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03 (63) 2022 : 001-006 • RESEARCH ARTICLE

Assessment of quality of life and psychological impact of Hysterectomy in postmenopausal women: A Prospective Cohort Study

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SUMMARY

AUTHORS' CONTRIBUTION: (A) Study Design · **(B)** Data Collection. **(C)** Statistical Analysis · **(D)** Data Interpretation · **(E)** Manuscript Preparation · **(F)** Literature Search · **(G)** Funds Collection

Background: Hysterectomy is a common surgical procedure used to treat benign gynecological conditions. Nonetheless, there is a lack of research regarding its effects on psychological health and overall quality of life (QoL) in Arab nations. This study aimed to evaluate the psychological effects and QoL both prior to and following hysterectomy for non-cancerous diseases.

Methodology: This prospective cohort study included postmenopausal women having abdominal or vaginal hysterectomies for non-cancerous conditions at a private tertiary hospital in Riyadh, Saudi Arabia. The study took place from January 1, 2021, to December 31, 2021. We utilized the Short-Form-36 Health Survey (SF-36) to assess quality of life (QOL) and the Hospital Anxiety and Depression Scale (HADS) to evaluate psychological outcomes both before the surgery and six months postoperatively.

Results: A total of twenty patients who had undergone hysterectomy participated in the study. After the hysterectomy, there were significant enhancements in quality of life (QoL) and psychological results in every area examined, whether the surgery was abdominal or vaginal. The average Hospital Anxiety and Depression Scale (HADS) score for anxiety fell from 12.4 to 8.6 post-surgery, and for depression, it decreased from 14.4 to 9.2 additionally, the median score for the SF-36 health survey surged from 30.6 to 69.2 No statistically significant differences were found between the two groups regarding any of the outcomes evaluated.

Conclusions: Our research shows that different routes of hysterectomy positively affect patients' psychological well-being, significantly reducing anxiety and depression while improving overall quality of life.

Keywords: Hysterectomy; Anxiety; Depression; Quality of life

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Word count: 2781 **Tables:** 04 **Figures:** 00 **References:** 16

Received: 04.07.2022, Manuscript No. gpmp-25-164787; **Editor assigned:** 05.07.2022, PreQC No. P-164787; **Reviewed:** 14.07.2022, QC No. Q-164787; **Revised:** 20.07.2022, Manuscript No. R-164787; **Published:** 30.07.2022

INTRODUCTION

A hysterectomy is a surgical procedure that entails the removal of the uterus and is recognized as the most prevalent gynecological surgery worldwide. This procedure is commonly performed to address benign gynecological conditions such as abnormal uterine bleeding, uterine prolapse, or fibroids, affecting approximately 30% of women by the time they reach 60 years of age, totaling around 590,000 procedures each year in the United States. Hysterectomies can be conducted using various methods: an abdominal hysterectomy requires an incision in the lower abdomen to extract the uterus, while a vaginal hysterectomy removes it through the vagina without any abdominal incisions [1].

Quality of Life (QoL) is a vital outcome in medical and nursing research, encompassing an individual's subjective well-being influenced by cultural, personal, and psychological factors, emphasizing that well-being includes emotional and social dimensions, not just physical health [2].

Hysterectomy significantly affects women's quality of life across physical, psychological, environmental, and social dimensions. Women may adjust to changes in diet, health guidelines, and community involvement after the procedure. Personal beliefs about strength and resilience are essential for building self-esteem, and many find support from friends and family during this transition [3-5]. A hysterectomy is believed to lead to depression due to the perceived loss of feminine identity, strength, and self-worth, along with feelings of deformation, mutilation, and grief [6,7].

Different studies handled the routes of hysterectomy (abdominal. Vaginal or laparoscopic) and its effect on the quality of life and the psychological state of the patients [8,9]. Our study aimed to compare the quality of life and psychological health after abdominal or vaginal hysterectomy in postmenopausal women.

PATIENTS AND METHODS

This longitudinal cohort study included women aged 60 years and older who were undergoing hysterectomy for non-cancerous conditions at a private tertiary hospital in Riyadh, Saudi Arabia. The study was carried out from January 1, 2021, to December 31, 2021. Ethical committee

approval was obtained from the IRB under reference 38/2020. All protocols adhered to the Declaration of Helsinki, and every participant gave written consent to take part in the research. We utilized the Short-Form-36 Health Survey (SF-36) to assess Quality of Life (QOL) and employed the Hospital Anxiety and Depression Scale (HADS) to evaluate psychological outcomes both before the operation and six months afterward.

Participants were excluded if they had any significant cognitive impairment (MMSE) less than 24 or any prior psychiatric issues, such as major depressive disorder, anxiety disorders, bipolar disorder, schizophrenia, or sexual disorders. Additionally, those undergoing hysterectomy for any malignant reasons or with a pathological diagnosis of gynecological cancer were also excluded.

Surgical procedures

Each patient underwent a thorough clinical evaluation, which included a detailed medical history, physical examination, and gynecological ultrasound conducted by consultants. The potential risks associated with surgery were communicated to every patient, and alternatives to hysterectomy were explored for all cases. Before surgery, all patients received a preoperative assessment that included routine laboratory tests and an evaluation for anesthesia. The choice of hysterectomy type, either abdominal or vaginal, was determined based on uterine size or the patient's preferences. All patients were administered general anesthesia, and gynecological consultants performed the surgeries. Postoperative care involved thromboprophylaxis, a single dose of preventive antibiotics, and appropriate pain management.

All the surgical specimens were sent for histopathological diagnosis to ensure the benign nature of the disease.

Assessment methods

All participants underwent an extensive geriatric evaluation, which included a thorough medical history and physical examination. Anxiety, depression, and quality of life were assessed both before and six months after surgery, using two validated Arabic questionnaires. The Hospital Anxiety and Depression Scale (HADS) is a 14-item tool designed for screening anxiety and depression. This self-assessment questionnaire consists of two sub-scales, each scoring from 0 to 21, resulting in a maximum combined score of 42. It assesses the patient's condition over the preceding week. The score interpretation for each sub-scale is as follows: a score ranging from 0 to 7 indicates the absence of anxiety and/or depressive disorders; scores from 8 to 10 are considered ambiguous; and scores from 11 to 21 suggest that anxiety and/or depressive disorders are present. The cumulative score from both sub-scales is analyzed as follows: a total score from 0 to 14 signifies no anxiety or depressive disorders, whereas a score ranging from 15 to 42 indicates the presence of anxiety and depressive disorders. The HADS depression sub-scale (HADS-D) is often utilized for identifying depression in patients who have medical conditions.

The meta-analysis conducted by Wu et al. assessed the accuracy of the HADS-D, revealing that at a cut-off score of 7 or greater, the combined sensitivity and specificity were optimized across 101 studies (82%, 78%). The sensitivity and specificity for a HADS-D cut-off score of eight or above were 74% and 84%, respectively, while for a cut-off score of 11 or more, they were 44% and 95%. In terms of anxiety screening, for the cut-off point of $\geq$8 across seven studies, the pooled sensitivity was 0.78 (0.68-0.85) and the pooled specificity was 0.74 [10].

We employed the Short Form-36 Health Survey (SF-36) to evaluate quality of life (QoL). Originating in 1992, the SF-36 is a highly regarded and dependable instrument for assessing health perceptions and is well-received by patients while meeting strict reliability and validity criteria. The survey consists of 36 questions that cover the previous month and are categorized into eight dimensions: physical activity, social relationships, physical pain, perceived health, vitality, limitations due to psychological factors, physical limitations, and mental health. Scores for each dimension range from 0 (indicating severely impaired QoL) to 100 (indicating optimal QoL). The overall score is the average of the eight dimension scores, with values under 30 reflecting poor QoL, scores between 30 and 60 suggesting average QoL, and scores above 60 signifying good QoL [11,12].

Statistical analysis

Data entry and analysis were conducted using SPSS version 20 (IBM Corp., NY, USA). Qualitative variables were described by frequencies (%), while quantitative variables were examined for distribution via skewness, kurtosis, and normality tests (Shapiro-Wilk, Kolmogorov-Smirnov, and Anderson-Darling). Means and standard deviations characterized normally distributed variables, while medians and interquartile ranges were used otherwise. Pearson's chi-square test assessed associations between categorical variables, with Fisher's test as an alternative. For qualitative and quantitative variable associations, Student's t-test and Mann-Whitney test were used, respectively; also Paired sample t-test and Wilcoxon Signed-Rank Sum test of significance was used when comparing between related samples. The significance level was set at $p = 0.05$.

RESULTS

A total of thirty patients were evaluated for their eligibility. From this group, ten women were excluded for various reasons: four had prior psychiatric disorders, another four had not engaged in sexual activity during the six months preceding the study, and two women opted out of participation. Consequently, we included 20 participants, which were split into two equal groups of 10: one group undergoing abdominal hysterectomy and the other undergoing vaginal hysterectomy.

Tab. 1. displays the demographic and clinical features of the patients. All patients had reached menopause, with an average age of 65.2 ±2.8 years. Every patient was married, with an average marriage length of 40.5 years. Twelve patients suffered from Diabetes and hypertension (60%), four patients (10%) had no medical disorder, and the primary reason for undergoing vaginal hysterectomy was uterine prolapse. In contrast, the main reasons for abdominal hysterectomies were postmenopausal bleeding attributed to atrophic endometritis or

Tab. 1. Demographic and clinical criteria of the participating patients.

Characteristics	Number	Percentage (%)
Lifestyle habits		
Tobacco	4	20%
Regular physical activity	5	15%
Alcohol	0	0%
Body mass index		
Underweight	1	5%
Normal	10	50%
Overweight	5	25%
Obese	4	20%
Obstetrical history		
Nulligravid	2	10%
Nulliparous	2	10%
Cesarean section	4	20%
Vaginal delivery	16	80%
History of forceps or ventouse delivery extraction	6	30%
Preoperative clinical signs		
Postmenopausal uterine bleeding	10	50%
Mass protruding from the vulva	6	30%
Sense of heaviness on straining	4	20%
Surgical indications		
Endometrial hyperplasia	3	15%
Uterine prolapses	10	50%
Fibroid uterus	1	5%
Atrophic endometritis	6	30%
Type of surgery		
Total hysterectomy	10	50%
Vaginal hysterectomy	10	50%

endometrial hyperplasia. No intraoperative complications were recorded in 20 patients. However, one patient who underwent an abdominal hysterectomy developed a postoperative surgical site infection, which was treated conservatively with antibiotics and regular dressing changes.

Tab. 2. illustrates the average HADS scores, indicating a significant reduction in anxiety (decreasing from 12.4 to 8.6) and depression (falling from 14.4 to 9.2) post-surgery. Furthermore, there was a notable rise in the median scores across the SF-36 domains, with the overall median SF-36 score increasing from 30.6 to 69.2.

Tab. 2. Comparison between preoperative and postoperative SF-36 domains and HADS scores in both groups.

Scales	Preoperativescores, n = 20		Postoperativescores, n = 20		Test value	p-value
	Median	Range	Median	Range		
SF-36 (overall)	31.5	21.0-39.3	71.3	42.8-82.0	16.087	0.00012*
Physical activity	62.1	45.3-74.2	82.4	61.8-103.0	8.042	0.00082*
Perceived health	41.2	25.8-46.4	51.5	46.4-67.0	7.780	0.00087*
Physical limitations	0.0	0.0-19.4	77.3	0.0-103.0	29.518	0.00008*
Psychological limitations	0.0	0.0-0.0	34.3	0.0-103.0	16.516	0.00009*
Social functioning	36.1	25.8-77.3	72.1	61.8-92.7	13.192	0.00051*
Pain	30.9	10.3-56.7	61.8	51.6-77.8	14.408	0.00042*
Vitality	36.1	25.8-46.4	67.0	51.5-72.1	9.088	0.00063*
Mental health	35.0	26.8-51.5	65.9	53.6-80.3	11.304	0.00058*
HADS (overall)	27.2 (mean)	19.4-38.1	18.3 (mean)	10.0-27.7	12.847	0.00053*
HADS-A	12.8 (mean)	9.1-16.9	8.9 (mean)	5.5-12.8	8.100	0.00070*
HADS-D	14.8 (mean)	9.9-20.6	9.5 (mean)	3.3-15.2	15.757	0.00030*
Using: Paired Sample t-test for "Mean" Using: Wilcoxon test for Non-parametric data "Median" p-value >0.05 is insignificant; *p-value <0.05 is significant						

Prior to surgery, 14 patients (70%) were diagnosed with anxiety disorders, and 18 patients (90%) were experiencing depressive disorders. After the procedure, there was a notable improvement: the incidence of anxiety decreased from 14 participants (70%) to 4 participants (20%), and the occurrence of depressive disorders dropped from 16 patients (80%) to 4 (20%). Furthermore, the number of patients reporting a good quality of life (QoL) as per the SF-36 assessment rose from 5 (25%) to 12 (60%), while those with a poor QoL rating fell from 8 (40%) to 2 (10%), as illustrated in **Tab. 3.**

In accordance with the surgical procedure, **Tab. 4.** displays the variations in HADS and SF-36 scores between the TH and VH groups both pre- and post-surgery. There were no statistically significant differences observed between the two groups regarding anxiety, depression, and quality of life scores across all sub-scales of the HADS and SF-36.

Tab. 3. HADS and SF-36 evaluation categories in both groups.

Categories	Preoperative results, n = 20		Postoperative results, n = 20		Test value	p-value
	No.	%	No.	%		
HADS-A						
Anxiety disorders	14	70.0	4	20.0	10.489	0.005*
Doubtful	4	20.0	8	40.0		
No disorders	2	10.0	8	40.0		
HADS-D						
Depressive disorders	16	80.0	4	20.0	14.541	0.001*
Doubtful	3	15.0	10	50.0		
No disorders	1	5.0	6	30.0		
SF-36						
Good QoL	5	25.0	12	60.0	6.559	0.038*
Average QoL	7	35.0	6	30.0		
Poor QoL	8	40.0	2	10.0		
Using: x2: Chi-square test for Number (%) or Fisher's exact test, when appropriate p-value >0.05 is insignificant; *p-value <0.05 is significant						

Tab. 4. Comparison of the score changes between the abdominal and the vaginal hysterectomy groups before and after the surgery.

Scale	Abdominal hysterectomy		Vaginal hysterectomy		Test value	p-value
	Median change	Range	Median change	Range		
SF-36 (overall)	33.8	20.7 to 45.2	42.7	19.3 to 64.2	1.010	0.329
Physical activity	31.3	14.5 to 46.8	30.3	12.5 to 41.0	0.618	0.530
Perceived health	10.9	5.8 to 26.2	24.7	0.0 to 35.6	1.221	0.202
Physical limitations	46.4	0.0 to 97.0	82.4	0.0 to 97.0	1.183	0.232
Psychological limitations	0.0	0.0 to 97.0	90.0	0.0 to 97.0	1.555	0.142
Social functioning	20.6	6.0 to 51.5	29.9	8.9 to 61.8	1.119	0.287
Pain	41.2	7.7 to 59.7	41.2	7.1 to 77.3	0.801	0.484
Vitality	36.1	5.2 to 41.2	38.6	16.7 to 46.4	0.918	0.387
Mental health	37.1	2.1 to 49.4	37.1	7.2 to 49.4	0.773	0.488
HADS (overall)	-12.4(mean change)	-18.5 to -6.2	-12.9(mean change)	-18.0 to -6.2	0.876	0.479
HADS-A	-6.2(mean change)	-8.8 to -2.1	-5.7(mean change)	-8.2 to-0.7	0.583	0.556
HADS-D	-8.2(mean change)	-10.3 to -4.1	-9.3(mean change)	-11.3 to-2.8	0.980	0.368

DISCUSSION

Most gynecological disorders are not life-threatening but can significantly impact women's quality of life. Many hysterectomies are performed for non-malignant issues to improve well-being rather than save lives. Studies indicate quality of life often improves in the early years post-hysterectomy, and generally, these procedures do not lead to negative psychological effects in psychologically healthy women. Additionally, most survivors of gynecological cancers report maintaining a good quality of life.

Our results and their interpretation

Our research results indicate a significant improvement in symptoms of anxiety and depression, coupled with a substantial rise in median quality of life (QoL) scores. These favorable results were consistently observed in both the total hysterectomy (TH) and vaginal hysterectomy groups, as indicated by the similar scores on the Hospital Anxiety and Depression Scale (HADS) and the Short Form Health Survey (SF-36).

The occurrence of psychological disorders before surgery can be interpreted through the severity of preoperative symptoms, which can significantly impact daily life. Mood disorders are often observed in patients before various surgical interventions, including hysterectomy.

These results stem from several influences. A significant factor contributing to the decline in quality of life and increased depression in patients who have undergone hysterectomy is the loss of female hormones following oophorectomy. However, our study focuses on older women who are postmenopausal. Also, intensive counseling has enhanced their understanding of postoperative complications, offering professional guidance that alleviates psychological stress and worries. All of this contributes to an improved quality of life for women following a hysterectomy.

It's essential to acknowledge that longstanding ethnic and cultural beliefs are prevalent in various communities, and these influences can significantly affect the results of a hysterectomy. Cultural beliefs surrounding the significance of the uterus prevail among Arab women. They often worry about how their sexuality is perceived, concerns about their husband's opinions, or the possibility of their partner remarrying. These beliefs vary across different Arab countries, and we believe our study, which includes older age groups, may help dispel these notions.

Previous studies have shown increased rates of

depression and anxiety after hysterectomy, with Vyas et al. and Subramaniam et al. finding prevalence rates of 20-30%. However, the current study indicates that anxiety levels and quality of life tend to improve following the procedure [13,14].

A meta-analysis of 22 studies by Darwish et al with 5,978 participants found that hysterectomy significantly reduced depression levels (RR=1.69, 95% CI 1.19-2.38) and improved standardized depression outcomes (SMD 0.38, 95% CI 0.27-0.49). However, there was no significant link between hysterectomy and clinically relevant anxiety (RR=1.41, 95% CI 0.72-2.75). Overall, hysterectomy for benign gynecological issues appears to be positively associated with depression and not harmful to anxiety outcomes [15].

Our study revealed a significant improvement in the QoL of patients following different types of hysterectomy, with no difference in the route. The study by Radosa et al. [5] assessed sexuality and quality of life in 402 eligible patients before and six months after hysterectomy using the European Quality of Life Five-Dimension Scale (EQ-5D) and Female Sexual Function Index (FSFI). Of these, 237 completed the study, with no significant differences in patient characteristics or preoperative scores among the hysterectomy subgroups. Postoperative FSFI and EQ-5D scores were significantly higher ($P \leq 0.01$) than preoperative scores across all procedures, with no differences among groups. In our study, we use the SF-36 score, which is more suitable in the arab countries, with similar results to the study of Radosa et al.

In the research by Birsen et al. [16], a total abdominal hysterectomy and bilateral salpingooophorectomy were performed on 10 patients, while another 10 underwent vaginal hysterectomy. Patient quality of life was evaluated using the SF-36 scale and Cleveland Clinic Global Quality of Life form, both before surgery and 12 months after. The SF-36 assessment revealed significant improvement in body pain for the abdominal surgery group at the 12-month mark. Overall, while the abdominal group showed enhancements in physical function, the vaginal surgery group exhibited increased vitality. However, no significant difference was found when comparing the two groups as a whole. According to the Cleveland Clinic Global Quality of Life form, patients in the vaginal surgery group experienced a statistically significant improvement in their overall quality of life.

In contrast to our study is the cross-sectional study by Mathur et al. [6] that involved 100 outpatients who had undergone hysterectomy for non-malignant reasons alongside a comparison group of 50 outpatients who had other gynecological surgeries. Participants were assessed using the Hospital Anxiety and Depression Scale (HADS), Psychological General Well-being Index (PGWBI), Marital Adjustment Test (MAT), and Women's Quality of Life Questionnaire (WOMQOL). The hysterectomy indications included uterine leiomyoma (69%), uterovaginal prolapse (18%), dysfunctional uterine bleeding (12%), and endometriosis (1%). No significant differences were found between groups in psychological well-being or marital adjustment ($p>0.05$).

STRENGTHS AND LIMITATIONS OF OUR STUDY

Our study's strengths include a prospective design allowing for comparison at two time points and using validated scales with high specificity and sensitivity. The Arabic translation of the questionnaires ensured accessibility, while the HADS and SF-36 scales offer reproducibility and responsiveness for reliable long-term assessment.

Our study limitations include a small sample size of 20 women, which limits statistical power. The lack of randomization increases confounding risks due to pre-existing differences. Multiple surgeons' involvement may affect external validity, and the follow-up period was insufficient for assessing long-term outcomes.

CLINICAL IMPLICATIONS OF OUR STUDY

We recommend Psychological support before and after surgery to address anxiety and emotional disturbance. Engaging patients in the decision-making process is crucial. It's important to consider women's beliefs and expectations regarding psychological and quality of life outcomes to enhance the acceptance of the hysterectomy.

RECOMMENDATION FOR FUTURE RESEARCH

Conducting a large, multi-center prospective cohort study to enhance the applicability of the results could benefit future studies.

CONCLUSIONS

Our research shows that different routes of hysterectomy positively affect patients' psychological well-being, significantly reducing anxiety and depression while improving overall quality of life.

FUNDING

This research received no external funding.

DISCLOSURE OF INTEREST

The authors declare no conflict of interest.

Ethics Approval: Following local regulations, the protocol gained ethical and research approval from the local ethical committee of our hospital.

Informed Consent: After explaining the procedure, all patients gave informed consent. We confirm that all methods were performed according to the relevant guidelines and regulations, per the Declaration of Helsinki.

DATA SHARING

The datasets used and analyzed during the current study are available from the corresponding author upon reasonable request.

ACKNOWLEDGMENT

Not applicable.

REFERENCES

1. **Aarts JW, Nieboer TE, Johnson N, et al**. Surgical approach to hysterectomy for benign gynaecological disease. *Cochrane Database Syst Rev.* 2015(8).
2. **Haraldstad K, Wahl A, Andenæs R, et al.** A systematic review of quality of life research in medicine and health sciences. *Qual Life Res*. 2019;28:2641-2650.
3. **Ye S, Yang J, Cao D, et al.** Quality of life and sexual function of patients following radical hysterectomy and vaginal extension. *J Sex Med*. 2014;11(5):1334-1342.
4. **Kho KA, Walsh TM, Schaffer JI, et al.** 2912 Quality of Life Following Hysterectomy: A Randomized Clinical Trial of Laparoscopic vs Abdominal Hysterectomy. *J Minim Invasive Gynecol.* 2019;26(7):S109.
5. **Radosa JC, Meyberg□Solomayer G, Kastl C, et al.** Influences of different hysterectomy techniques on patients' postoperative sexual function and quality of life. *J Sex Med*. 2014;11(9):2342-2350.
6. **Mathur KL, Sharma M, Mazumdar M, et al.** Psychological well-being, marital adjustment and quality of life after hysterectomy: a comparative study. *Int J Reprod Contracept Obstet Gynecol.* 2018;7(12):4960-4966.
7. **Goktas SB, Gun I, Yildiz T, et al**. The effect of total hysterectomy on sexual function and depression. *Pak J Med Sci.* 2015;31(3):700.
8. **Doğanay M, Kokanalı D, Kokanalı MK, et al.** Comparison of female sexual function in women who underwent abdominal or vaginal hysterectomy with or without bilateral salpingo-oophorectomy. *J Gynecol Obstet Hum Reprod.* 2019;48(1):29-32.
9. **Fortin C, Hur C, Falcone T**. Impact of laparoscopic hysterectomy on quality of life. *J Minim Invasive Gynecol*. 2019;26(2):219-232.
10. **Wu Y, Levis B, Sun Y, et al**. Accuracy of the Hospital Anxiety and Depression Scale Depression subscale (HADS-D) to screen for major depression: systematic review and individual participant data meta-analysis. *BMJ.* 2021;373.
11. **Brazier JE, Harper R, Jones NM, et al.** Validating the SF-36 health survey questionnaire: new outcome measure for primary care. *BMJ*. 1992;305(6846):160-164.
12. **Rannestad T.** Hysterectomy: effects on quality of life and psychological aspects. *Best Pract Res Clin Obstet Gynaecol.* 2005;19(3):419-430.
13. **Vyas JN, Rathore RS, Sharma P, et al.** A study of psychiatric aspects of hysterectomy. *Indian J Psychiatry*. 1989;31(1):83-89.
14. **Subramaniam D, Subramaniam SK, Charles SX, et al.** Psychiatric aspects of hysterectomy. *Indian J Psychiatry*. 1982;24(1):75-79.
15. **Darwish M, Atlantis E, Mohamed-Taysir T.** Psychological outcomes after hysterectomy for benign conditions: a systematic review and meta-analysis. *Eur J Obstet Gynecol Reprod Biol.* 2014;174:5-19.
16. **Birsen O, Ozban AS, Ozban M, et al.** Effects of abdominal and vaginal hysterectomy on anorectal functions along with quality of life of the patient. *Afr Health Sci*. 2018;18(3):612-622.