

Quality of Life After Hysterectomy for Benign Gynecological Diseases at MOI Teaching and Referral Hospital (MTRH), Kenya

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ABSTRACT

Background: Hysterectomy is one of the most frequent gynecological surgeries performed on women and has been associated with significant risk of morbidity, lower quality of life and poor health outcomes. Approximately 20-45% of women will have a hysterectomy by the time they are between 60-70 years of age. Hysterectomy has an effect on the quality of life of the patient though not documented at MTRH.

Objective: To assess quality of life after hysterectomy for benign gynecologic conditions.

Methods: In this hospital-based prospective cohort study, 76 women admitted for elective hysterectomy for benign conditions were systematically sampled and followed up for 6 months. Questionnaire was administered to obtain patient demographics. European Quality of Life Five dimension scale (EQ-5D) and McCoy female sexuality questionnaire (MFSQ) were administered to collect information on health status and sexual function before and after hysterectomy. Health status was converted into a single score using time trade off (TTO) valuation. Wilcoxon signed rank test was used to compare pre- and postoperative values.

Result: Mean age of hysterectomy was 45.2 years with standard deviation (SD) of 8.2. Majority 61 (81.3%) had BMI range of 18.5-24.9, the mean parity was 4.0 with SD 2.4. Mean EQ5D TTO score was 0.69 and 0.91 at baseline and at 6 months respectively with significant change in mean at 6 months ($p < 0.001$). Mean MFSQ score was 20.73 at baseline compared to 29.23 at 6 months with significant change in mean at 6 months ($p < 0.001$). Age was significantly associated with sexual function at 6 months especially sexual enjoyment ($p = 0.018$) and natural vaginal lubrication ($p = 0.025$).

Conclusion: Majority of hysterectomies at MTRH were done on multipara women with normal BMI. There was significant improvement in quality of life after hysterectomy at 6 months.

Keywords

Hysterectomy, Quality of life.

Introduction

Hysterectomy is defined as surgical removal of uterus. The use of hysterectomy as treatment option occur in all age groups with a peak rate occurring for women between ages of 40 and 44 years [1]. A retrospective study done in Dutch hospitals by analyzing registries over a 10 year period showed that the average annual crude hysterectomy rate for benign diseases only was 17.2 per 10,000 women of all ages [2].

Hysterectomy has an effect on the quality of life of the patient. Few studies have looked at the duration to return to normal activities, patient satisfaction, sexual dysfunction and quality of life after hysterectomy. A study done in Malaysia showed majority (42.4%) reported return to normal activities within two to 4 months after surgery while 34% of the study participants were able to return to their normal daily activities within one month [3]. A study reported that quality of sexual intercourse was improved in 30% of patients irrespective of surgical route but was found to reduce in approximately 20% of those who underwent laparoscopic assisted vaginal hysterectomy [4]. Wong et al. reported a decrease in sexual

intercourse frequency in 72.4% of respondents and 25.4% reported no change in sexual activity [3].

Even though detailed counseling about effects of hysterectomy on postoperative sexuality and health status is regarded as an integral part of pre-operative counseling, available data on the subjects are limited and contradictory [5]. This is further compounded by paucity of data in Sub-Saharan Africa and Kenya specifically. Thus, the objective of the study was to find out the quality of life after hysterectomy for benign diseases at MTRH, Kenya.

Materials and Methods

The study was carried out at Moi Teaching and Referral Hospital (MTRH), a referral hospital in Western region of Kenya. The study design was a prospective cohort whereby 76 women admitted for elective hysterectomies were systematically sampled and recruited on admission and followed-up till operation was done and discharged. Telephone follow-up was done at 6 months to evaluate on health status and sexual function after hysterectomy. Data collection was done between February 2017 and August in the general and private wings of MTRH. An interviewer administered questionnaire, medical outcome European Quality of life Five Dimension scale (EQ5D) and McCoy Female Sexuality Questionnaire (MFSQ) were administered before surgery to determine health-related quality of life and sexual function respectively [6,7]. Change in health related QoL and sexual function was evaluated by administering medical outcome EQ-5D and MFSQ again at 6 months after surgery. Recruitment flow chart is as shown in figure 1 below. Data collected using ED-5D was presented from descriptive system as a health profile. The health profile was presented as a table with a frequency/proportion of reported problems for each level for each dimension. The tables were analyzed to include the proportions before and after treatment. We further converted EQ-5D health states recorded in 5 digit code e.g 11111 indicating no problem in any of the 5 dimensions, to a single summary index score by applying the time trade-off (TTO) valuation technique [EQ-5D score: range; 1 (full quality of life) to -0.171 (worst health status)]. Wilcoxon signed rank test was used to compare pre- and postoperative values [8]. The study commenced after getting ethical approval from Moi University/MTRH Institutional Research Ethics Committee (IREC). A consent form explaining the rationale, benefits and risks of the study was used to seek informed consent from potential participants.

Results

The mean age of 75 participants who underwent of hysterectomy was found to be 45.2 years with standard deviation (SD) of 8.2. The median age was found to be 45.0; the most frequent grouping was between ages of 40-49 years at 34 (45.3%). The participants' parity ranged from 0 to 9, with mean 4.0 and median of 4.0 children.

BMI was analyzed according to WHO classification of underweight (<18.5), normal (18.5-24.9), overweight (25.0-29.9) and obese (>30.0). BMI characteristics showed majority of women had normal BMI at 61(81.3%) overweight 8(10.7%), underweight

5(6.7%) and obese participants were 1(1.3%). Most study participants were married, with primary education, unemployed with spouse as the source of financial support as shown in table 1.

Health status after hysterectomy

Majority of participants 47(62.7%) reported no problem walking about while the rest reported presence of problems walking about albeit at different severity. At 6 months after surgery, all respondents (69) reported no problem with self-care, an improvement from 54 (72.0%) at baseline in the same dimension.

Results from analysis of responses of performance of usual activities showed 50 (66.7%) reported some problems performing usual activities but at 6 months while 51(73.0%) reported no problems with performing usual activities at 6 months after hysterectomy.

Approximately seventy four percent reported no pain or discomfort 6 months after hysterectomy compared to 9 (12.0%) who had reported no pain before operation. Majority of participants reported being moderately anxious or depressed before surgery while at 6 months after hysterectomy 63(91.3%) reported not anxious or depressed. The following two tables show summary presentation of descriptive statistics of EQ5D at baseline and 6 months after hysterectomy.

Time trade off (TTO) valuation technique was applied to obtain a single index score for EQ5D for each patient pre- and post-hysterectomy. Descriptive analysis was done and results showed mean \pm SD values of EQ5DTTO at baseline and at 6 months were 0.69 ± 0.20 and 0.91 ± 0.06 respectively. The median score was 0.77 at baseline and 0.91 at 6 months. Wilcoxon signed ranks test was used to compare the EQ5DTTO mean score at baseline and at 6 months. Results showed significant difference in the mean EQ5DTTO score at baseline and at 6 months ($p < 0.001$).

Results showed age, and BMI were not significantly associated with health status at 6 months while presence of comorbidities was significantly associated with mobility ($p = 0.014$) and anxiety ($p = 0.015$) in the EQ5D but not in other dimensions and overall EQ5DTTO score. Further analysis using logistic regression to determine correlation between comorbidities as an independent factor and health status showed no association due to confounding factors.

Sexual function after hysterectomy

The finding showed most participants report infrequent sexual activity at baseline 39(52.0%) but at six months more participants reported frequency of sexual activity being just right 48 (64.0%).

At baseline sexual thoughts or fantasies were experienced rarely by a large number of patients but at 6 months majority reported sexual fantasies or thoughts at least once a week 24 (32.0%).

On sexual enjoyment, more women reported that sex was not at all enjoyable 26 (34.7%) at 6 months more women reported sex being moderately enjoyable 27 (36.0%).

Variables		No.	%
Age (years)	<45 years	34	45.3%
	45-54 years	31	41.3%
	>54 years	10	13.3
Min. – Max		28.0 – 76.0	
Mean ± SD		45.15 ± 8.18	
Median		45.0	
Parity	Min. – Max	0.0 – 9.0	
	Mean ± SD	4.03 ± 2.35	
	Median	4.0	
BMI	<18.5	5	6.7
	18.5-24.9	61	81.3
	25-29.9	8	10.7
	>30	1	1.3
Marital status	Single	6	8.0
	Married	61	81.3
	Others (cohabiting, divorced, separated)	8	10.7
Highest level of education	Primary	36	48.0
	Secondary	25	33.3
	Tertiary	10	13.3
	Others specify	4	5.3
Are you employed	Yes	18	24.0
	No	57	76.0
If not, source of income (n = 57)	Parents	3	5.3
	Spouse	38	66.7
	Boyfriend	0	0.0
	Others (specify)	16	28.1

Table 1: Demographic characteristics.

European Quality of Life Five Dimension Scale (EQ5D)		EQ5D Baseline		EQ5D Six Months	
		N	%	N	%
Mobility	No problem walking about	47	62.7	68	90.7
	Problems walking about	27	36.0	1	1.3
	Confined to bed	1	1.3	0	0.0
	Not applicable	0	0.0	6	8.0
Self-care	No problems with self-care	54	72.0	69	92.0
	Some problems with washing or dressing myself	18	24.0	0	0.0
	Unable to wash or dress myself	3	4.0	0	0.0
	Not applicable	0	0.0	6	8.0
Usual activities(e.g. work, study, housework, family or leisure activities)	No problems with performing usual activities	9	12.0	51	68
	Some problems with performing usual activities	50	66.7	17	22.7
	Unable to perform usual activities	16	21.3	1	1.3
	Not applicable	0	0.0	6	6
Pain/discomfort	No pain or discomfort	9	12.0	38	50.7
	Moderate pain or discomfort	50	66.7	30	40.0
	Extreme pain or discomfort	16	21.3	1	1.3
	Not applicable	0	0.0	6	8.0
Anxiety/depression	Not anxious or depressed	10	13.3	63	84.0
	Moderately anxious or depressed	50	66.7	6	8.0
	Extremely anxious or depressed	15	20.0	0	0.0
	Not applicable	0	0.0	6	8.0

Table 2: EQ5D at baseline.

	Min. – Max.	Mean ± SD	Median
EQ5DTTO score baseline (n=75)	0.0 – 0.95	0.69 ± 0.20	0.77
EQ5DTTO score 6month (n=69)	0.61 – 0.95	0.91 ± 0.06	0.91

Table 3: Descriptive analysis of EQ5DTTO scores at baseline and at 6 months.

	Baseline	6 months	Z	p
EQ5DTTO score	Min. – Max.	0.0 – 0.95	6.785*	<0.001*
	Mean ± SD.	0.69 ± 0.20		
	Median	0.77		

Table 4: Comparison between EQ5d TTO score at baseline and 6 months.

Z, p: Z and p values for Wilcoxon signed ranks test for comparing between baseline and 6 months. *: Statistically significant at p ≤ 0.05.

Comorbidities		Diabetes mellitus (n=1)		Hypertension (n=6)		Others (n=2)		None (n=60)		χ ²	MCp
		No	%	No	%	No	%	No	%		
Mobility 6 mon	No problem walking about	0	0.0	6	100.0	2	100.0	60	100.0	13.356*	0.014*
	Problems walking about	1	100.0	0	0.0	0	0.0	0	0.0		
Selfcare 6 mon	No problem with self-care	1	100.0	6	100.0	2	100.0	60	100.0	-	-
Usual Activities 6 mon	No problems with performing usual activities	0	0.0	4	66.7	1	50.0	46	76.7	13.489	0.078
	Some problems with performing usual activities	1	100.0	1	16.7	1	50.0	14	23.3		
	Unable to perform usual activities	0	0.0	1	16.7	0	0.0	0	0.0		
Painor Discomfort 6 mon	No pain or discomfort	0	0.0	5	83.3	2	100.0	31	51.7	9.525	0.273
	Moderate pain or discomfort	1	100.0	1	16.7	0	0.0	28	46.7		
	Extreme pain or discomfort	0	0.0	0	0.0	0	0.0	1	1.7		
Anxiety 6 mon		0	0.0	4	66.7	2	100.0	57	95.0	10.648*	0.015*
Not anxious or depressed		1	100.0	2	33.3	0	0.0	3	5.0		
Moderately anxious or depressed		0	0.0	4	66.7	2	100.0	57	95.0		

Table 5: Relationship between presence of comorbidities and EQ5D at 6 months.

χ²: Chi square test; MC: Monte Carlo. p: p value for association between Comorbidities and quality of life. *: Statistically significant at p ≤ 0.05.

	1		2		3		4		5		6		7		Not applicable	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Frequency of sexual activity	11	14.7	4	5.3	5	6.7	48	64.0	1	1.3	0	0.0	0	0.0	6	8.0
Sexual thoughts or fantasies during the month	4	5.3	6	8.0	24	32.0	22	29.3	13	17.3	0	0.0	0	0.0	6	8.0
Enjoyment of sex for you	3	4.0	3	4.0	3	4.0	27	36.0	23	30.7	6	8.0	1	1.3	9	12.0
Sexual arousal or excitement	4	5.3	4	5.3	7	9.3	27	36.0	19	25.3	4	5.3	1	1.3	9	12.0
Orgasm during sex	7	9.3	4	5.3	8	10.7	30	40.0	15	20.0	3	4.0	2	2.7	6	8.0
Natural vaginal lubrication during sex	2	2.7	3	4.0	0	0.0	52	69.3	9	12.0	1	1.3	0	0.0	8	10.7
Pain during intercourse	0	0.0	0	0.0	0	0.0	4	5.3	3	4.0	5	6.7	57	76.0	6	8.0

Table 6: MFSQ statistics at 6 months.

	Min. – Max.	Mean ± SD.	Median.
MFSQ score baseline (n=75)	5.0 – 43.0	20.73 ± 7.64	21.0
MFSQ score 6month (n = 69)	11.0 – 39.0	29.23 ± 6.71	31.0

Table 7: Descriptive analysis of MFSQ scores at baseline and 6 months.

	Baseline	6 months	Z	P
MFSQ score	Min. – Max.	5.0 – 43.0	6.547*	<0.001*
	Mean ± SD.	20.73 ± 7.64		
	Median	21.0		

Table 8: Comparison between MFSQ score at baseline and at 6 months.

Z, p: Z and p values for Wilcoxon signed ranks test for comparing between baseline and 6 months *: Statistically significant at $p \leq 0.05$.

	Age (years)	30-39 (n = 16)		40-49 (n = 31)		50-59 (n = 20)		≥ 60 (n = 2)		χ^2	MCp
		No.	%	No.	%	No.	%	No.	%		
Are you satisfied with your present frequency of sexual activity	1 too infrequent	2	12.5	4	12.9	4	20.0	1	50.0	13.748	0.325
	2	0	0.0	1	3.2	2	10.0	1	50.0		
	3	1	6.3	3	9.7	1	5.0	0	0.0		
	4 frequency just right	13	81.3	22	71.0	13	65.0	0	0.0		
	5	0	0.0	1	3.2	0	0.0	0	0.0		
How many times a day have you had sexual thoughts or fantasies during the month	1 never	0	0.0	2	6.5	1	5.0	1	50.0	12.379	0.363
	2	0	0.0	3	9.7	2	10.0	1	50.0		
	3 once a week	6	37.5	11	35.5	7	35.0	0	0.0		
	4	6	37.5	8	25.8	8	40.0	0	0.0		
	5 once a week	4	25.0	7	22.6	2	10.0	0	0.0		
How enjoyable is sex for you?	1 Not at all enjoyable	0	0.0	2	6.5	1	5.0	0	0.0	30.964*	0.018*
	2	0	0.0	1	3.2	0	0.0	2	100.0		
	3	0	0.0	1	3.2	2	10.0	0	0.0		
	4 Moderately enjoyable	7	43.8	8	25.8	12	60.0	0	0.0		
	5 once a week	5	31.3	14	45.2	4	20.0	0	0.0		
	6	2	12.5	4	12.9	0	0.0	0	0.0		
	7 Extremely enjoyable	1	6.3	0	0.0	0	0.0	0	0.0		
N/A	1	6.3	1	3.2	1	5.0	0	0.0			
How often during sex do you feel aroused or excited (for instance, increased heart beat/flushing/vaginal wetness/heavy breathing)	1 Not at all enjoyable	0	0.0	2	6.5	1	5.0	1	50.0	22.994	0.326
	2	1	6.3	0	0.0	2	10.0	1	50.0		
	3	0	0.0	4	12.9	3	15.0	0	0.0		
	4 Moderately enjoyable	7	43.8	14	45.2	6	30.0	0	0.0		
	5 once a week	5	31.3	8	25.8	6	30.0	0	0.0		
	6	2	12.5	1	3.2	1	5.0	0	0.0		
	7 Extremely enjoyable	0	0.0	1	3.2	0	0.0	0	0.0		
N/A	1	6.3	1	3.2	1	5.0	0	0.0			

Table 9: Relation between Age (years) and sexual function (n = 75).

	Age (years)	30-39 (n = 16)		40-49 (n = 31)		50-59 (n = 20)		≥ 60 (n = 2)		χ^2	MCp
		No.	%	No.	%	No.	%	No.	%		
How often do you have orgasm during sex	Never	0	0.0	3	9.7	3	15.0	1	50.0	17.931	0.451
	2	1	6.3	2	6.5	1	5.0	0	0.0		
	3	0	0.0	5	16.1	2	10.0	1	50.0		
	4 about half time	9	56.3	13	41.9	8	40.0	0	0.0		
	5	4	25.0	5	16.1	6	30.0	0	0.0		
	6	1	6.3	2	6.5	0	0.0	0	0.0		
	7 every time	1	6.3	1	3.2	0	0.0	0	0.0		
How would you describe your natural vaginal lubrication (wetness) during sex	1 absent	0	0.0	1	3.2	1	5.0	0	0.0	23.878*	0.025*
	2	1	6.3	0	0.0	0	0.0	2	100		
	4 adequate	14	87.5	23	74.2	15	75.0	0	0.0		
	5	1	6.3	6	19.4	2	10.0	0	0.0		
	6	0	0.0	0	0.0	1	5.0	0	0.0		
N/A	0	0.0	1	3.2	1	5.0	0	0.0			

How often do you suffer from pain during intercourse?	4 about half time	0	0.0	2	6.5	1	5.0	1	50.0	16.867*	0.015*
	5	0	0.0	0	0.0	2	10.0	0	0.0		
	6	2	12.5	1	3.2	2	10.0	0	0.0		
	7 never	14	87.5	28	90.3	15	75.0	0	0.0		

Table 10: Relation between Age (years) and sexual function (n = 75) "continue".

χ^2 : Chi square test; MC: Monte Carlo. p: p value for association between Age (years) and quality of life*: Statistically significant at $p \leq 0.05$.

	Sig.	AOR	95% CI	
			LL	UL
Age	0.012*	1.119	1.025	1.221
Parity	0.614	0.932	0.710	1.225
BMI	0.438	1.585	0.495	5.073
Level of education	0.161	0.629	0.329	1.203

Table 11: Multivariate logistic regression for Sexual enjoyment.

AOR: Adjusted Odds ratio CI: Confidence interval LL: Lower limit UL: Upper Limit.

Sexual arousal/excitement improved after hysterectomy with 36.0% (27) reporting moderately excited at 6 months after hysterectomy compared to 24.0% (18) before surgery.

Majority of women, 74 (98.7%), experienced orgasm less than half the time but the number reduced to 49 (65.0%) at 6 months. Natural vaginal lubrication was reported adequate by 36 (48.0%) and 52 (69.3%) at baseline and 6 months respectively.

Pain during intercourse was experienced by more than half of participants at varying frequency at baseline but 57 (76.0%) reported no pain during intercourse at 6 months after surgery. The mean \pm SD values of MFSQ at baseline and at 6 months were 20.7 ± 07.6 and 29.2 ± 6.7 respectively. The median score was 21.0 at baseline and 31.0 at 6 months. Table below shows presentation of descriptive analysis of MFSQ at baseline and at 6 months.

There was significant difference in the mean MFSQ score at baseline and at 6 months ($p < 0.001$). Age was found to be a significant factor in sexual enjoyment (OR 1.099, 95% CI 1.020-1.184), natural vaginal lubrication (OR 1.129, 95% CI 1.006 - 1.267) and pain during intercourse (OR 1.079, 95% CI 0.995 - 1.170) but was noted to have no significant association with other domains of sexual function including: sexual frequency, sexual fantasy, orgasm and excitement.

BMI was not associated with sexual function in all domains and overall MFSQ score at 6 months post hysterectomy.

Discussion

The principal finding was significant improvement in health status at 6 months in women undergoing hysterectomy at MTRH. This might be explained by complete cessation of symptoms and associated signs that come with removal of uterus. The effect of comorbidities on presence of anxiety and mobility dimensions at 6 months was affected by confounding factors.

Other observational studies from Rocheste epidemiology database

	Sig.	OR	95% CI	
			LL	UL
Age	0.046*	1.128	1.002	1.271
Prior surgery	0.946	0.915	0.069	12.046
Comorbidities	0.817	0.903	0.380	2.147

Table 12: Multivariate logistic regression for presence of natural lubrication.

OR: Odds ratio CI: Confidence interval LL: Lower limit UL: Upper Limit.

had similar suggestion in quality of life after hysterectomy and that improvement last up to 10 years. Though our findings were based on short term outcomes of hysterectomy, there are concerns of lifetime risk modification for morbidities and mortalities from other causes [9]. Randomized controlled trial to investigate effect of hysterectomy vs medical treatment on health related quality of live and sexual function was done. The result of our study was in agreement with RCT results that showed improvement of health related quality of life after 6 months among women who underwent hysterectomy as compared to expanded medical treatment [10].

World over, application of selection criteria for patients undergoing hysterectomy should result in improvement of quality of life after surgery. Carrying out risk vs benefit ratio ought to be done individually by the patient and her health practitioner to optimize benefits. This has been demonstrated in patient self-reported outcomes of hysterectomy in which it revealed high levels of patient satisfaction [11].

Older people reported more problems on all dimensions but the effect of age was not significant. This was in contrast results of cross-sectional study of 180 women who were selected by random sampling 3 months after hysterectomy. In this study, mean quality of life score, based on Ferrans and powers quality of life index, for pre-menopausal and post-menopausal was 12.5 and 11.4 respectively and was significantly different among the age groups ($p = 0.003$). Furthermore, low quality of life was noted after hysterectomy particularly for social and psychological aspects in premenopausal women [12].

The strength of this finding was the use of a standardized tool to collect data with ease of administration. This provided complete and accurate responses which were more objective. However, there was a possibility of response bias based on similarities of questions asked at baseline and at 6 months. This favorable benefit of hysterectomy in improving health status gives clinician basis to provide surgical options to women with gynecological conditions. This result can be applied in other set ups because of universality

of the health dimensions.

The significant improvement in sexual function in all domains with overall improvement in MFSQ score might be explained by cessation of symptoms after hysterectomy with no risk of pregnancy upon removal of uterus. The study findings also showed that the risk of experiencing pain during intercourse at 6 months post hysterectomy was increased 1.079 times by increasing age.

It has been postulated that hysterectomy could affect sexual function due to psychological factors, and also due to disruption of the local nerve and blood supply and the intimate anatomical relationships of the pelvic organs.

Systematic review of literature showed majority of women demonstrated either unchanged or improved sexual function after hysterectomy by any route in the short term but deterioration in sexual function in the long-term follow-up, which was probably an effect of aging and bilateral salpingoophorectomy. Other reviews made a conclusion that hysterectomy may be beneficial for sexual functioning especially for large fibroids but bilateral salpingoophorectomy may cause insufficient vaginal lubrication and reduced libido [13].

The major limitation of our study was the risk of bias in responding to the questionnaire. Similar questionnaire was administered at baseline and at 6 months with risk of remembering the previous responses. Nonetheless, this information may be used during preoperative counselling about the potential effect on sexual outcome after hysterectomy with potential to improve satisfaction with surgery regardless of outcome. Application of this finding in other settings may pose a challenge especially in high income countries where differences in cultures particularly on sexuality exists.

Conclusion

There was significant improvement in quality of life at 6 months after hysterectomy both in sexual function and health status. Thus, hysterectomy is beneficial to women who require the surgery albeit in the short term.

Recommendation

Patients should be informed that they can generally expect their sexual and health status to improve after an indicated hysterectomy compared with the preoperative situation.

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