectomy and non- hysterectomies shows that the risk for developing diseases like Asthma, heart disease, hypertension, cancer, diabetes and thyroid increases for those who went for hysterectomy. For instance, before matching, the prevalence of heart diseases among the treated group is 4.04%, and for control group prevalence of heart disease is 1.43%. After matching, the value of ATT is 4.04 in the treatment group and 1.73 in control group, which means that if these women would not have a hysterectomy, then the prevalence of heart diseases is 1.73 percent. The value ATU was 1.43 and 6.32, which shows that women who did not have undergone hysterectomy if they chose to have a hysterectomy then the prevalence of heart diseases among them were 6.3 percent. The value of ATE reveals the actual impact of hysterectomy on heart diseases, which means because of the hysterectomy prevalence of heart disease may increase by 4.82%.

References:

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Table-1 , The effect of Hysterectomy on women's morbidity analysis through propensity score matching, NFHS-IV, 2015-16.

Variable	Sample	Treated	Controls	Difference	S.E.	T stat
Heart Disease						
	Unmatched	4.0351556	1.4344293	2.6007263	0.000915796	28.4
	ATT	4.0351556	1.7301421	2.3050135	0.009158588	2.52
	ATU	1.4371338	6.3252374	4.8881037	.	.
	ATE			4.8202601	.	.
Hypertension						
	Unmatched	19.8502304	9.9093925	9.9408379	0.002321533	42.82
	ATT	19.8502304	17.7937788	2.0564516	0.027011874	0.76
	ATU	9.9591033	11.6535961	1.6944928	.	.
	ATE			1.7040816	.	.
Diabetes						
	Unmatched	4.9891298	1.2880969	3.7010329	0.000882873	41.92
	ATT	4.9891298	2.1740342	2.8150956	0.012609542	2.23
	ATU	1.2977197	3.6100969	2.3123772	.	.
	ATE			2.3255984	.	.
Thyroid						
	Unmatched	4.3855768	1.8431104	2.5424664	0.001030755	24.67
	ATT	4.3855768	2.5329057	1.8526712	0.012426812	1.49
	ATU	1.851291	3.6100846	1.7587936	.	.
	ATE			1.7612596	.	.
Cancer						
	Unmatched	0.5745222	0.1260104	0.4485118	0.000279199	16.06
	ATT	0.5745222	0.2154458	0.3590763	0.002539711	1.41
	ATU	0.1268349	3.2039598	3.0771249	.	.
	ATE			3.0057194	.	.
Asthma						
	Unmatched	3.4377936	1.559047	1.8787466	0.00094722	19.83
	ATT	3.4377936	2.7469187	0.6908749	0.010353022	0.67
	ATU	1.563762	1.8999395	0.3361775	.	.
	ATE			0.3454896	.	.