

▪ *Basic Research*

**Application of Systematic Nursing Intervention on Women with Dysfunctional Uterine Bleeding**

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**ABSTRACT**

**BACKGROUND:** Systematic nursing refers to combination of systematic health education and routine nursing intervention including psychology, diet, exercise, follow-up and also incorporation of family in treatment. The most prevalent gynecological issue is dysfunctional uterine bleeding, which occurs in approximately 10-35 % of women. **AIM:** The study aimed to evaluate the effect of application of systematic nursing intervention on women with dysfunctional uterine bleeding. **DESIGN:** A quasi-experimental design was utilized. **SETTING:** This study was conducted in Obstetrics and Gynecology department and Outpatient Clinics at Benha University Hospitals. **SAMPLE:** A Purposive sample included 87 women was used and divided into two groups (control and study group). **TOOLS:** A structured interviewing questionnaire, a self-rating anxiety scale, a quality-of-life questionnaire, and a women's satisfaction questionnaire were the four tools utilized to collect the data. **RESULTS:** The total quality of life score and total knowledge score of both groups before and after program application had a highly statistically significant positive correlation, while the total quality of life score and total anxiety score of both groups before and after program application had a highly statistically significant negative correlation **CONCLUSION:** Based on results obtained from this research, hypothesis was achieved and supported and also, founded that Systematic nursing intervention was effective in preventing physical complications of dysfunctional bleeding as: shock, infection, anemia and also, psychological complications as: fear and anxiety. **RECOMMENDATION:** application of systematic nursing intervention should be incorporated in all hospitals in Egypt. **Key words:** *Systematic nursing, Intervention, Dysfunctional uterine bleeding.*

## Introduction

Dysfunctional uterine bleeding (DUB), a common gynecologic issue during woman's reproductive life, is defined as irregular uterine bleeding that occurs without the presence of pathology or medical illness. Moreover, (DUB) represents more than 70% of women's complaints (*Yao et al., 2021*). There are two types of dysfunctional uterine bleeding (Ovulatory “10%” and an ovulatory DUB “90%”), Ovulatory dysfunctional uterine bleeding (ODUB) can happen as a result of luteal atrophy or dysplasia, which causes irregular endometrial shedding and lengthens the menstrual cycle. Continuous bleeding before or after the menstrual period and significant menstrual volumes might occur in ODUB patients. If ODUB is not properly treated, it has a negative impact on the quality of life and physical and mental health of affected women (*Li et al., 2020*).

An ovulatory dysfunctional uterine bleeding is a bleeding related to dysfunction of neuroendocrine axis and unrelated to abnormalities of the uterus or endometrium structure, and diagnosed after exclusion of any structural causes. Most common cause of dysfunctional uterine bleeding is anovulation, “the absence of ovulation” and therefore loss of estrogen and progesterone hormones provide alarm for woman and physician about the fact that woman is no longer ovulating normally (*Ji et al., 2020*).

Symptoms of DUB include abnormal menstruation, irregular vaginal bleeding, and menstrual irregularities that can lead to secondary infections, anaemia, and even infertility. The incidence of dysfunctional uterine bleeding has been increased, and affects the quality of life of women. DUB can be occurred at any time from menarche to menopause (*Sun & Luo, 2021*). A comprehensive medical history is needed for diagnosis of DUB as blood tests, imaging and histopathology. Also bleeding pattern as frequency, duration, regularity, volume and intermenstrual bleeding is considered as standard menstrual index parameters which used for diagnosis of different types of DUB (*Singh et al., 2021*).

Various treatments, including combined oral contraceptives, progestogens, danazol, non-steroidal anti-inflammatory drugs (NSAIDs), levonorgestrel-releasing intrauterine device (LNG-IUS), and others, are used to treat dysfunctional uterine bleeding (DUB). When medication treatment for DUB fails, severe anemia develops, or there are other related uterine pathologies, hysterectomy may be the only alternative (*Lin et al., 2017*).

Previous studies have suggested that stress can lead to amenorrhea or irregular periods. Sleep disturbances and lack of sleep are also associated with menstrual disorders. Abnormal uterine bleeding in a woman's life may result from poor quality of life compared to other healthy women of the same age. Dysfunctional uterine bleeding therefore causes direct or indirect costs as well as loss of production capacity (*Nalgirkar et al., 2018*).

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Nurses plays an important educational role in management of dysfunctional uterine bleeding as health education can increase women's awareness of DUB, reduces women's anxiety and depression, also, make women face illness with courage, and thereby reducing complications and promote early recovery (*Yang et al., 2019*).

The term "systematic nursing intervention" refers to a set of nursing interventions that are given to patients and cover topics including psychology, food, infection prevention, and discharge planning. Effective psychological therapy can help patients feel better and have more faith in treatment by reducing negative emotions like worry. Patients' nutritional demands can be met and ability to fend off disease can be increased with advice on healthy eating practices. Additionally, patient discharge instructions and infection control measures successfully lower the frequency of problems and boost medication compliance. As a result, patients' quality of life will improve, and nurses will feel more satisfied (*Sun & Luo, 2021*).

### **Significance of the problem:**

Dysfunctional uterine bleeding affects women of all ages of reproductive life, from puberty to the end of reproductive age. DUB is the most frequent reason for irregular uterine bleeding. This leads to morbidity and anemia and also results in unnecessary hysterectomy in women of childbearing age (*Devi & Nimonkar., 2018*). With searching for the prevalence of dysfunctional uterine bleeding, it was found that ovulatory dysfunctional uterine bleeding was only (10%) but anovulation dysfunctional uterine bleeding was (90%), so the latter is the most common cause of abnormal uterine bleeding (*Nalgirkar et al., 2018*).

Few studies that examine the impact of systematic nursing intervention on women who experience dysfunctional uterine bleeding as well as the impact on recovery while numerous studies have shown that DUB may be one of the reasons for a hysterectomy. So, this study is conducted to assess how systematic nursing interventions affected women who experienced dysfunctional uterine bleeding.

### **Aim of the research study:**

The study aimed to evaluate the effect of application of systematic nursing intervention on knowledge, anxiety level and quality of life of women with dysfunctional uterine bleeding.

### **Research objectives:**

- 1-Assessing women's knowledge, anxiety levels and quality of life related to DUB.
- 2-Designing and implementing systematic nursing intervention.

3- Evaluating the effect of systematic nursing intervention on women's knowledge, anxiety levels and quality of life

4-Evaluating women's satisfaction regarding systematic nursing intervention.

**Research hypothesis:**

Women who receive systematic nursing interventions will have more satisfactory knowledge, good QOL, Lower anxiety than those who do not.

**Operational definitions:**

- *Systematic nursing* is defined as nursing interventions that result in physical recovery and improve the patient's quality of life.

- **Systematic nursing interventions** are defined as a series of nursing interventions for patients and include aspects such as infection prevention, nutritional counseling, and discharge counseling.

**Subjects and Method:**

**Research Design:**

A quasi-experimental research design (pre/post-test, two groups for the study and control) was used.

**Research setting:**

The study was carried out in Obstetrics and Gynecology Department and Out-patient Clinic at Benha University Hospital which is the main Hospital serving Qalyubia Governorate and the surrounding areas.

**Sample type and size**

A Purposive sample included all women attending the previous setting during six months (87 women) and meets the following inclusion criteria: diagnosed with DUB and accepted to participate in the study. **Exclusion criteria:** women who have any local or systematic cause of bleeding

The sample was randomly divided into two groups (study group involved 44 women who received the systematic nursing intervention and control group involved 43 women who received routine care only).

**Tools of data collection**

Four tools were utilized to collect data:

**Tool (I):** A structured interviewing questionnaire: The researchers designed questionnaire based on literature of review and was written in simple clear Arabic language and composed of three parts:

**Part I:** Participated women's demographic characteristics such as age, residence, educational level, marital status and occupation.

**Part II:** Anthropometric measurements as: weight, Height and Body Mass Index (BMI).

**Part III:** Participated woman's obstetrics and gynecological history such as age of menarche, pattern of DUB, nature of menstruation, number of gravidity and parity and also, using of contraceptive pills

**Part IV:** Participated woman's knowledge regarding dysfunctional uterine bleeding included (9) questions regarding definition, duration, types, risk factors, causes, signs and symptoms, diagnosis, tests and management of DUB.

**Knowledge scoring system:**

Each complete correct answer was assigned a score (2) and an incomplete correct answer was given a score (1) while, a score (0) was given to an incorrect or I don't know answer. The total knowledge scores ranged from 0 to 18 points and classified as the following:

- Good knowledge when (75% or more of total knowledge score).
- Average knowledge when (50% to less than 75% of total knowledge score)
- Poor knowledge when (less than 50% of total knowledge score).

**Tool (II): The Self-Rating Anxiety Scale (SAS)** was adapted from *Samakouri et al., 2012* and have 20 sentences to assess the level of anxiety as (I feel more nervous and anxious than usual, I feel afraid for no reason at all, I get upset easily or feel panicky, I feel like I'm falling apart and going to pieces, etc.....). The Likert scale for each item is has 4-point scale: (4) "most of the time", (3) "good of the time", and (2) "some of the time", (1) "none of the time". A total score for each subject was calculated by summing the scores of the responses to each item, and the mean anxiety scale for each subject was also calculated.

**Total anxiety scoring system:**

- Severe anxiety > 69 points
- Moderate anxiety 60-69 points
- Mild anxiety 50-59 points
- Normal range < 50 points.
  - High level of anxiety  $\geq 50$  %
  - Low level of anxiety < 50 %

**Tool (III): Quality of life (QOL) questionnaire** which adapted from *Guermazi et al, 2012* and included four domains as following:

1- **General health:** involved (10) items as (I seem to get sick a little more easily than others, I am as healthy as anyone I know, I expect my health to get worse, my health is excellent, Did you feel full of pep?, Did you have a lot of energy?, Did you feel worn out?, Did you feel tired?, How much bodily pain have you had during the past 4 weeks?, and In the past 4 weeks, how much did pain interfere with your usual work (including work outside the home and household chores)?

**2-physical health:** involved (10) items that investigate the following (Strenuous activities, such as running, lifting heavy objects, participating in strenuous exercise, Moderate activities, such as moving a table, pushing a vacuum cleaner, playing bowling, or golf, lifting or carrying groceries, climbing multiple stairs, climbing one flight of stairs, Bending, kneeling, or crouching, walking for more than a mile, walking for several blocks, and walking for one block).

**3- Limitation of activities:** which included (9) items as (Spending less time at work, less productive than expected, limited types of work or other activities, difficulty completing work or other activities (for example, it took extra effort), Cut down the amount of time you spent on activities, Accomplished less than you would like, Didn't do work or other activities as carefully as usual, During the past 4 weeks, how much did physical health or emotional problems interfere with your normal social activities with family, friends, neighbors, or groups? Did the problem interfere with your social activities (such as visiting friends, relatives?).

**4-Emotional health:** which included (5) items as (Were you a very nervous person? were you feel so down that nothing cheered you up? did you feel calm and at peace? Have you ever felt depressed and sad? Were you a happy person?).

#### **Scoring system of Quality-of-life questionnaire (QOL questionnaire):**

The Likert scale for each item is has 4-point scale: (4) "most of the time", (3) "good of the time", and (2) "some of the time", (1) "none of the time". A total score for each subject was calculated by summing the scores of the responses to each item, and the mean quality of life scale for each subject was also calculated. Scores range from 0 to 136, with higher scores indicating higher levels of functioning and better health, and lower scores indicating lower levels of functioning and poorer health

#### **Total QOL scoring system:**

- Good QOL when (more than or equal to 75% of total score).
  - Moderate QOL when (50% to less than 75% of total score).
  - Poor QOL when (less than 50% of total score).

**Tool (IV): Women's satisfaction regarding nursing care: adapted from Karaca, and Durna, (2019).** It included (20) items to evaluate participated women satisfaction as (I was cared with promptly in the admission department. The inpatient staff were polite and treated me with dignity and respect. The wait time for the nurse to see me was acceptable. The wait time for doctor to see me was acceptable...etc.)

#### **Scoring system of Women's satisfaction questionnaire:**

The Likert scale for each item is has 5-point scale: (5) for "strongly agree", (4) for "agree", and (3) for " Neither Agree or Disagree", (2) for "disagree" (1) for "strongly disagree" A total score for each subject was calculated by summing the scores of the responses to each item, and the mean satisfaction scale for each subject was also calculated. The total satisfaction scores ranged from 0 to 100 and classified as the following:

- Satisfactory  $\geq 50\%$
- Unsatisfactory  $< 50\%$

#### **Validity**

The present study was checked for content validity and sentence clarity by three academic nursing staff in the Obstetrics and Gynecological Health Nursing and recommended revisions were made.

#### **Reliability:**

The reliability was determined by Cronbach's alpha coefficient test. The internal consistency of knowledge was ( $\alpha=0.75$ ), the anxiety scale ( $\alpha=0.84$ ) and the QOL scale was 0.94. The internal consistency for each dimension ranged from 0.72 to 0.89. According to (**Cronbach, 1951**) value equal or above 0.70 considered satisfactory.

#### **Ethical considerations**

Approval of this study was obtained from the Scientific Research Ethical Committee in Faculty of Nursing, Benha University. Study purpose and objectives were explained by researchers to participated women to gain their cooperation and trust; all obtained data were

treated confidentiality. Participation in the study was voluntary and free withdraw at any time was available without giving any reason.

### **Pilot study**

The pilot study was carried out on 10% of total time (three weeks) and included nine women to test applicability and clarity of tool, time needed to complete questionnaires, The sample of pilot study was included in the main study sample, as there was no modification required.

### **Field work**

First, Formal approval to conduct the study was obtained from the directors of Benha University Hospital, Then the researchers visited the previous mentioned study setting 3 days\week from 9 am to 2 pm. The current study started from the beginning of November 2021 to the end of April 2022 (lasted six months)

**A- Assessment phase:** through this phase the researchers interviewed women, explained the study purpose and asked them for participation. Then, each woman was interviewed separately to assess demographic characteristics, obstetrics and gynecological history, and knowledge related to dysfunctional uterine bleeding. Also, the researchers assess women anxiety and quality of life, interviewing time was 30-45 minutes for each woman.

**B- Planning phase:** based on obtained information from the assessment phase, the researchers review relevant literatures and design an educational program based on a systematic nursing intervention, also prepare an educational booklet which written in simple Arabic language illustrated by figures. Also, sessions' numbers, contents, various teaching methods and the instructional media were determined. Women's telephone number was obtained to facilitate contact with women for follow up.

The objectives of the program were constructed as following

**General objective:** general objective was aimed to improve women's knowledge, quality of life and lower level of anxiety regarding dysfunctional uterine bleeding.

#### **Specific objectives:**

- Identify the etiology of dysfunctional uterine bleeding.
- Outline the treatment and management options available for dysfunctional uterine bleeding.
- Describe interprofessional team strategies for improving care coordination and communication to aid in the diagnosis of dysfunctional uterine bleeding.

- Modify health practices regarding dysfunctional uterine bleeding.
- Improve quality of life with dysfunctional uterine bleeding.

**C- Implementation phase:** Researchers started with dividing participated women into two groups (intervention group and control group) each group have the same items of treatment.

**For intervention group:**

Participated women were divided into small groups and asked to follow protective precautions during sessions as wearing mask, maintain social distance and use alcohol. Researchers start application of systematic nursing intervention which includes (Health education, psychological session, Health practices, Diet and follow-up after discharge).

**Health education:** Researchers distributed an Arabic booklet on women and start to provide women with information regarding dysfunctional uterine bleeding as (def, causes, signs and symptoms, risk factors, evaluation, management, prognosis and complications) using PowerPoint presentation and related videos, also researchers give women chance for discussion and ask questions to ensure that women understand the nature of their problem and be trust in treatment. This session takes about 90 min.

**Psychological session:** Researcher start to communicate with each woman to understand their feeling and level of anxiety, Researchers start to provide support to women with respect to establish trust and self-confidence, also researchers were maintaining positive attitude with women without judgment, then the researcher advice woman to practice YOGA to decrease the level of anxiety. This session takes about 30 min with each woman.

**Health practices:** Researchers starts to instruct women about commitment to treatment and avoid missed doses. In this phase researchers were concerned to identify women how to deal with symptoms related to DUB, and provide instructions as: strict perineal care with avoiding a sitz bath, change underwear regularly and to avoid sexual intercourse during treatment to avoid infection. This session takes about 30 min.

**Diet:** Instructions related to healthy well-balanced diet were given to women as increase fruits, vegetables and diet high in protein, iron and vitamin C, also to avoid spicy food. This session takes about 15 min and was illustrated with brochure.

**Follow up after discharge:** researchers emphasized on the importance of follow-up after discharge, and instruct woman to use medications in prescribed time and follow doctor instructions and come back for regular follow-up

**For control group:** only have routine care with prescribed medications can be provided after ending of evaluation phase.

**D-Evaluation phase:**

This phase includes an evaluation of interventions based on systematic nursing by using the same previous tools which were used in the beginning of the study

Follow up was done via telephone after two months to ensure retention of knowledge and improvement of quality of life of participated women.

### Statistical analysis of data:

Data were verified prior to computer entry. For this purpose, the Social Science Statistics Package (SPSS version 2021) was used, followed by data tabulation and analysis. Descriptive statistics were used as: (mean, standard deviation, frequency and percentage) and significance tests such as (paired t-test, chi-square test). Significant level values were considered at  $p \leq 0.05$ . also, a highly significant level values were considered when  $p < 0.001$ .

### Results

**Table (1)** Shows that the mean age of control and study groups were, respectively,  $40.40 \pm 9.07$  and  $39.25 \pm 9.23$ . Regarding residence, more than two thirds of the control group (67.4%) and around three quarters of the study group (72.7%) live in rural areas. 53.5% of control group had secondary education while 45.5% of study group had university education. Moreover, more than half of both groups were married and working. There was no statistical significant difference between both groups regarding socio-demographic characteristics.

**Table (2)** Represents that the mean weight of both control and study groups were, respectively, ( $88.06 \pm 10.73$  and  $84.20 \pm 12.44$ ) kg, and the mean height of both control and study groups were, respectively, ( $161.11 \pm 5.14$  and  $158.95 \pm 8.08$ ) cm. In addition, the mean BMI for control and study groups, respectively, was ( $34.02 \pm 4.71$  and  $32.74 \pm 5.08$ ) kg/m<sup>2</sup>. Additionally, there was no statistically significant difference in anthropometric parameters between the two groups ( $p > 0.05$ ).

**Table (3)** Explains that the mean age at menarche for the control and study groups, respectively, was  $12.166 + 1.041$  and  $11.83 + .897$  years. In terms of the pattern of abnormal uterine bleeding, 27.3% of the study group and 32.6% of the control group both experienced polymenorrhea. Both groups mostly had clotting blood.

**Figure (1)** Illustrates that 34.5% of control group had 3 pregnancies while 39.9% of the study group had four pregnancies.

**Figure (2)** Shows more than one third of control and study groups (38.9 % and 40 % respectively) had three times of deliveries.

**Figure (3)** Clarifies that most of control and study groups (83.2 % and 87.2% respectively) used IUD as method of contraception.

**Table (4)** Reveals that, prior to the program implementation, there was no statistically significant difference between the two groups' mean scores for overall knowledge and anxiety ( $P > 0.05$ ). However, following program implementation, the study group's mean scores were noticeably higher than the control group's mean scores ( $P < 0.001$ ).

**Figure (4)** Represents that (58.2% and 50.9%) of the study group had good knowledge post intervention and follow up phases respectively compared with (11.1% and 14.8%) of the control group had good knowledge post intervention and follow up phases respectively.

**Figure (5)** Shows that (85.1% and 87.1%) of the study group had low level of anxiety post intervention and follow up phases respectively compared with (44.7% and 55.3%) of the control group had low level of anxiety post intervention and follow up phases respectively.

**Table (5)** Displays that, prior to the program's application, there was no statistically significant difference between the two groups' mean scores for the total quality of life and its components ( $P > 0.05$ ). However, following programme implementation, the study group's mean scores for the total quality of life and its dimensions were considerably greater than those of the control group ( $P < 0.001$ ).

**Figure (6)** Represents that (72.8% and 71.3%) of the study group had good quality of life post intervention and follow up phases respectively compared with (4.6% and 5.6%) of the control group had had good quality of life post intervention and follow up phases respectively.

**Figure (7)** Points out that (80% and 83.6%) of the study group had higher satisfaction level post intervention and follow up phases respectively compared with (10.9 %) of them pre-intervention.

**Table (6)** Shows that the total quality of life score and total knowledge score of both groups before and after program application had a highly statistically significant positive correlation, while the total quality of life score and total anxiety score of both groups before and after program application had

**Table (1): Distribution of control and study groups according to socio-demographic characteristics (n=87):**

Group Socio-demographic characteristics	Control group (n=43)		Study group (n=44)		X <sup>2</sup>	P - value
	No	%	No	%		
<b>Age (years)</b>						
10 - < 20	1	2.3	3	6.8	3.814	0.282
20 - < 30	4	9.3	7	15.9		
30 - < 40	11	25.6	15	34.1		
40 - ≤ 50	27	62.8	19	43.2		
<b>Mean ± SD</b>	40.40 ± 9.07		39.25 ± 9.23		t=0.585	0.558
<b>Residence</b>						
Rural	29	67.4	32	72.7	0.290	0.644
Urban	14	32.6	12	27.3		
<b>Level of education</b>						
Primary education	3	7	6	13.6	1.842	0.398
Secondary education	23	53.5	18	40.9		
University education	17	39.5	20	45.5		
<b>Marital status</b>						
Single	10	23.3	14	31.8	4.238	0.237
Married	29	67.4	25	56.8		
Divorced	2	4.7	5	11.4		
Widow	2	4.7	0	0		
<b>Occupation</b>						
Housewife	16	37.2	20	45.5	0.610	0.435
employee	27	62.8	24	54.5		

t= independent t test  
(p > 0 .05).

No statistically significant difference

**Table (2): Distribution of control and study groups based on anthropometric measurements (n=87):**

Group Anthropometric Items	Control group n= 43	Study group n=44	X <sup>2</sup>	P- value
	Mean ±SD	Mean ±SD		
Weight (kg)	88.06 ± 10.73	84.20 ± 12.44	t=1.550	0.125
Height(cm)	161.11 ± 5.14	158.95 ± 8.08	t=1.484	0.142
Body Mass Index (BMI) (kg/m <sup>2</sup> )	34.02 ± 4.71	32.74 ± 5.08	t=1.217	0.227

t= independent t test  
(p > 0 .05)

No statistically significant difference

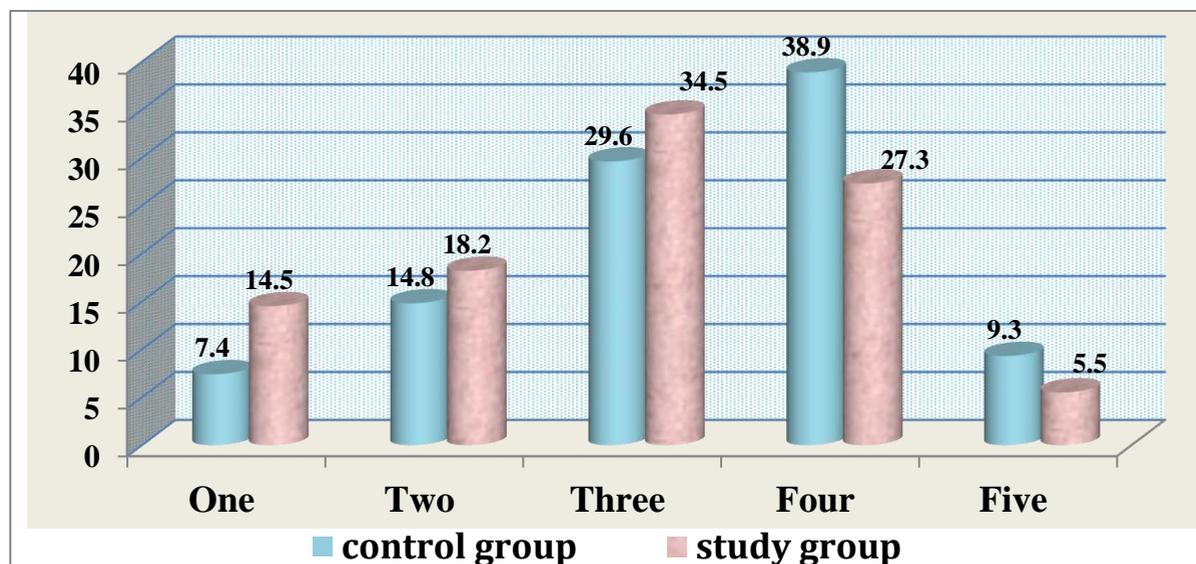
**Table (3): Distribution of control and study groups regarding menstrual history (n=87):**

Group	Control group (n=43)		Study group (n=44)		X <sup>2</sup>	P - value
	No	%	No	%		
<b>Menstrual history</b>						
<b>The menarche age</b>						
Mean ± SD	12.166 ± 1.041		11.83 ± .897		t =1.774	0.079
<b>Pattern of dysfunctional uterine bleeding</b>						
Heavy periods	4	9.4	5	11.4	2.601	0.272
Metrorrhagia	9	20.9	7	15.9		
Polymenorrhoea	14	32.6	12	27.3		
Oligomenorrhoea	6	13.9	11	25		
Intermenstrual bleeding	10	23.2	9	20.4		
<b>Nature of menstruation</b>						
Liquid blood	6	14	5	11.4	0.132	0.716
Clotting blood	37	86	39	88.6		

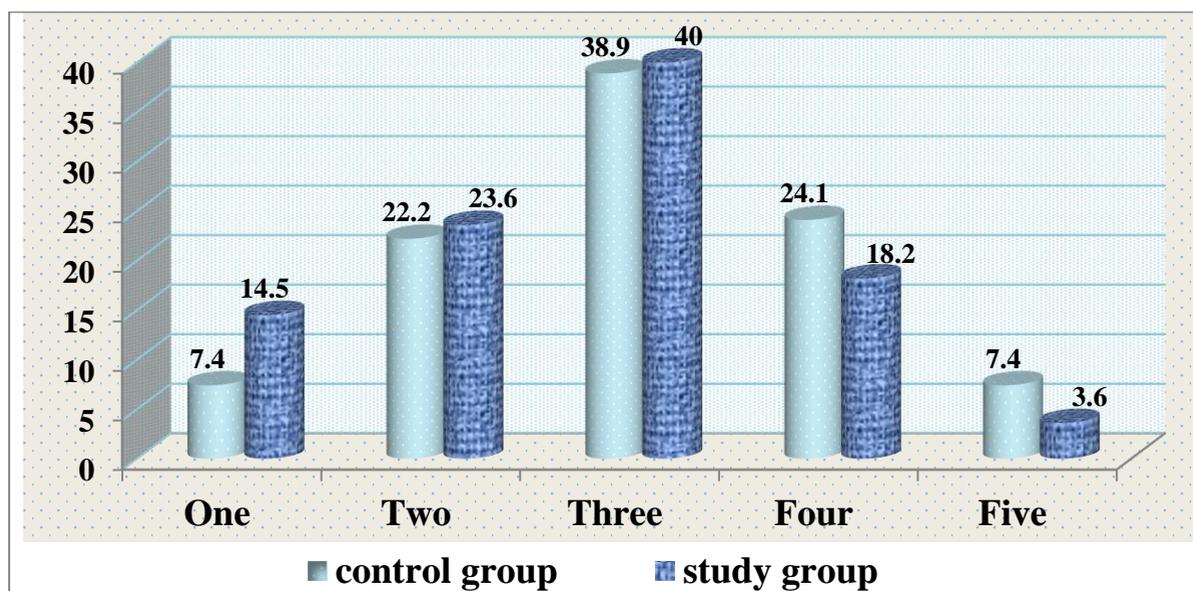
t= independent t test  
(p > 0 .05)

No statistically significant difference

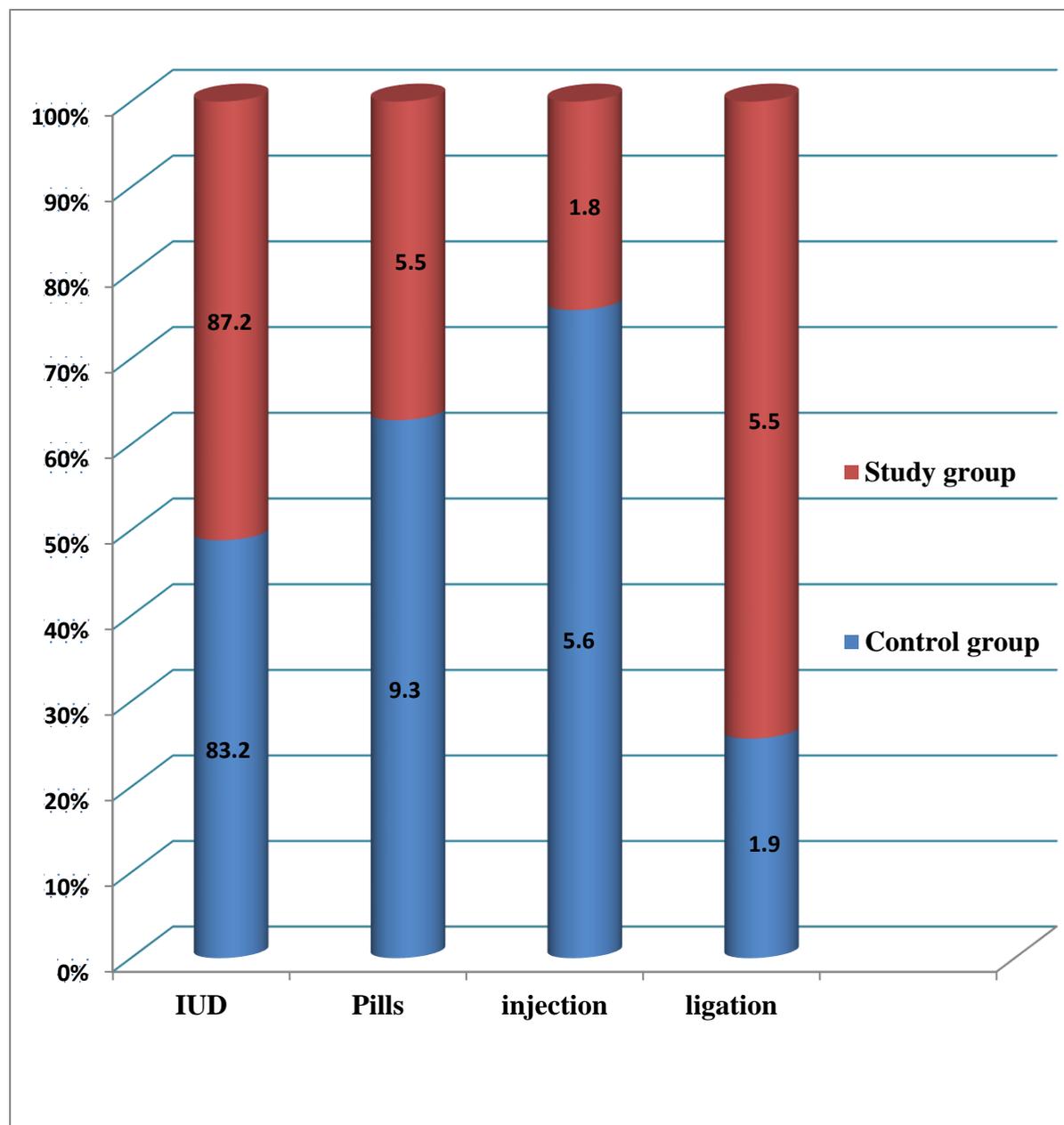
**Figure (1):** Distribution of control group (n=33) and study group (n=30) in relation to number of pregnancies.



**Figure (2):** Distribution of control group (n=33) and study group (n=30) in relation to number of deliveries.



**Figure (3): Distribution of control group (n=29) and study group (n=25) in relation to method of contraception.**



**Table (4): Comparison of the control and study groups' mean knowledge and anxiety scores related dysfunctional uterine bleeding at various evaluation points (n=87):**

Total score		Groups	Maximum score	Before intervention	After intervention	Follow up	t <sub>1</sub> (p-value)	t <sub>2</sub> (p-value)	t <sub>3</sub> (p-value)
				Mean ± SD	Mean ± SD	Mean ± SD			
Total knowledge score	Control group n = 43	18	18	5.06 ± 2.01	5.32 ± 2.54	5.90 ± 2.27	1.564	27.417	20.956
	Study group n = 44			5.81 ± 2.42	16.59 ± 0.97	15.04 ± 1.76	0.122	0.000**	0.000**
Total Anxiety score	Control group n = 43	80	80	68.00 ± 20.59	67.62 ± 19.92	69.76 ± 19.94	0.336 0.737	8.350 0.000**	7.821 0.000**
	Study group n = 44			69.50 ± 20.98	35.52 ± 15.54	38.25 ± 17.91			
	Study group n = 44			37.06 ± 3.75	61.86 ± 4.90	59.63 ± 13.90			

\*\*A high statistically significant difference ( $P \leq 0.001$ )

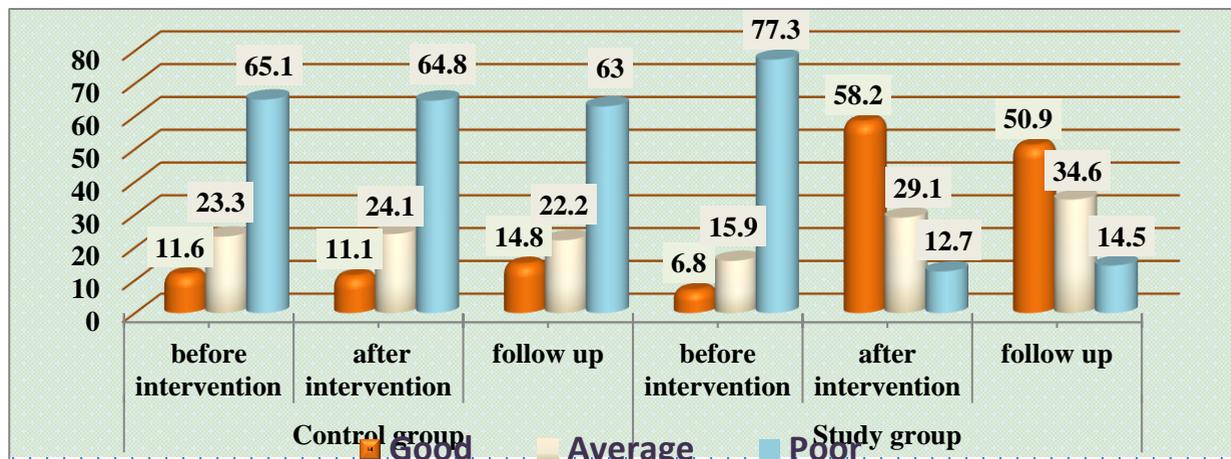
No statistically significant difference ( $P > 0.05$ )

t1 independent t test between study and control pre program

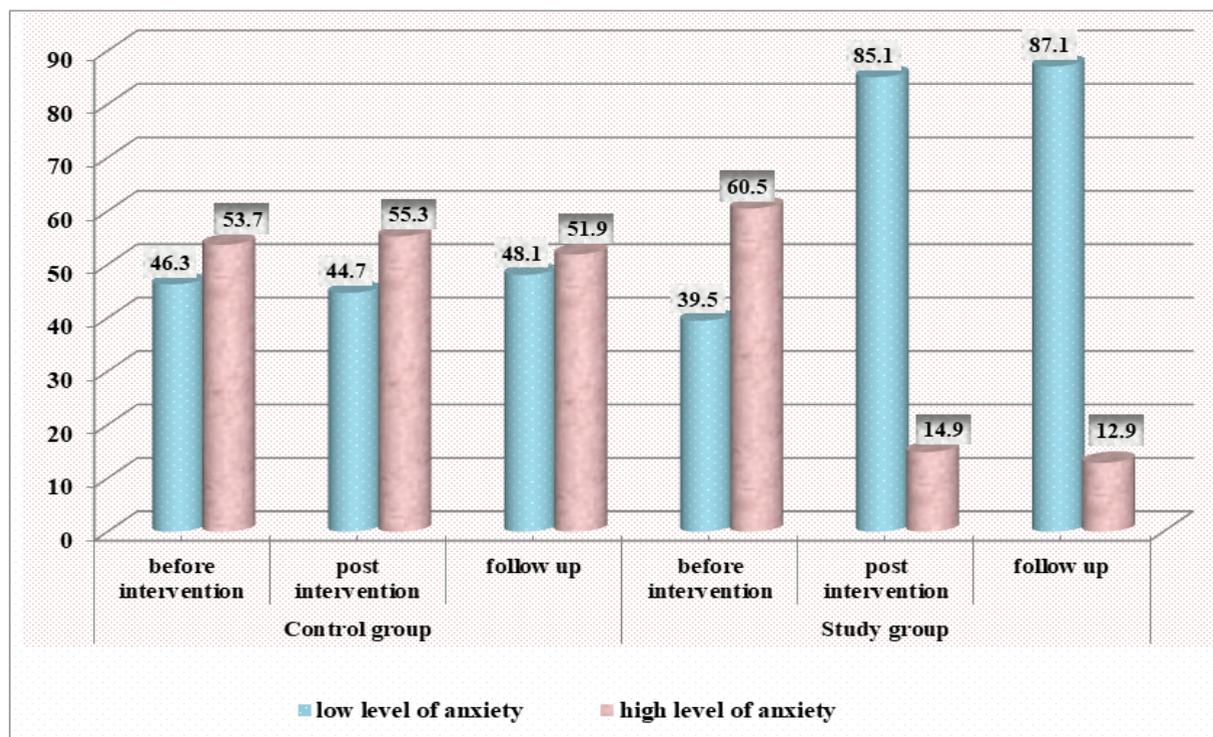
t2 independent t test between study and control post program

t3 independent t test between study and control after 3 months of the program

**Figure (4): Distribution of control and study groups in accordance with total knowledge score regarding dysfunctional uterine bleeding:**



**Figure (5): Distribution of control and study groups in terms of total anxiety score.**



**Table (5): Comparison of the mean quality of life scores throughout assessment periods for the control and study groups (n=87):**

Total score		Groups	Maximum score	Before intervention	After intervention	Follow up	t <sub>1</sub> (p-value)	t <sub>2</sub> (p-value)	t <sub>3</sub> (p-value)
				Mean ± SD	Mean ± SD	Mean ± SD			
General health	Control group n = 43	40	16.18 ± 2.91	16.41 ± 4.60	16.31 ± 5.05	0.538	16.030	12.191	
	Study group n = 44		15.67 ± 5.51	28.09 ± 1.42	26.95 ± 3.01	0.592	0.000**	0.000**	
Physical health	Control group n = 43	40	18.46 ± 3.87	18.69 ± 4.18	18.74 ± 3.67	0.865	11.777	7.434	
	Study group n = 44		17.77 ± 3.58	26.90 ± 1.95	24.04 ± 2.94	0.389	0.000**	0.000**	
Limitation of activities	Control group n = 43	36	14.30 ± 1.88	15.72 ± 1.77	15.53 ± 2.16	0.912	29.950	14.750	
	Study group		14.65 ± 1.76	25.04 ± 1.21	22.54 ± 2.26	0.346	0.000**	0.000**	

No statistically significant difference ( $P > 0.05$ ).

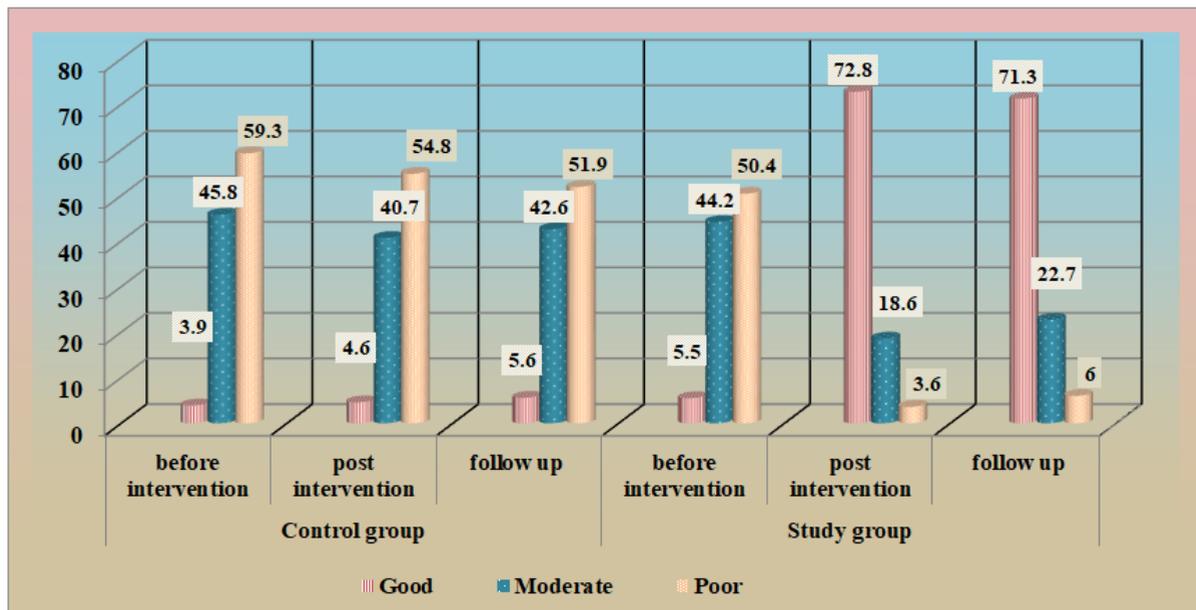
\*\*A high statistically significant difference ( $P \leq 0.001$ ).

t<sub>1</sub> independent t test between study and control pre intervention.

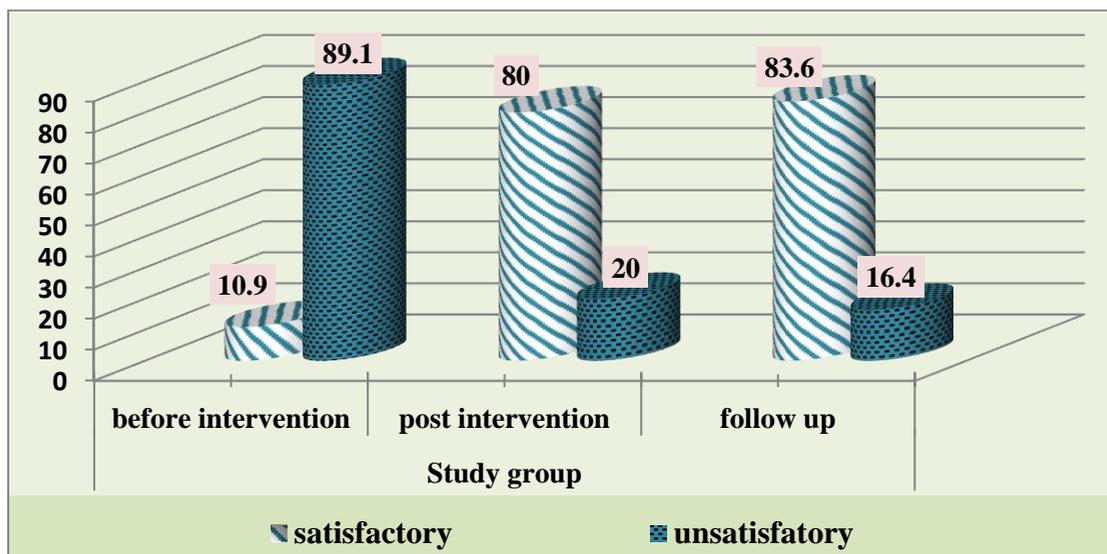
t<sub>2</sub> independent t test between study and control post intervention.

t<sub>3</sub> independent t test between study and control follow up.

**Figure (6): Distribution of control and study groups in terms of total quality of life score.**



**Figure (7): Distribution of study group in relation to total satisfaction score.**



**Table (6): Correlation between total quality of life, total knowledge and total anxiety scores of both groups through times of assessment (n=87):**

Phase and groups  Items	Total quality of life score											
	Control group						Study group					
	Before intervention		After intervention		Follow up		Before intervention		After intervention		Follow up	
	R	P-value	r	P-value	r	P-value	r	P-value	r	P-value	r	P-value
<b>Total knowledge score</b>	0.435	0.001*	0.399	0.003*	0.395	0.004*	0.468	0.000*	0.760	0.000*	0.745	0.000*
<b>Total anxiety score</b>	-0.400	0.003*	-0.410	0.003*	0.465	0.000*	-0.440	0.001*	-0.530	0.001*	-0.576	0.000*

No statistically significant difference (P > 0.05)

\*Statistically significant

(P ≤ 0.05)

\*\*A high statistically significant difference (P ≤

0.001).

## **Discussion**

One of the most common gynecological problems in women is dysfunctional uterine bleeding, which can lead to anemia, interfere with daily activities, and increase women's concerns about uterine cancer. Patients who lacked information and expertise with self-care for this illness contributed to its incidence, which in turn affected the patient's lifestyle and depressed their mood. Therefore, researchers used a systematic nursing intervention for women with dysfunctional uterine bleeding to improve knowledge, psychological status, health practices and diet (*Nalgirkar et al., 2018*).

The systematic nursing intervention adopted in the current study includes health education to improve women's information regarding disease, psychological sessions to improve psychological status of women and decrease fear and anxiety, also for increasing trust in treatment. Health practices to avoid infection or occurrence of complications and also to increase commitment of medication doses and times. Instructions for well-balanced diet to avoid anemia, finally follow up to remind patient with medical instructions for a quick recovery and rehabilitation.

### **General characteristics of studied sample:**

Sample size of this research comprised 87 women who diagnosed with dysfunctional uterine bleeding and accepted to participate in the study (study group involved 44 women who received the systematic nursing care and control group involved 43 women who received only knowledge and routine care). Sample size was near to *Sun & Luo ., 2021* who studied “*Effect of systematic nursing on patients with dysfunctional uterine bleeding and rehabilitation*” and study on 98 patients who were treated in hospital for dysfunctional uterine bleeding, and was divided into two groups (control group 49 women who receive conventional nursing and observation group 49 women who receive systematic nursing).

As regards personal characteristics, the results of the current study revealed that, mean age of study group was  $39.25 \pm 9.23$ , and mean age of control group was  $40.40 \pm 9.07$ , these results near to results of a study conducted by *Sun & Luo ., 2021* were  $36.24 \pm 6.88$  for control group and  $35.78 \pm 6.98$  for observational group, while *Sujatha R., 2019* concluded that dysfunctional uterine bleeding was more commonly seen in perimenopausal age group (41-50 years old).

Regarding residence, more than two thirds of the control group and around three quarters of the study group live in rural areas. More than half of control group had secondary education while about one half of study group had university education. Moreover, more than half of both groups were married and working. These results explain the reason for the lack of information among the participants, and it may also be one of the reasons for the delay in seeking medical help or the deterioration of the health condition due to being busy with their homes and work.

Regarding to anthropometric measurements of both groups, there was no statistically significant difference between both groups. As the mean weight of both control and study groups were, respectively, ( $88.06 \pm 10.73$  and  $84.20 \pm 12.44$ ) kg and the mean height of both control and study groups were, respectively, ( $161.11 \pm 5.14$  and  $158.95 \pm 8.08$ ) cm. So, the mean BMI of both control and study groups were ( $34.02 \pm 4.71$  and  $32.74 \pm 5.08$ ) kg/m<sup>2</sup> respectively. BMI from 30-34.9 is considered obese, so these results indicate that there is a causal relationship between obesity and risk of DUB. These results were supported by *Venkatesh et al., 2022* who concluded that general and central obesity were associated with increased risks gynecological diseases, but the extent of this association varies in different cases. Also, *Sağnuç S., 2021* showed a relationship between obesity and endometrial cancer and that reducing obesity reduces morbidity and mortality from endometrial cancer

Regarding Menstrual history, mean age of menarche of both control and study groups were, respectively, ( $12.166 \pm 1.041$  and  $11.83 \pm .897$ ) years. This result means normal start of

menstruation of both groups. Regarding Pattern of dysfunctional uterine bleeding, the prominent bleeding pattern found in both groups was Polymenorrhea followed by intermenstrual bleeding and most of both groups had clotting blood. On the contrary *Sujatha R., 2019* found that almost half of sample had menorrhagia and less than quarter had polymenorrhagia. Knowing the bleeding patterns of the woman allows direct clinical interpretation and access to the appropriate treatment method.

Regarding number of pregnancies and deliveries, there was more than one third of the control group had four pregnancies, and more than one third of the study group had three pregnancies, while there was more than one third of the both groups had three deliveries. These results showed that DUB is most common with multigravida, and this was supported by *Sujatha R., 2019* who found that DUB is most common in women with parity two or more. It was necessary to take the obstetric history to know if the woman intends to have another pregnancy or not, because it is known that some cases which are not treated properly turn into endometrial cancer.

Regarding methods of contraception used, most of the both groups had used IUD, which known that affect menstrual pattern. This result was supported by a study conducted by *Abd Elwadood et al., 2019* who concluded that “hormonal contraceptive methods and IUD can affect the pattern of menstrual cycle and are considered risk factors for irregularity in vaginal bleeding patterns”

Knowledge helps to increase skills such as thinking and problem solving. When patients have prior knowledge of the disease, this helps to understand it better and thus deal with it well. So, regarding total knowledge score of both groups, there was no statistically difference between study and control group prior to the program implementation. However following program implementation, there was statistically difference between both groups as study group's mean scores were noticeably higher than the control group's mean scores. Although researchers provide

health education for the two groups about DUB, there is a difference in the results, which indicates that health education only is not sufficient, but the application of systematic nursing and follow-up also enhances knowledge retention for women.

Regarding total anxiety score of both groups, there was no statistically difference between study and control group prior program implementation. However following program implementation, there was statistically difference between both groups as study group's mean scores were noticeably higher than the control group's mean scores. The results of the current study was supported by *Sun & Luo ., 2021* who revealed that no significant difference was found with respect to anxiety and depression scores between the two groups before intervention; after intervention, to anxiety and depression scores of the two groups decreased, and the decrease in the observation group was greater than the control group. Also, *Nalgirkar et al., 2018* studied “Yoga as a Therapeutic Intervention in the Management of Dysfunctional Uterine Bleeding” and demonstrated significant reductions in perceived stress and anxiety among women suffering from DUB following the yoga intervention for 12 weeks in comparison to the baseline data.

This means that the psychological sessions with patients which based on respect and confidence-building were successful and led to the desired goal, which is to reassure the cases and reduce their stress and anxiety.

Regarding quality of life of both groups, there was no statistically significant difference in the mean scores of the total quality of life and its dimensions between the two groups prior to program implementation. However, following program implementation, the study group's mean scores for the total quality of life and its dimensions were noticeably higher than the control group's scores. These results correspond to the results of *Sun & Luo ., 2021* whose study showed that the observation group had a higher quality of life score after intervention when compared to the control group.

This is evidence that the application of all items of systematic nursing intervention was highly efficient in improving the quality of life of participants, and also had a significant impact on their rehabilitation.

Regarding total women satisfaction with nursing interventions of study group, more than three quarters of the study group had higher satisfaction level post intervention and follow up phases compared with pre-intervention. These results are supported by *Sun & Luo ., 2021* who found rate of women satisfaction regarding nursing interventions in observation group was higher than control group about ninety six percent versus seventy seven and half percent.

The Correlation between quality of life and level of knowledge of both groups through times of assessment was studied and there was a highly statistically significant positive correlation between total knowledge score regarding DUB and total quality of life score as (general health, activities, physical and emotional health) of both groups before, after program application. More knowledge about a disease provides better adaptation and increase familiarity with the requirements for the treatment such as diet, physical activity, and medication use. So, self-care and decision making can be improved.

The Correlation between quality of life and level of anxiety of both groups through times of assessment was studied and there was a highly statistically significant negative correlation between total quality of life score and total anxiety score of both groups before, after program application. Anxiety can affect a woman's life by affecting her relationships with others, self-confidence and the ability to carry out daily life tasks, in contrast when quality of life is high and the woman enjoys good physical and emotional health, anxiety decreases accordingly.

Finally, it is clear that the research hypothesis was achieved through these results that proved the effectiveness of systematic nursing intervention on DUB this is supported by *Wei et al., 2020* who found that "systematic nursing for placenta previa pregnant women can control

complications such as hemorrhagic shock infection, reduce the premature probability of maternal pregnancy termination, and improve the poor birth condition of newborn”.

### **Conclusion:**

Based on results obtained from this research, It concluded that the hypothesis of this research was achieved and supported and also, founded that systematic nursing intervention can prevent complications of dysfunctional bleeding as: shock, infection, anemia and also, psychological conditions as: fear and anxiety. Also, total quality of life score and total knowledge score of the study group was improved after application of nursing intervention and at follow up.

Moreover, level of anxiety was significant lower after application of nursing intervention and at follow up. Also, the total quality of life score and total knowledge score of both groups before and after program application had a highly statistically significant positive correlation, while the total quality of life score and total anxiety score of both groups before and after program application had a highly statistically significant negative correlation ( $P < 0.001$ ).

### **Recommendations:**

Based on the findings and conclusion presented, the following recommendations suggested:

- Application of systematic nursing intervention should be incorporated in all hospitals in Egypt.
- Application of systematic nursing on other health problems of obstetrics and gynecology.
- Further research needs to be done on another sample and elsewhere to confirm our findings.

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### **Conflict of interest**

The researchers declared that there was no conflict of interest.

### **Limitation of the study**

- 1- Lack of previous studies in this area.

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## الملخص العربي

### عنوان المقال

#### تطبيق التدخل التمريضي المنهجي على السيدات المصابات بنزيف الرحم غير الوظيفي

**المقدمة:** يشير التمريض المنهجي إلى مزيج من التثقيف الصحي المنتظم والتدخل التمريضي الروتيني متضمنا علم النفس والنظام الغذائي والتمارين الرياضية والمتابعة وأيضًا دمج الأسرة في العلاج. يعد نزيف الرحم غير الوظيفي من أكثر مشاكل أمراض السيدات انتشارًا، حيث يمثل حوالي 10-35% من السيدات.

**الهدف من البحث:** هدف البحث إلى تقييم تأثير تطبيق التدخل التمريضي المنتظم على السيدات المصابات بنزيف الرحم غير الوظيفي.

**تصميم البحث:** تم استخدام تصميم شبه تجريبي.

**مكان البحث:** أجريت هذه الدراسة في قسم أمراض النساء والتوليد والعيادات الخارجية في مستشفى بنها الجامعي.

**عينة البحث:** تم استخدام عينة هادفة تضمنت سبعة وثمانون سيدة وتم تقسيمهن إلى مجموعتين (مجموعة المراقبة ومجموعة الدراسة).

**ادوات البحث:** تم جمع البيانات من خلال اربع ادوات رئيسية: استبيان المقابلات المنتظم ، ومقياس القلق للتقييم الذاتي ، واستبيان لتقييم جودة الحياة ، واستبيان لقياس رضا السيدات

**النتائج:** كان لإجمالي درجة جودة الحياة ودرجة المعرفة الإجمالية لكلا المجموعتين قبل وبعد تطبيق البرنامج علاقة إيجابية ذات دلالة إحصائية عالية ، في حين أن إجمالي درجة جودة الحياة ودرجة القلق الكلي لكلا المجموعتين قبل وبعد تطبيق البرنامج كان لهما علاقة سلبية ذات دلالة إحصائية عالية.

**الخلاصة:** بناءً على النتائج التي تم الحصول عليها من هذا البحث ، تم التوصل إلى الفرضية ودعمها ، كما وجد انه كان للتمريض المنهجي فاعلية في الوقاية من مضاعفات النزيف غير الوظيفي مثل: الصدمة النزفية ، العدوى ، الأنيميا ، وكذلك الحالات النفسية مثل: الخوف والقلق.

**التوصيات:** يجب دمج تطبيق التدخل التمريضي المنتظم في جميع المستشفيات في مصر.