Effect of Applying Bandura's Theory of Self-efficacy on Anxiety, Disease Uncertainty and Quality of Life among Women Undergoing Hysterectomy

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Abstract

Background: Hysterectomy as a gynecological surgery cause heavy psychological pressure and affect quality of life of women. **The research aim** was to evaluate the effect of applying Bandura's theory of self-efficacy on anxiety, disease uncertainty and quality of life among women undergoing hysterectomy. **Design**: A quasi experimental design. **Setting**: Obstetrics and Gynecological department in Benha University Hospital. **Sample**: A purposive sample of 84 women undergoing hysterectomy divided into two groups. **Data collection tools:** Five tools were used: A structured interviewing questionnaire, the general self-efficacy scale, the self-rating anxiety scale, sense of disease uncertainty scale and World Health Organization quality of life scale. **Results:** There was no statistical significant difference in the mean scores of the self-efficacy, anxiety, sense of uncertainty and quality of life between the study and control groups at pre intervention phase (p > 0.05) compared to the higher mean score among study group than the control group with a highly statistical significant difference after three and six months of intervention (p ≤ 0.001). **Conclusion**: The implementation of self-efficacy theory model was effective in improving level of knowledge, reducing level of anxiety and disease uncertainty and improving quality of life among women undergoing hysterectomy. **Recommendation:** Self-efficacy theory model should be explained in printed booklets that ought to be available to all women undergoing hysterectomy in every obstetrics and gynecological facility.

Keywords: Anxiety, Disease uncertainty, Hysterectomy, Quality of life, Self-efficacy theory.

Introduction

One of the principal treatments for benign tumors such as uterine fibroids and adenomyomas is hysterectomy. Although, during which women may go through considerable psychological suffering as a result of having the uterus removed. Following caesarean section, it is regarded as the second-most frequent surgical operation performed globally **(Sharma, 2020).** It has a wide range of indications, from obstetrical indications to malignant gynecological illnesses. The usual therapy for the majority of patients is abdominal hysterectomy, despite the fact that less invasive methods such laparoscopic or vaginal surgeries are frequently recommended **(Schneider, et al., 2020).**

Hysterectomy women have a wide range of medical, psychological, emotional and social issues both before and after the procedure. The main causes of these issues are inappropriate knowledge, lack of assistance and counseling, anxiety and fears based on incorrect information **(Rehan et al., 2023).** According to a study on post-hysterectomy women, the hysterectomy was also closely linked to decline in quality of life and a reduction in the women's self-efficacy. Additionally, the majority of women having hysterectomies suffer from disease uncertainty and bad feelings (such as anxiety and sadness), which negatively impact their recovery after the operation and quality of life **(Ibrahim et al., 2020 and Zhang et al., 2018).**

The theory of self-efficacy refers to assessing the ability to achieve the desired intended goals. It has been demonstrated that the application of the self-efficacy theory model increases self-efficacy and self-management, improves the psychological state of women,

reduces the fear of disease, improves the quality of life of women and enhances the confidence in overcoming the disease **(liu et al., 2023).**

Bandura initially defined this theory in 1977. According to Bandura's Self-efficacy theory specifically refers to a person's subjective assessment of whether they have the ability to act in a way that leads to the intended goal. Randomized trials found that self-efficacy interventions can help post-trauma patients to be more capable of caring for themselves, as well as reduce anxiety and enhance the quality of life **(McCusker et al., 2016).**

The theory of self-efficacy holds four aspects that contribute to self-efficacy enhancement which include direct experience that foster women's self-confidence and success expectations to grow, indirect experience and organize exchange by seeing the accomplishments of others to gain personal alternative experience, verbal persuasion is the most often used source of self-efficacy that include persuading women that they can do a challenging task and emotional motivation helps to eliminate the subjective threat of women and ease the anxiety level **(Jiang et al., 2022).**

Obstetrics health nurses can make significant contributions to raise women's knowledge and improve quality of life by helping women who had a hysterectomy handle the different side effects and positively deal with psychological problems of this surgery and get used to the way women's body will now working effectively. The woman's quality of life might be enhanced by the holistic perspective and nursing care delivery. The nurse can assist the patient in making the necessary modifications to be able to life after a hysterectomy **(Jafarigiv et al., 2020).**

Additionally, nurses continue to play a role in helping women become ready for discharge through health instructions given to women and family. These instructions cover things like when to call the surgeon, what activities are prohibited, how to take medications, how to recognize infection symptoms and when to schedule follow-up appointments **(Wall, 2020).**

Significance of the study:

The incidence rate of hysterectomies varies significantly around the world. More than 600,000 hysterectomies are performed each year in the USA and about 140,000 hysterectomies in Germany **(Mohamed et al., 2023).** Hysterectomy is one of the most frequent gynecological procedures performed worldwide. According to the National Centre for Health Statistics, Egypt had an annual incidence rate of 165 per 100,000 hysterectomies that this health problem is common in the Egyptian community **(Ibrahim and Mohammed 2020).**

Hysterectomy has a psychological impact; in general, the reaction of women will feel disease uncertainty, followed by a reaction of anxiety and sadness. The effects of a hysterectomy have a major impact on quality of life, such as doing activities, social contacts and interaction with the environment **(Afiyah, 2023)**. Hence, enhancing women's self-efficacy played a crucial role in reducing anxiety and enhancing quality of life.

Aim of the research:

This research aimed to evaluate the effect of applying Bandura's theory of self-efficacy on anxiety, disease uncertainty and quality of life among women undergoing hysterectomy.

Research hypotheses:
H1: Women undergoing hysterectomy who will receive an intervention based on Bandura's theory of self-efficacy will show less anxiety level and less disease uncertainty than women who received standard perioperative care.

H2: Women undergoing hysterectomy who will receive an intervention based on Bandura's theory of self-efficacy will exhibit higher quality of life than women who received standard perioperative care.

Conceptual definitions:
The theory of self-efficacy
It relates to an individual's confidence in their ability to perform the behaviors required to

achieve specific achievement outcomes **(Bandura, 1997).**

Quality of life

It may be defined as, "the individual's perspective on their place within society in view of its objectives, expectations, standards or concerns" and the culture and value system that they are living under. **(Amo-Antwi et al., 2022).**

Disease uncertainty:

According to **Mishel (1988)** it is "the inability to determine the meaning of illness-related events" and precisely forecast or predict health consequences.

Hysterectomy

The term hysterectomy refers to a surgical procedure that removes the uterus in part or in its entirety. It may also include removing the cervix, the ovaries (an oophorectomy) and the fallopian tubes (a salpingectomy), as well as other surrounding structures. **(Rehan et al., 2023).**

Subjects and method

Research design: A quasi experimental design (two groups pre/post design) was adopted for this research. A quasi-experiment research design attempts to establish a cause & effect relationship. This study was beginning from May 2022 to the end of April 2023 covering one year.

Setting: Obstetrics and Gynecological Department of Benha University Hospital. It is located on the 6th floor of the hospital for providing comprehensive medical treatment, nursing care and follow-up.

Sampling

A purposive sample of 84 women. (10% of the flow rate of previous year). According to Benha university Hospital statistical center, 2022, flow rate of the women undergoing total hysterectomy were 840 women at the end of year 2022. Ten percent of flow rate (84 women) were selected and divided into two groups at random: the control group, which consisted of 42 women who received only standard perioperative hospital care and the study group, which consisted of 42 women who received

Bandura's theory of self-efficacy application in addition to standard perioperative hospital care.

The following inclusion criteria were taken into consideration when selecting the studied sample: eligible for hysterectomy, women have no contraindications to surgery, can read and write and accepted to be included in the study sample.

Exclusion criteria: Malignant uterine illness, the existence of various reproductive infectious diseases, the presence of impairments in language and communication, psychological disorders and abnormalities of the brain.

Data collection tools:

Five tools were used for data collection:

Tool (I): A structured interviewing questionnaire: it encompassed of three parts:

Part one: it was concerned with general characteristics of the studied women. It included four items (age, educational level, occupation and residence).

Part two: it was concerned with current surgical history: It included three items (mode of delivery, surgical indications of hysterectomy and surgical approach of hysterectomy).

Part three: This part was concerned with women's knowledge regarding hysterectomy which developed by researchers after reading relevant literature (**Elgi and Viswanath, 2019**). It included 8 items (meaning of hysterectomy, indications, contraindications, surgical approach of hysterectomy, associated psychological symptoms, complications, preoperative care and postoperative care) regarding hysterectomy.

Scoring system of knowledge:

A correct answer was scored as "two" and the incorrect was scored "one". The summation of the scores for the correct answers was done to calculate the total knowledge score. The higher scores means higher levels of knowledge about hysterectomy. **The total knowledge was scored as following:**

- Satisfactory knowledge: 60% or more
- Unsatisfactory knowledge: less than 60%

Tool (II): The General Self-Efficacy Scale (GSES) :

This tool adapted from **(Wu, et al., 2021)** to evaluate the sense of self-efficacy of women. It comprised a total of 10 items; each item was expressed with the 4-point Likert scale (not at all true, barely true, moderately true and exactly true). The total score was from 10 to 40, indicating that better scores have greater self-efficacy.

Tool (III): The Self-Rating Anxiety Scale (SAS):

This tool was adapted from **(Samakouri et al., 2012)** and has 10 sentences to assess the level of anxiety. 5-point scale Likert scale for each item were used: (4)"Always", (3)"frequently", (2)"half the time ", (1)"sometime"and (0)"never".

Total anxiety scoring system:

- Mild anxiety   0 to 16 points
- Moderate anxiety 17 to 24 points
- Sever anxiety 25 to 40 points

Tool (IV): Sense of disease uncertainty scale:

It was adapted from **(Zhang et al., 2012)** and has 27 items. It was used to evaluate the sense of disease uncertainty covering four dimensions, including **uncertainty** contains 10 items, **lack of information** contains 3 items, **complexity** contains 7 items and **unpredictability** contains 7 items. Each entry was scored on a 5-point Likert scale (1 for not at all characteristic of me, 2 for slightly characteristic of me, 3 for moderately characteristic of me, 4 for very characteristic of me, 5 for extremely characteristic of me). The score was from 27 to 135, with higher scores indicating higher level of disease uncertainty among women.

Tool (V): World Health Organization Quality of Life (WHOQOL-BREF scale):

This scale was adopted from **Skevington and Tucker, (1999) and Nejat et al., (2006)** to evaluate the quality of life of the studied women. It consists of 26 items divided into four domains: **physical health** contains 7 items, **psychological health** contains 6 items, **social relationship** contains 3 items and **environmental health** contains 8 items. It also contains **Overall Quality of Life** contains one item **and General Health** contains one item**.

Each item was scored from 1 to 5 on a response scale, which was stipulated as a five-point ordinal scale. Exceptions to this were questions 3, 4 and 26 must be reverse-scored. Higher scores indicate a higher quality of life. High quality if score >70%, moderate if score 50% to 70% and low if score <50%.

Validity

To check the content validity, the data collection tools were presented to three nursing specialists in the field of obstetrics and gynecology. Modifications were made in response to the board's feedback regarding the clarity of the tool items and the appropriateness of the content.

Reliability

Cronbach's Alpha coefficient test was utilized to assess reliability of the tools.

Tool	Cronbach's alpha value
Tool I (part 3): knowledge regarding hysterectomy	0.88
Tool II: The General Self-Efficacy Scale (GSES)	0.86
Tool III: The Self-Rating Anxiety Scale (SAS)	0.90
Tool IV Sense of disease uncertainty scale	0.89 and it ranged from 0.84 to 0.92 in the four domains
Tool V: WHOQOL-BREF scale	0.91 and it ranged from 0.83 to 0.94 in the four domains

Ethical considerations:

The Scientific Research Ethics Committee in the Faculty of Nursing, University of Benha has approved this work. Moreover, the Chief Executive of Benha University Hospital and Head of Obstetrics and Gynecological Department have given formal consent to carry out this study. Prior to using the tools in order to acquire confidence and trust, researchers briefed women about the purpose of the study. Before being admitted into the study all women had been notified of their

consent in writing. Women were reassured that their results would be taken for research purposes, confidentiality of the collected data had been preserved and they could withdraw from studies at any time.

Pilot Study:

It was performed on just over 10 percent of the sample, (9 women). The purpose of this report was to determine the usefulness and clarity of these tools. It's also helped to predict how long forms need to be filled in. The tool was not required to be modified.

Field work:

Field work covered one year (from the first of May 2022 to the last of April 2023). The researchers went to the aforementioned location from 9:00 am to 2:00 pm (3 days a week). The study group's data were collected after the control group's data had been collected firstly. The research phases included the following:

Assessment Phase

After getting permission, the researchers attended to the prementioned setting throughout this phase. The studied women were interviewed to decide which ones should be eliminated because they didn't match the criteria for inclusion. Prior to surgery, the researchers interviewed every woman in both groups on the admissions ward to gather information about general characteristics and surgical history of hysterectomy.

Then, the researchers distributed knowledge assessment sheet to assess women' knowledge regarding hysterectomy, the general self-efficacy scale to evaluate the sense of self-efficacy of women, the self-rating anxiety scale to assess the level of anxiety, sense of disease uncertainty scale to evaluate the sense of illness uncertainty and lastly distributed WHOQOL-BREF scale to evaluate the quality of life. An interview lasting between 20 and 30 minutes was used to complete this form.

Implementation phase:
For control group (Receiving only standard perioperative hospital care)

The researchers' only responsibility was to observe and document the procedures used to care for women during surgery. The nursing care provided to the control group was standard and included:

(1) Women were welcomed upon admission in order to help them quickly understand and become accustomed to the hospital environment. (2) Health education on pre-operative precautions, such as water fasting period, the use of pre-operative medication, numerous examinations, specimen retention cautions, etc., were given the day before surgery. (3) Following surgery, women and their families have primarily received instructions on how to manage pelvic drains, observe dietary restrictions and guard against complications. (4) In order to remind the women if there was any discomfort, additional oral discharge instructions for precautions were given.

For study group (Applying self-efficacy theory) (Liu et al., 2023).

Women in the study group received self-efficacy theory application besides standard hospital care. Four sessions of the model were applied, each lasted 30–45 minutes. Each woman attended all four sessions as following:

(1) The first session. (Direct experience)

The first session was applied to women in the study group preoperatively immediately after complete collection of assessment data. Direct experience is the first step of this model which concerned with enhancing knowledge regarding hysterectomy including meaning, indications and contraindications of hysterectomy, surgical approach of hysterectomy, associated psychological symptoms, complications, pre- and post-operative care. Also, the researchers prepare a video regarding the nursing information of the hysterectomy to woman's bedside, provided emotional support, instructed women on the essentials of off-bed exercise. Finally, they patiently answered each woman's questions to make sure they understood any missing content.

(2) The second session (Indirect experience and organize exchange)

This session was applied to women in the study group on the first day after operation. Indirect experience included holding exchange meetings with women in the ward correct miss perception and raise awareness by using multimedia and instructional booklet to provide

women with health education to encourage them to rebuild confidence in being able to beat the condition.

(3) The third session (Verbal persuasion)

The third session was applied to women in the study group on the second day after operation to prevent negative emotional reactions in which the researchers do a great job of communicating with women, offering directions, guidance, paying close attention to their needs, gauging their level of self-efficacy and condition uncertainty and providing supportive psychological reassurance. Additionally, the researchers encouraged family members to visit woman more regularly and to give them more assistance as well. Relatives were asked to avoid influencing women with their own negative emotions.

(4) The fourth session (Physical and emotional states)

The fourth session was applied to women in the study group on the third day after operation. In this step, the researchers remind women to use empathy techniques to change their focus and reduce or even get rid of unfavorable emotions like anxiety and irritation, dread and tension. Use mental relaxation and breathing control training to treat anxiety or depression and enhance self-regulation and psychological resiliency. After discharge from the hospital, nurses should also communicated with the women through video, telephone and other ways to give woman confidence to return to social life, thereby improving their quality of life and treatment compliance. Besides, researchers promoted mutual support and collective communication among women and encouraged them to open their hearts and make an emotional catharsis.

Evaluation phase:
This phase was done three months after the end of self-efficacy theory session application and six months follow up, where the researcher evaluated the effect of self-efficacy theory on the study group and effect of standard hospital care on control group's knowledge, self-efficacy, anxiety, disease uncertainty and quality of life using (Tool I part three, Tool II, Tool III, tool IV and tool V).

Statistical Design:
Data has been checked prior to the automated input. Using the SPSS version 22 Statistical Package for Social Sciences tabulation and analysis has been performed. Descriptive statistics, such as the mean, standard deviation, frequency and percentage rates, have been applied. The Pearson correlation coefficient, independent t-tests as well as the Chi-square test were used. For all of the statistical tests done, p-value > 0.05 which indicated no statistically significant difference, p-value <0.05 indicated a statistically significant difference, and p-value ≤ 0.001 indicated a highly statistically significant difference.

Results

Table1. Clarifies that 42.9% and 40.5% of study and control groups respectively aged ≥ 50 years with a mean age of 46.19±10.33 and 48.28±9.56 years. In addition, it was clear that 57.2% and 45.2% of study and control groups respectively had secondary education. 64.3% and 57.1% of both study and control groups were housewives. Regarding residence, 66.7% and 59.5 % of both study and control groups respectively lived in rural area. Additionally there was no a statistically significant difference between both study and control groups regarding general characteristics (p > 0.05) that reflected groups homogeneity.

Table2. Reveals that, 61.9% and 54.8% of both study and control groups respectively undergo abdominal hysterectomy. According to indication of hysterectomy, 47.6% and 42.8% of both study and control groups respectively had abnormal uterine bleeding. Hystosalpingo-oophoroctomy was the most common surgical approach of hysterectomy in both study and control groups 42.9% & 47.6% respectively with no a statistically significant difference between study and control groups regarding history of hysterectomy (p > 0.05) which reflecting homogeneity between both groups.

Table3. Demonstrates that there was no a statistical significant difference between the study and control groups regarding all items of knowledge about hysterectomy before intervention (p >0.05). Meanwhile, a highly statistical significant improvement was observed in the study group compared with the control group after three and six months of intervention (P ≤ 0.001).

Figure1. Shows that 31.0% and 35.7% of women in both study and control groups had satisfactory knowledge regarding hysterectomy before intervention. Meanwhile, at three and six months after intervention, 78.6% and 40.5%

versus 81.0% and 45.2% of women in the study and control groups respectively had satisfactory knowledge regarding hysterectomy.

Table4. Reveals that there was no a statistical significant difference in the mean score of the overall self-efficacy and its items between the two groups at pre intervention phase (p > 0.05). However, after three and six months of intervention, the mean score of the overall self-efficacy and its items in the study group were higher than the scores in the control group at (P ≤ 0.001).

Table5. Reveals that there was no a statistical significant difference in the mean score of the overall anxiety and its items between the study and control groups at pre intervention phase (p > 0.05). However, after three and six months of intervention, the mean difference score for overall anxiety and its items in the study group were lower than the scores in the control group a (P ≤ 0.001).

Figure 2. Shows that 81.0% and 76.2% of women in both study and control groups respectively had sever anxiety regarding hysterectomy before intervention. Meanwhile, at three months after intervention, only 31.0% of women in the study group compared to 71.4% of women in the control group had sever anxiety regarding hysterectomy. Additionally, at six months after intervention, only 16.7% of women in the study group compared to 66.7% of women in the control group had sever anxiety regarding hysterectomy.

Table 6. Reveals that there was no a statistical significant difference in the mean score of the overall uncertainty and its dimensions between the two groups at pre intervention phase (p > 0.05). However, after three and six months of intervention, the mean difference score for overall and dimensions of uncertainty in the study group were lower than the scores in the control group (P ≤ 0.001). In the study group, the mean uncertainty score before the intervention were 32.90 ± 6.40 in terms of uncertainty, 12.88 ± 1.25 in lack of information, 23.88 ± 6.32 in complexity, and 23.64 ± 5.96 in unpredictability. After three and six months of the intervention the mean score of all dimensions of uncertainty respectively, had lowered to 26.11 ± 6.20 and 22.97 ± 5.41, 7.45 ± 1.82 and 5.14 ± 1.73, 16.66 ± 5.38 and 14.42 ± 5.26, and 16.26 ± 4.92& 13.66 ± 4.99.

Table 7. Reveals that there was no a statistical significant difference in the mean score of all domains of quality of life between the two groups at pre intervention phase (p > 0.05). However, after three and six months of intervention, the mean difference score of all domains of quality of life were higher in the study group compared to control group (P ≤ 0.001). In the study group, the mean quality of life score before the intervention were 14.92 ± 4.53 in terms of Physical health, 12.66 ± 2.87 in psychological health, 7.35 ± 2.04 in social relationships, 13.90 ± 3.68 in environmental health, 2.30 ± 1.09 in overall quality of life perception and 1.95 ± 0.82 in general health perception. After three and six months of the intervention the mean score of all quality of life domains had increased to 24.76 ± 5.36 and 25.69 ± 4.78, 21.66 ± 3.04 and 23.71 ± 3.56, 12.19 ± 1.19 and 12.57 ± 1.38, 28.28 ± 6.66 and 29.97 ± 8.51, 3.50 ± 1.08 and 3.88 ± 1.15 and 3.35 ± 1.03 and 3.71 ± 1.15 respectively.

Figure 3. Shows that 9.5% and 11.9% of women in study and control groups respectively had high quality of life regarding hysterectomy before the intervention. Meanwhile, at three and six months after intervention, 45.2% and 52.4% of women in the study group compared to 19.0% and 21.4% of women in the control groups respectively had high quality of life regarding hysterectomy.

Table8. Shows that, there was a highly statistically significant positive correlation between total self-efficacy score and total quality of life scores in both groups at pre intervention, post intervention and at follow up phases (P ≤ 0.001). On the other hand, there was a highly statistically significant negative correlation between total self-efficacy score and total anxiety as well as total uncertainty score in both groups at pre intervention, post intervention and at follow up phases (P ≤ 0.001).

Table 9. Shows that, there was a highly statistically significant positive correlation between total anxiety score and total uncertainty scores in both groups at pre intervention, post intervention and at follow up phases (P ≤ 0.001). On the other hand, there was a highly statistically significant negative correlation between total uncertainty score and total knowledge as well as total quality of life score in both groups at pre intervention, post intervention and at follow up phases (P ≤ 0.001).

Table (1): Distribution of the studied women according to general characteristics (n=84)

Groups Variables	Study group n=42		Control group n=42		X^2	P-value
	No	%	No	%		
Age (years)						
< 30 year	7	16.7	5	11.9	0.60	0.89 ns
30 < 40 years	6	14.3	7	16.6		
40 <50 years	11	26.1	13	31.0		
≥ 50 years	18	42.9	17	40.5		
Mean ± SD	46.19±10.33		48.28±9.56		t=0.964	0.338 ns
Educational level						
Primary	8	19.0	10	23.8	1.19	0.60 ns
Secondary	24	57.2	19	45.2		
University	10	23.8	13	31.0		
Occupation						
Working	15	35.7	18	42.9	0.44	0.65 ns
Housewife	27	64.3	24	57.1		
Residence						
Rural	28	66.7	25	59.5	0.46	0.49 ns
Urban	14	33.3	17	40.5		

Chi-square test (x2); ns no statistical significant difference (p > 0.05)   t= independent t test

Table (2): Distribution of the studied women regarding current surgical history of hysterectomy (n=84).

Current surgical history of hysterectomy	Study group n=42		Control group n=42		X^2	P value
	No	%	No	%		
Mode of hysterectomy						
Abdominal	26	61.9	23	54.8		
Vaginal	9	21.4	11	26.2	0.45	0.79 ns
laparoscopy	7	16.7	8	19.0		
Indication of hysterectomy						
Abnormal uterine bleeding	20	47.6	18	42.8	0.57	0.75 ns
Uterine fibroids	13	31.0	12	28.6		
Endometriosis	9	21.4	12	28.6		
Surgical approach						
Total hysterectomy	8	19.0	7	16.7	0.26	0.96 ns
Hystosalpingo-oophoroctomy	18	42.9	20	47.6		
Subtotal hysterectomy	10	23.8	10	23.8		
Radical hysterectomy	6	14.3	5	11.9		

Chi-square test (x2)   ns Non statistical significant ; P-value>0.05
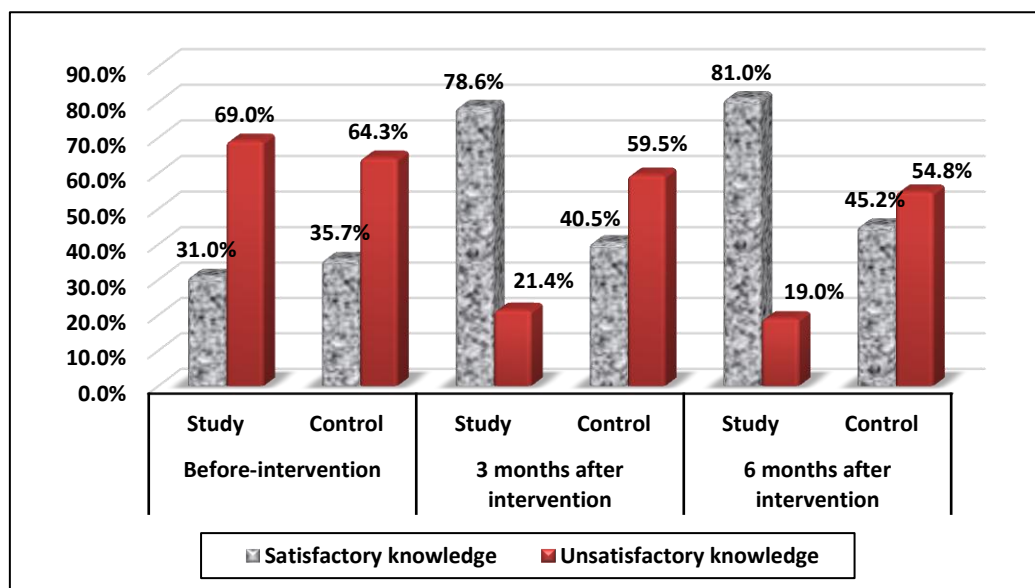
Table (3): Distribution of the studied women in both study and control groups regarding knowledge about hysterectomy before the intervention, three and six months after the intervention (n=84).

Items \ Groups		Before intervention	3 months after intervention	6 months after intervention	X^2 P-value Before intervention	X^2 P-value 3 months after intervention	X^2 P-value 6 months after intervention
		Correct answer No. (%)	Correct answer No. (%)	Correct answer No. (%)			
Meaning of hysterectomy	Study group	15 (35.7)	32 (76.2)	34 (81.0)	0.19	11.0	12.9
	Control group	17 (40.5)	17 (40.5)	18 (42.9)	0.65^{ns}	0.000**	0.000**
Indications of hysterectomy	Study group	15 (35.7)	35 (83.3)	36 (85.7)	0.79	11.8	12.2
	Control group	19 (45.2)	20 (47.6)	21 (50.0)	0.37^{ns}	0.000**	0.000**
Contraindication of hysterectomy	Study group	14 (33.3)	30 (71.4)	33 (78.6)	0.22	10.7	11.2
	Control group	12 (28.6)	15 (35.7)	18 (42.9)	0.63^{ns}	0.000**	0.000**
Surgical approach of hysterectomy	Study group	9 (21.4)	32 (76.2)	34 (81.0)	0.26	13.9	14.4
	Control group	11 (26.2)	15 (35.7)	17 (40.5)	0.60^{ns}	0.000**	0.000**
Associated psychological symptoms	Study group	10 (23.8)	31 (73.8)	32 (76.2)	0.06	15.4	12.4
	Control group	9 (21.4)	13 (31.0)	16 (38.1)	0.79^{ns}	0.000**	0.000**
Complications of hysterectomy	Study group	12 (28.6)	32 (76.2)	34 (81.0)	0.49	12.4	11.5
	Control group	15 (35.7)	16 (38.1)	19 (45.2)	0.48^{ns}	0.000**	0.000**
Preoperative care	Study group	13 (31.0)	33 (78.6)	33 (78.6)	0.05	17.4	12.6
	Control group	12 (28.6)	14 (33.3)	17 (40.5)	0.81^{ns}	0.000**	0.000**
Postoperative care	Study group	10 (23.8)	30 (71.4)	33 (78.6)	0.24	12.2	17.4
	Control group	12 (28.6)	14 (33.3)	14 (33.3)	0.82^{ns}	0.000**	0.000**

^{ns} no statistical significant difference (p > 0.05)   ** Highly statistical significant difference (P $\leq$ 0.001)

Figure (1): Distribution of studied women's total knowledge score regarding hysterectomy in both groups before the intervention, three and six months after the intervention (n=84).

Table (4): Comparison of the mean scores of self-efficacy regarding hysterectomy among studied women in both study and control groups before the intervention, three and six months after the intervention (n=84).
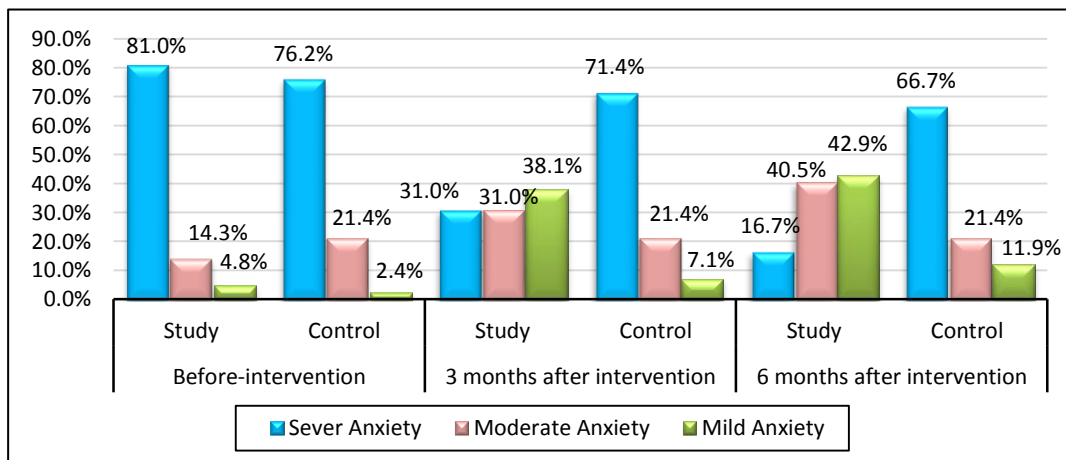
Groups / Items		Range of Possible Scores	Before intervention Mean ± SD	3 months after intervention Mean ± SD	6 months after intervention Mean ± SD	t-test P-value Before intervention	t-test P-value 3 months after intervention	t-test P-value 6 months after intervention
I can solve any problem if I put my mind to it.	Study group	1-4	1.50 ± 0.67	2.80 ± 0.63	2.97 ± 0.60	0.50	8.77	9.40
	Control group		1.42 ± 0.63	1.52 ± 0.70	1.59 ± 0.73	0.61 ns	0.000**	0.000**
If someone opposes me, I find means to get what I want	Study group	1-4	1.64 ± 0.75	2.90 ± 0.69	3.07 ± 0.67	0.59	8.35	8.55
	Control group		1.54 ± 0.70	1.64 ± 0.69	1.71 ± 0.77	0.55 ns	0.000**	0.000**
I find it simple to stay focused on my goals	Study group	1-4	1.61 ± 0.66	2.76 ± 0.72	3.19 ± 0.74	0.16	6.74	9.33
	Control group		1.64 ± 0.65	1.73 ± 0.66	1.71 ± 0.70	0.86 ns	0.000**	0.000**
I'm pretty sure I could handle an emergency events.	Study group	1-4	1.54 ± 0.67	2.90 ± 0.72	2.97 ± 0.74	0.16	8.02	8.04
	Control group		1.57 ± 0.63	1.66 ± 0.68	1.69 ± 0.71	0.87 ns	0.000**	0.000**
Thanks to my ingenuity, I can deal with anything that comes my way.	Study group	1-4	1.78 ± 0.78	2.97 ± 0.74	3.02 ± 0.74	0.57	7.24	8.77
	Control group		1.69 ± 0.74	1.83 ± 0.69	1.64 ± 0.69	0.57 ns	0.000**	0.000**
I can solve most problems if I invest the necessary effort.	Study group	1-4	1.69 ± 0.64	2.97 ± 0.78	3.11 ± 0.70	0.51	7.59	7.38
	Control group		1.61 ± 0.62	1.71 ± 0.74	1.83 ± 0.88	0.60 ns	0.000**	0.000**
Stay composed when faced with challenges because I confident in my skills.	Study group	1-4	1.66 ± 0.72	3.00 ± 0.79	3.14 ± 0.71	0.31	7.29	7.52
	Control group		1.71 ± 0.67	1.76 ± 0.75	1.95 ± 0.73	0.75 ns	0.000**	0.000**
When I face a challenge, there are usually several ways to solve it.	Study group	1-4	1.78 ± 0.81	2.85 ± 0.81	3.11 ± 0.70	0.54	6.90	7.80
	Control group		1.69 ± 0.78	1.73 ± 0.66	1.76 ± 0.87	0.58 ns	0.000**	0.000**
If I'm in a situation where I need to do something, I usually have a solution.	Study group	1-4	1.78 ± 0.78	2.66 ± 0.68	3.16 ± 0.69	0.71	5.04	8.18
	Control group		1.66 ± 0.75	1.80 ± 0.86	1.83 ± 0.79	0.48 ns	0.000**	0.000**
No matter what life throws at me, most of the time I make it through.	Study group	1-4	1.61 ± 0.58	2.85 ± 0.71	2.97 ± 0.60	0.67	6.14	9.07
	Control group		1.52 ± 0.70	1.76 ± 0.90	1.57 ± 0.80	0.50 ns	0.000**	0.000**
Overall score	Study group	10-40	16.64 ± 5.79	28.71 ± 6.22	30.76 ± 6.18	0.45	8.46	9.83
	Control group		16.09 ± 5.20	17.19 ± 6.25	17.30 ± 6.35	0.65 ns	0.000**	0.000**

Table (5): Comparison of the mean scores of anxiety regarding hysterectomy in both study and control groups before the intervention, three and six months after the intervention (n=84).

Items	Groups	Range of Possible Scores	Before intervention Mean ± SD	3 months after intervention Mean ± SD	6 months after intervention Mean ± SD	t-test P-value Before intervention	t-test P-value 3 months after intervention	t-test P-value 6 months after intervention
I feel tense, nervous, restless, or agitated	Study group	0-4	3.14 ± 1.04	1.95 ± 0.90	1.61 ± 0.73	0.67	5.03	5.94
	Control group		3.00 ± 0.88	2.90 ± 0.82	2.71 ± 0.94	0.50 ns	0.000**	0.000**
I feel afraid for no apparent reason	Study group	0-4	3.00 ± 1.05	1.90 ± 0.87	1.64 ± 0.75	0.32	4.91	5.63
	Control group		3.07 ± 0.94	2.88 ± 0.94	2.71 ± 0.96	0.74 ns	0.000**	0.000**
I'm afraid of what might happen to me.	Study group	0-4	3.11 ± 1.17	1.92 ± 0.80	1.69 ± 0.74	0.21	6.39	5.98
	Control group		3.16 ± 0.82	3.04 ± 0.79	2.83 ± 0.98	0.83 ns	0.000**	0.000**
I can't sleep or I wake up early.	Study group	0-4	2.95 ± 1.10	2.04 ± 0.90	1.78 ± 0.81	0.64	4.24	4.29
	Control group		3.09 ± 0.93	2.88 ± 0.82	2.66 ± 1.05	0.52 ns	0.000**	0.000**
I have trouble eating too much or too little or digesting my food	Study group	0-4	2.97 ± 1.15	2.02 ± 0.92	1.73 ± 0.79	0.20	3.80	4.12
	Control group		2.92 ± 1.02	2.80 ± 0.96	2.57 ± 1.03	0.84 ns	0.000**	0.000**
I just wish I knew how to relax better.	Study group	0-4	2.90 ± 1.05	2.00 ± 0.85	1.78 ± 0.84	0.34	5.40	4.78
	Control group		2.97 ± 0.81	2.92 ± 0.71	2.66 ± 0.84	0.72 ns	0.000**	0.000**
I have trouble concentrating, remembering or thinking.	Study group	0-4	3.16 ± 0.98	1.95 ± 0.93	1.73 ± 0.88	0.55	5.86	6.48
	Control group		3.30 ± 0.92	3.14 ± 0.92	3.07 ± 0.99	0.50 ns	0.000**	0.000**
I could say I'm nervous most of the time.	Study group	0-4	3.21 ± 1.07	2.02 ± 0.84	1.83 ± 0.85	0.21	4.86	4.59
	Control group		3.16 ± 1.01	2.97 ± 0.94	2.84 ± 1.12	0.83 ns	0.000**	0.000**
I occasionally suffer a racing heartbeat, numbness, dry mouth, tight muscles, and freezing hands or feet.	Study group	0-4	3.23 ± 1.00	2.09 ± 0.93	1.88 ± 0.91	0.22	4.74	4.82
	Control group		3.28 ± 0.89	3.04 ± 0.90	2.92 ± 1.06	0.81 ns	0.000**	0.000**
I wish I was as easy on myself as everyone else seems to be.	Study group	0-4	3.04 ± 0.96	2.14 ± 0.87	1.90 ± 0.90	0.45	4.72	4.58
	Control group		3.14 ± 0.97	3.04 ± 0.88	2.88 ± 1.03	0.65 ns	0.000**	0.000**
Overall score	Study group	0-40	30.76 ± 9.11	20.07 ± 8.04	17.61 ± 7.00	0.20	6.11	6.07
	Control group		31.11 ± 6.53	29.66 ± 6.23	27.88 ± 8.40	0.83 ns	0.000**	0.000**

t= independent t-test;   ns no statistical significant difference (p > 0.05); **A high statistical significant difference (P ≤ 0.001)

Figure (2): Distribution of studied women's total anxiety score regarding hysterectomy in both study and control groups before the intervention, three and six months after the intervention (n=84).

Table (6): Comparison of the mean scores of sense of uncertainty regarding hysterectomy in both study and control groups before the intervention, three and six months after the intervention (n=84).

Dimensions	Range of Possible Scores	Study group n=42	Control group n=42	t-test	P value
		Mean ±SD	Mean ±SD		
Total uncertainty (10 items)					
Before-intervention		32.90 ± 6.40	34.45 ± 7.84	0.99	0.32^{ns}
3 months after the intervention	10-50	26.11 ± 6.20	33.73 ± 7.02	5.26	0.000^{**}
6 months after the intervention		22.97 ± 5.41	31.95 ± 7.11	6.50	0.000^{**}
Total lack of information (3 items)					
Before-intervention		12.88 ± 1.25	12.71 ± 1.19	0.62	0.53^{ns}
3 months after the intervention	3-15	7.45 ± 1.82	12.61 ± 1.30	14.9	0.000^{**}
6 months after the intervention		5.14 ± 1.73	11.95 ± 1.83	17.4	0.000^{**}
Total complexity (7 items)					
Before-intervention		23.88 ± 6.32	23.47 ± 6.75	0.28	0.77^{ns}
3 months after the intervention	7-35	16.66 ± 5.38	22.85 ± 7.32	4.41	0.000^{**}
6 months after the intervention		14.42 ± 5.26	21.83 ± 8.54	4.78	0.000^{**}
Total unpredictability (7 items)					
Before-intervention		23.64 ± 5.96	24.11 ± 4.75	0.32	0.74^{ns}
3 months after the intervention	7-35	16.26 ± 4.92	22.38 ± 6.94	4.65	0.000^{**}
6 months after the intervention		13.66 ± 4.99	20.66 ± 9.47	4.23	0.000^{**}
Overall score					
Before-intervention		93.30 ± 7.96	94.76 ± 8.18	0.82	0.41^{ns}
3 months after the intervention	27-135	66.50 ± 4.34	91.59 ± 9.58	15.46	0.000^{**}
6 months after the intervention		56.21 ± 8.86	86.40 ± 15.77	10.81	0.000^{**}

t= independent t-test
^{ns} no statistical significant difference (p > 0.05)   **A high statistical significant difference (P ≤ 0.001)

Table (7): Comparison of the mean scores of quality of life regarding hysterectomy in both study and control groups before the intervention, three and six months after the intervention (n=84).

Domains	Range of Possible Scores	Study group n=42	Control group n=42	t-test	P value
		Mean ±SD	Mean ±SD		
Total Physical health (7 items)					
Before-intervention		14.92 ± 4.53	13.85 ± 4.58	1.07	0.28^{ns}
3 months after intervention	7-35	24.76 ± 5.36	14.02 ± 3.64	10.7	0.000^{**}
6 months after intervention		25.69 ± 4.78	14.33 ± 3.56	12.3	0.000^{**}
Total psychological health (6 items)					
Before-intervention		12.66 ± 2.87	13.23 ± 2.86	0.91	0.36^{ns}
3 months after intervention	6-30	21.66 ± 3.04	13.26 ± 2.99	12.7	0.000^{**}
6 months after intervention		23.71 ± 3.56	13.95 ± 3.49	12.6	0.000^{**}
Total social relationships (3 items)					
Before-intervention		7.35 ± 2.04	7.85 ± 2.19	1.08	0.28^{ns}
3 months after intervention	3-15	12.19 ± 1.19	8.21 ± 2.41	9.65	0.000^{**}
6 months after intervention		12.57 ± 1.38	8.80 ± 2.75	7.91	0.000^{**}
Total environmental health (8 items)					
Before-intervention		13.90 ± 3.68	14.59 ± 5.48	0.67	0.50^{ns}
3 months after intervention	8-40	28.28 ± 6.66	14.78 ± 4.57	10.8	0.000^{**}
6 months after intervention		29.97 ± 8.51	14.85 ± 3.66	10.5	0.000^{**}
Overall quality of life perception item					
Before-intervention		2.30 ± 1.09	2.28 ± 0.83	0.11	0.91^{ns}
3 months after intervention	1-5	3.50 ± 1.08	2.47 ± 1.17	4.14	0.000^{**}
6 months after intervention		3.88 ± 1.15	2.69 ± 1.38	4.27	0.000^{**}
General health perception item					
Before-intervention		1.95 ± 0.82	2.04 ± 0.69	0.57	0.56^{ns}
3 months after intervention	1-5	3.35 ± 1.03	2.54 ± 0.99	3.66	0.000^{**}
6 months after intervention		3.71 ± 1.15	2.76 ± 1.28	3.57	0.000^{**}

t= independent t-test; ^{ns} no statistical significant difference (p > 0.05);**A high statistical significant difference (P ≤ 0.001)

Figure (3): Distribution of studied women's total quality of life regarding hysterectomy in both groups before the intervention, three and six months after the intervention (n=84).
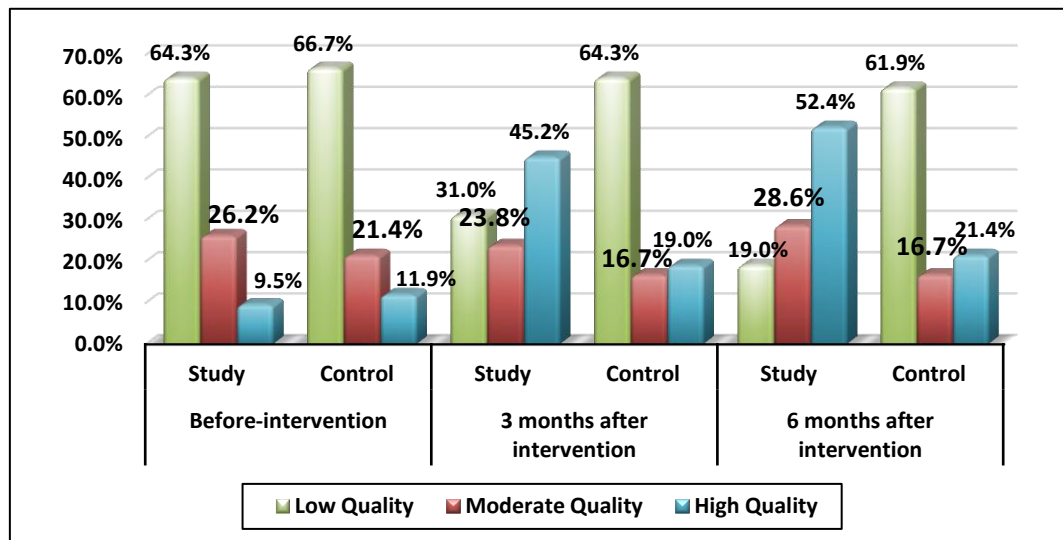

Table (8): Correlation between total self-efficacy score, total anxiety, total uncertainty as well as total quality of life score regarding hysterectomy at pre intervention, post intervention and at follow up phases (n=84)

Variables	Total self-efficacy score											
	Study group n= 42						Control group n= 42					
	Pre-intervention		Post-intervention		Follow-up		Pre-intervention		Post-intervention		Follow-up	
	r	P value	r	P value	R	P value	r	P value	r	P value	r	P value
Total anxiety	-.472-	0.000**	-0.436-	0.000**	-.518-	0.000**	-.421-	0.000**	-.581-	0.000**	-.622-	0.000**
Total uncertainty	-.510-	0.000**	-0.493-	0.000**	-.479-	0.000**	-.543-	0.000**	-.617-	0.000**	-.592-	0.000**
Total Quality of life	.398	0.000**	.402	0.000**	.448	0.000**	.460	0.000**	.537	0.000**	.499	0.000**

****A high statistical significant difference (P ≤ 0.001)**

Table (9): Correlation between total uncertainty score and total anxiety, total knowledge as well as total quality of life regarding hysterectomy at pre intervention, post intervention and follow up phases (n=84)

Variables	Total uncertainty score											
	Study group n= 42						Control group n= 42					
	Pre-intervention		Post-intervention		Follow-up		Pre-intervention		Post-intervention		Follow-up	
	r	P value	r	P value	r	P value	r	P value	r	P value	r	P value
Total anxiety	.498	0.000**	.420	0.000**	.561	0.000**	.445	0.000**	.530	0.000**	.513	0.000**
Total knowledge	-.610-	0.000**	-0.593-	0.000**	-.658-	0.000**	-.710-	0.000**	-.620-	0.000**	-.618-	0.000**
Total quality of life	-.475-	0.000**	-0.495-	0.000**	-.512-	0.000**	-.684-	0.000**	-.574-	0.000**	-.703-	0.000**

****A high statistical significant difference (P ≤ 0.001)**

Discussion:

Hysterectomy is one of the most commonly performed gynecological procedures. Although laparoscopic and vaginal hysterectomies are the most common options, the most common procedure is abdominal hysterectomy **(Torné et al., 2021).** The application of the theory of self-efficacy has been shown to enhance self-efficacy, reduce the incidence of postoperative complications and significantly speed up the recovery of perioperative patients. **(Barreiro et al., 2020).**

The current research aimed to evaluate the effect of applying Bandura's theory of self-efficacy on anxiety, disease uncertainty and quality of life among women undergoing hysterectomy.

Concerning general characteristics, the findings of current research clarified that, about two fifth of both study and control groups were in age group (≥50 years) with a mean age of 46.19±10.33 and 48.28±9.56 years respectively. In terms of education level, it was apparent that more than half of study group and less than half of control group had secondary education. According to occupation, the results revealed that less than two thirds of the study group and more than half of control group were housewives. Regarding residence, two thirds of the study group and about three fifth of control group lived in rural area. Additionally there was no a statistically significant difference between both study and control groups regarding general characteristics (p > 0.05) that reflected groups homogeneity.

The above results consistent with **Mahmoud et al., (2020)** who showed that there were no statistically significant differences between study and control groups with regard to general characteristics, and the mean age of the women were 44.3±3.8 years with age group 35-55 years. These results also agree with **Elgi and Viswanath, (2019)** who found that most women were between 45 and 55 years of age, and that most of them were housewives, and that they had obtained information about hysterectomy from friends by about 42.5%. The majority of the women belong to the village area. Moreover, these findings are also in agreement with **El-Sayed et al., (2017)** who reported that, about three fifth of women were in the age group 40-60 years living in rural areas.

Regarding current surgical history of hysterectomy, the current findings mentioned that, about three fifth of both study and control groups undergo abdominal hysterectomy. According to indication of hysterectomy, more than two fifth of both study and control groups had abnormal uterine bleeding. As regarding surgical approach of hysterectomy, more than two fifth of study group and less than half of control group undergo hystosalpingo-oophoroctomy.

These findings agree with **Afify, et al., (2022)** who reported that, more than half of the study group and nearly four fifth of the control group reported abdominal hysterectomy with half of the both groups had abnormal uterine bleeding as a cause of hysterectomy. Moreover**, Webb-Tafoya, (2021)** showed that, nearly half of both groups had abnormal uterine bleeding as the main reason of hysterectomy. The homogeneity of the inclusion criteria based on which women have been selected may explain these differences in results.

Concerning studied women' knowledge regarding hysterectomy the current results revealed that, there was no statistical significant difference between the study and control groups regarding all items of knowledge about hysterectomy before intervention. Meanwhile, after three and six months of intervention a highly significant statistical improvement was observed in the study group compared to the control group. As the results showed that about one third of women in both study and control groups had satisfactory knowledge regarding hysterectomy before intervention. Meanwhile, at three and six months after intervention, more than three quarters and two fifth versus more than four fifth and less than two fifth of women in the study and control groups respectively had satisfactory knowledge regarding hysterectomy.

The improvement in total knowledge score after the intervention may have been due to the effect of the nursing approach based on Bandura's self-efficacy theory and its well-structured sessions. The subject of the study

was considered vital and sensitive to the women, so women were very satisfied and interested during the learning sessions.

The above-mentioned results agree with **Ibrahim and Mohammed, (2020)** who reported that more than one fifth of studied sample had satisfactory knowledge level before-intervention compared to three quarters of them after implementation**.** As well as, the results agree with **Jan, (2020)** who reported that more than three quarters of the studied women were having inadequate knowledge followed by about one quarter having information that was only fairly adequate whereas none had sufficient information. Following implementation, more than half of women were having adequate information followed by less than half having fairly adequate knowledge and none was having inadequate information.

Concerning self-efficacy among women undergoing hysterectomy, the current results showed that, there was no statistical significant difference in the mean score of the overall self-efficacy and its items between the two groups at pre intervention phase. However, after three and six months of intervention, the mean score of the overall self-efficacy and its items in the study group were higher than the scores in the control group. The improved level of self-efficacy after the intervention may be due to the nursing behaviors that have been suggested to maintain and promote self-efficacy in women experiencing hysterectomy surgery. Furthermore, the mechanism of nursing intervention that may influence the degree of effectiveness in women undergoing hysterectomy is that nurses encourage hysterectomies to develop and restructure appropriate strategies to enhance high efficiency. In addition, nursing interventions can help women find meaning and purpose in life-threatening illness, determining their ability to cope with illness in meaningful ways.

The above-mentioned results agree with **Ahmed et al., (2021)** who clarified that the total self-efficacy level and its sub items improved post program implementation, with a strong statistically significant difference. Also, **Gultom and Indrawati, (2020)** reported that, the mean difference in self-efficacy scores pre

implementation and post the implementation was (9, 78±0, 59). The mean difference in self-efficacy score post the implementation and 4 weeks after the implementation was (7, 88±5, 44). The study findings also represented a highly significant difference between the three measurements of self-efficacy both pre, post-1, post-2 with $p \leq 0.000$.

The results of the current study also agreed with **Li et al., (2021)** who represented that the study group had lower post-implementation scores in each dimension of self-efficacy than the control group. As well as, **He et al., (2021)** showed that both groups had significantly higher self-efficacy scores than before intervention ($p=0.05$) and the study group post intervention score was obviously higher than control group's (Post Intervention Score $P =0.05$).

Regarding anxiety among studied women undergoing hysterectomy; the results of the current study revealed that, there was no statistical significant difference in the mean score of the overall anxiety and its items between the study and control groups at pre intervention phase. However, after three and six months of intervention, the mean difference score for overall anxiety and its items in the study group were lower than the scores in the control group. As the results showed that, more than four fifth and more than three quarters of women in both study and control groups respectively had sever anxiety regarding hysterectomy before intervention. Meanwhile, at three and six months after intervention, less than one third and less than three quarters versus less than one fifth and about two thirds of women in the study and control groups respectively had sever anxiety regarding hysterectomy.

The lower level of anxiety after the intervention may be due to the strategies the women adopted to deal with anxiety, such as support groups, dietary adjustments, relaxation techniques and physical activity. The lower level of anxiety may be also due to the improvement of knowledge after intervention result in decreased uncertainty due to the women's ability to determine the meaning of the facts.

Also, **Farshi et al., (2020)** reported that post implementation, the mean scores of anxiety and trait anxiety were significantly lower in the study group than those of the control group. The results of the current study also matches with **El-Sayed et al., (2017)** who reported that, the mean anxiety score among studied groups at pre and post intervention was slightly correspond to pre intervention, meanwhile there was a statistically significantly different between studied groups post intervention (17.13 ± 9.65) in the study group compared to (30.72 ± 7.86) in the control group .

Concerning studied women's sense of uncertainty regarding hysterectomy, the current results showed that, there was no statistical significant difference in the mean score of the overall uncertainty and its items between the two groups at pre intervention phase. However, after three and six months of intervention, the mean score of the overall uncertainty and its items in the study group were lower than the scores in the control group. The explanation for this is that when the woman is admitted to the hospital, nurses have used many different forms and support forces to educate the mother, improve the ability to recognize uterine disorders, remove uterus and affect the recovery process after surgery. It can help remove confusion and fear when it comes to their diagnosis and treatment, and convince them that their right behavior can speed the clinical recovery.

The results of the current study agree with **Liu et al., (2022)** who showed that the total postoperative scores of disease uncertainty were slightly lower than before surgery in both the study and the control groups (p ≤0.05). The uncertainty of disease scale in the postoperative group was lowered in the study group as compared to control group (p ≤ 0.05).

The above-mentioned findings supported the first current study hypothesis "women undergoing hysterectomy who will receive an intervention based on Bandura's theory of self-efficacy will show less anxiety level and less disease uncertainty than women who received standard perioperative care".

Concerning quality of life among women undergoing hysterectomy; the findings of the current study revealed that, there was no statistical significant difference in the mean score of the overall quality of life and its domains between the two groups at pre intervention phase, as the two groups had lower quality of life. Poor quality of life can be attributed to preoperative complaints like vaginal bleeding, which were mentioned by more than two-fifths of the women in the study, are to blame for the poor quality of life. These complaints cause women to feel anxious and afraid of not being able to carry out their daily tasks and responsibilities, all of which have a negative impact on their physical health as well as every aspect of quality of life.

After three and six months of intervention, the current results showed that the mean difference score for overall and domains of quality of life in the study group were higher than the scores in the control group. As the results showed that, about one tenth of women in both study and control groups had high quality of life regarding hysterectomy before the intervention. At three and six months of intervention, less than half and about one fifth versus more than half and about one fifth of women in the study and control groups respectively had high quality of life regarding hysterectomy**.**

The improvement in the quality of life post intervention may be due to the effective sessions, as women in the study gained information about how to deal with their illness, the importance of marital support, the presence of friends and social networks to provide them with psychological support in times of crisis, in addition to the importance of personal hygiene and access to follow-up services. All of this enables the study's female participants to engage in regular everyday activities, improving their quality of life.

Additionally, **Ntihabose and Twahirwa, (2021)** reported a significant improvement in all dimensions of health related quality of life measured pre and at 3 months post hysterectomy. As well as, **Sumdaengrit and Wongsrisunthorn, (2019)** who demonstrated that the quality of life of the subjects was in the moderate and high level post intervention. In addition, **Zhang et al. (2018)**

demonstrated that there were slightly different quality of life outcomes between the two groups (P=0.05) for its social relationships, psychology and physical domains prior to operation. Corresponding scores were significantly higher than those prior to and at six months following surgery in the study group compared with that of the control group. At six months, the score between the two groups was significantly different at P 0.05.

The aforementioned findings confirmed the second study hypothesis "women undergoing hysterectomy who receive an intervention based on Bandura's theory of self-efficacy will exhibit higher quality of life than women who received standard perioperative care".

Concerning correlation between studied variables, the results of the current study revealed that, there was a highly statistically significant positive correlation between total self-efficacy score and total quality of life scores in both groups at pre intervention, post intervention and at follow up phases. On the other hand, there was a highly statistically significant negative correlation between total self-efficacy score and total anxiety as well as total uncertainty score in both groups at pre intervention, post intervention and at follow up phases. This reflect that when women have higher self-efficacy can be able to adapt with any disease and body changes and in turn improve quality of life.

The results of the current study agree with **Al-Mwadih et al., (2021)** who reported that there is a statistically significant positive correlation between self-efficacy and quality of life levels. In addition **Jafarigiv et al., (2020)** reported that there was a significant direct relationship between self-efficacy and quality of life.

The results of the current study reported that, there was a highly statistically significant positive correlation between total anxiety score and total uncertainty scores in both groups at three phases of intervention. On the other hand, there was a highly statistically significant negative correlation between total uncertainty score and total knowledge as well as total quality of life score in both groups (P ≤ 0.001).

The results of the current study agree with **Supriati et al., (2022)** who reported that there was a significant relationship between uncertainty and anxiety in oncology patients (p-value ≤ .05). The results also matched with **Lopes et al., (2018)** who mentioned that information insufficiency can cause uncertainty that result in feeling of discomfort caused by the woman's inability to recognize the meaning of events that can alter their psychological health and responsiveness.

Also, **He et al., (2016)** whose results stated that encountering cancer along the course of the disease leads to insecurity, which evokes emotional reactions, the complexity of the treatment carried out and the severity of the complication of the disease experienced. In addition, **Prieto et al. (2015)** found that women have greater uncertainty about disease prognosis and treatment complexity when they have a lower education and lack of information.

Conclusions:

The findings of current research concluded that the implementation of Bandura's theory of self-efficacy was successful in increasing knowledge levels, reducing level of anxiety and disease uncertainty and improving quality of life among women undergoing hysterectomy. Additionally, there was a highly statistically significant positive correlation between total self-efficacy score and total quality of life scores in both groups at pre intervention, post intervention and at follow up phases. On the other hand, there was a highly statistically significant negative correlation between total self-efficacy score and total anxiety as well as total uncertainty score in both groups at pre intervention, post intervention and at follow up phases. All these findings supported the study's aim and the hypotheses.

Recommendation:

Recommendations derived from this research are as follows:

1. Implementing educational program for women undergoing hysterectomy to help them cope with anxiety and have better quality of life.

2. Self-efficacy theory should be explained in printed booklets that ought to be available to all women undergoing hysterectomy in every obstetrics and gynecological facility.

3. It would be beneficial to disseminate the results of this study to all OB/GYN departments in different health system settings.

Further researches:

1. Carrying out work shop for nurses about the importance of applying Bandura's self-efficacy theory for all women undergoing hysterectomy.

2. It is recommended to repeat the study on a larger representative probability sample to improve the overall coverage of the results.

Acknowledgements:
The researchers extend their sincerest gratitude to all the women involved for their kind collaboration and participation in this study. They also extend their sincerest thanks to the setting that enables researchers to carry out this research and to the jury committee.

Declaration of Conflicting Interests
The authors have not disclosed any potential conflict of interest with regard to the research, authorship or publication of this article.

References:

Afify, S., Abdel salam, R., Mostafa H., Abdel Alim,R., (2022): Applying Roy's Adaptation Model on Sexual Function for Women after Total Hysterectomy. Master thesis, Faculty of Nursing Benha University.p82.

Afiyah, R.K., Umamah, F., Handayani, N., Rusdianingseh., Prasetyo B., (2023): The self-acceptance model improves the behavior of maintaining the quality of life after a hysterectomy. Bali Medical Journal 12(2): 1264-1268. DOI: 10.15562/bmj.v12i2.4325

Ahmed, F.A.M., Mekhamier, H.A., El-Amrosy, S.H., Gabr, W.F.M., and Elafandy, A.M.O., (2021): Effect of Mindfulness-Based Program and Perceived Self-Efficacy for Patients with Lung Cancer:

An Intervention Study. Egyptian Journal of Health Care, 12 (3).

Al-Mwadih, R., Adheisa, M., Alomyan, H., and Al-Badri, A., (2021): The relationship between self-efficacy and quality of life among university students. An - Najah Univ. J. Res. (Humanities). 35(9).

Amo-Antwi K, Agambire R, Konney TO, Nguah SB, Dassah ET, Nartey Y, et al. (2022): Health-related quality of life among cervical cancer survivors at a tertiary hospital in Ghana. PLoS ONE 17(6): e0268831. https://doi.org/10.1371/journal.

Bandura A., (1997): Self-efficacy: Toward a unifying theory of behavioral change. Psychological Review, 84(2), 191–215. https://doi.org/10.1037/0033-295X.84.2.191

Barreiro, R.G., Lopes, M.V., and Cavalcante, L.D.P., (2020): Middle-range theory for the nursing diagnosis of low self-efficacy in health. Revista Brasileira de Enfermagem. 2020; 73: e20190370.

Elgi M.C. and Viswanath L., (2019): Knowledge of Women on Hysterectomy. J South Asian Feder Menopause Soc 2019;7(2):82–85.

El-Sayed, H.E.M., Hassan, S., and Ibrahim, A.A., (2017): Effect of Preoperative Counseling on Anxiety and Satisfaction among Women Undergoing Hysterectomy. International Journal of Nursing Didactics, 7: 05.

Farshi, N., Hasanpour, S., Mirghafourvand, M., and Esmaeilpour, K., (2020): Effect of self-care counselling on depression and anxiety in women with endometriosis: a randomized controlled trial. BMC Psychiatry. 2020; 20: 391. doi: 10.1186/s12888-020-02795-7.

Gultom, A. B. and Indrawati, (2020): Self-Efficacy Training Improved the Quality of Life for Cancer Patients Undergoing Chemotherapy .Global Journal of Health Science.2020, 12, (4): 118-126.

He, M., Tong, L., Zou, Y., and Li, Z., (2021): Effect of 5A nursing mode combined with

fine nursing management on perioperative self-efficacy and living quality of hysteromyoma. American journal of translational research, 13(9): 10737–10743.

He, S., You, L. M., Zheng, J. and Bi, Y. L., (2016): Uncertainty and personal growth through positive coping strategies among Chinese parents of children with acute leukemia. Cancer Nursing, 39(3), 205–212.

Ibrahim W. K. and Mohammed H. M., (2020): Effect of Nursing Instructional Guideline on Women's Quality of Life after Hysterectomy. International Journal of Novel Research in Healthcare and Nursing; 7 (2): 439-451.

Jafarigiv S., Peyman N., Esmaily H., and Tajfard M., (2020): Prediction of the Quality of Life of Menopausal Women Based on Health Literacy and Self-Efficacy. Journal of Education and Community Health. 7:29-36.

Jan R., Bashir M. and Hussain W.Z., (2020): A study on the usefulness of organized training program on information among postoperatıve patients on self-care with hysterectomy in Kashmir. International Journal of Midwifery and Nursing Practice; 3(1): 28-33.

Jiang F., Lin Y., Li S., Peng Y., Huang X. and Chen L., (2022): A Study of the Nursing Intervention Based on Self-Efficacy Theory for Patients after Mechanical Heart Valve Replacement: A Randomized Controlled Trial. Int J Gen Med.9;15:6539-6547.

Li Y., Chen, S., Xu, M., and Liu, J., (2021): Effect of crisis intervention nursing on perioperative psychological state and self-efficacy of patients undergoing laparoscopic radical hysterectomy. American journal of translational research, 13(11), 12988–12995.

Liu B., Liu Y. and Ge X., (2023): Evaluation on the efficacy of nursing intervention based on the self-efficacy theory model in elderly patients undergoing total laparoscopic hysterectomy. European Journal of Gynecological Oncology. ; 44(1): 93-97. doi: 10.22514/ejgo.2023.011.

Lopes J.V., Bergerot C.D., Barbosa L.R., Calux, N.M., De, C.T., Elias S., and Ashing K.T., (2018): Impact of breast cancer and quality of life of women survivors. Rev Bras Enferm. 71:2916-21.

Mahmoud, A., El-Bassioune, W., Abdelmaksoud, A., and Abd-Eltawab, A., (2020): Alteration of Sexual Function among Females after Laparoscopic and Abdominal Hysterectomy. International Journal of Medical Arts, 2(2), 442-450.

McCusker J., Lambert S.D. and Cole M.G. et al., (2016): Activation and self-efficacy in a randomized trial of a depression self-care intervention. Health Educ Behav.;43:716–725. doi:10.1177/109019811663760110

Mishel M., (1988): Uncertainty in Illness. Journal of Nursing Scholarship, 20, 225-232. http://dx.doi.org/10.1111/j.1547-5069.1988.tb00082.x.

Mohamed S.M., Mahmoud M.A. and Salama A.M., (2023): Effect of Enhanced Recovery After Surgery Protocol on Postoperative Outcomes of Women Undergoing Abdominal Hysterectomy. SAGE Open Nursing. 2023; 9. doi:10.1177/23779608231165948

Nejat S., Montazeri A., Holakouie Naieni K., Mohammad K., Majdzadeh S.R., (2006): The World Health Organization Quality of Life (WHOQOLBREF) questionnaire: Translation and validation study of the Iranian version] Journal of School of public Health & Institute of Public Health Research.;4:1–12.

Ntihabose C.K., and Twahirwa B., (2021): Health related quality of life after hysterectomy performed for benign conditions in Tertiary Hospitals, Rwanda. Journal of Tropical Disease and Public Health. 9(7):293.

Prieto A., Rocha H., Yepes T., Navas, D., Monterroza, R., and Torres, Y., (2015): Condiciones Sociodemográficas y Nivel de Incertidumbre en Mujeres ante el Diagnóstico de Cáncer de Mama. Hacia Promoc Salud. 2015;13.

Rehan M., Qasem E., El Malky M., and Elhomosy S., (2023): Effect of Psychological Counseling program on Quality of Life among Post-Hysterectomy Women. Menoufia Nursing Journal, 8(1), 81-93. doi: 10.21608/menj.2023.288833

Samakouri M., Bouhos G., Kadoglou M., Giantzelidou A., Tsolaki K., and Livaditis M., (2012).: [Standardization of the Greek version of Zung's Self-rating Anxiety Scale (SAS)]. Psychiatriki. ;23(3):212-20. Greek, Modern. PMID: 23073544.

Schneider S., Armbrust R., Spies C., du Bois A. and Sehouli J., (2020): Rehabilitations programs and ERAS protocols in gynecological oncology: a comprehensive review. Archives of gynecology and obstetrics, 301(2):315-326.

Sharma P., and Gupta S., (2020): Histopathological analysis of cervical and uterine pathologies in hysterectomy specimens in tertiary care center. Journal of medical. Science and clinical research, 8(2), 761-765.

Skevington S.M. and Tucker C., (1999): Designing response scales for cross-cultural use in health care: Data from the development of the UK WHOQOL. Br J Med Psychol. 1999;72:51–61.

Sumdaengrit B. and Wongsrisunthorn, M., (2019): Quality of Life in Thai Women after Hysterectomy. COJNH.MS.ID.000602. 5(1).2019

Supriati, R.N., Nihayati, H.E., Ahsan, R,N., Rodli, M., and Eko Kapti, R.N., (2022): Perspective of Uncertainty and Emotional Responses in Breast Cancer Patients During the COVID-19 Pandemic. SAGE Open NursingVolume 8: 1–7

Torné A., Pahisa J., Ordi J., Fusté P., Díaz-Feijóo B., Glickman A. and Del Pino M., (2021): Oncological results of laparoscopically assisted radical vaginal hysterectomy in early-stage cervical cancer: Should we really abandon minimally invasive surgery? Cancers (Basel), 13(4), 846. 10.3390/cancers13040846

Wall A. S., (2020): Post-operative nursing education of enhanced recovery after surgery recommendations for patients undergoing. Total Joint Arthroplasty. The University of Tulsa.

Webb-Tafoya M., (2021): Exploring Postsurgical Decision Attitudes among Young Women Electing Hysterectomy. Walden Scholar Works, 12(7), 87.

Wu X., Xu H., Zhang X., Han S., Ge L., Li X., (2021): Self-efficacy, hope as mediators between positive coping and resilience among patients with gastric cancer before the first chemotherapy. Cancer Nursing. ; 44: 79–85.

Zhang Y., (2017): Uncertainty in illness: theory review, application, and extension. Oncology Nursing Forum. 2017; 44: 645–649.

Zhang H., Jia, Y., Li, X., Feng, Y. and Wang, X., (2018): Effects of psychological intervention on quality of life, negative emotions, and psychological rehabilitation in post-hysterectomy women. Int J Clin Exp Med. 11(7):7304-7311.