Menopausal Symptoms Severity and Its Related Factors

***Jilan Ali Ibrahim Al- Battawi[1] , Rasha Mohamed Essa[2]**

[1]Assistant Professor, Obstetric and Gynecological Nursing Department, Faculty of Nursing, Alexandria University, Egypt.

[2]Lecturer, Obstetric and Gynecological Nursing Department, Faculty of Nursing, Damanhour University, Egypt.

Corresponding Author:
Email: dr_jilane@hotmail.com

Abstract:

Recently, menopause has received much attention as a result of increased life expectancy of women and the subsequent postmenopausal conditions precipitating by either estrogen deficiency, such as cardiovascular disease or by osteoporosis, and estrogen dominance, such as breast cancer and endometrial cancer. Menopause is simply defined as the permanent cessation of menses. During this period, the women experience different symptoms due to failure or declining in ovarian function. A wide range of symptoms and signs women are encountered during menopausal period. **Aim of the study** was determine of Menopausal Symptoms Severity and Its Related Factors. **Materials and Method:** An explanatory descriptive cross-sectional research design was used to carry out this study.
Setting: The study was conducted from December 201 up to February, 2017 at, El-Shatby Maternity University Hospital, Alexandria, Egypt. Subjects: A total of 240 eligible women attending the outpatient clinic at El-Shatby Maternity University Hospital were recruited to participate in the study. **Two Tools** were used to collect the necessary data for the research. **Tool I:** Socio-demographic characteristics, menstrual, medical surgical and reproductive history structured interview questionnaire. It was divided into two parts. ***Part one:*** Concerned with participants' Socio-demographic data, menstrual, reproductive, and medical surgical history. ***Part two:*** Concerned with personal & social habits. **Tool II:** Greene Climacteric Scale developed by Greene. Latest version of the statistical software package SPSS (Version-21) was used. Descriptive and analytical statistical test were used to analyze the data. **Results:** Women with moderate to severe symptoms (≥20) corresponded to 57.7% (116) of the sample. Obesity was not associated with the severity of menopausal symptoms ($p < 0.90$).Severe to moderate symptoms were inversely associated with age (PR 0.96; CI 95% 0.94–0.99;$p < 0.01$). Women within 6–10 years of menopause presented nearly 1.4 times higher prevalence of moderate to severe symptoms compared with those with more than 10 years of menopause. Unemployed women (PR 1.52; CI 95% 1.13–2.04; $p < 0.01$) and housewives (PR1.53; CI 95% 1.12–2.09; $p < 0.01$) presented higher prevalence of menopausal symptoms com-pared with working women. Tobaccos was associated with higher prevalence of moderate to severe symptoms ($p < 0.01$). **Conclusions**: Age constituted a protection factor for moderate to severe symptoms, whereas having within 6–10 years of menopause, smoking and being unemployed or a housewife were factors related to higher prevalence of moderate to severe menopausal symptoms

Key Words: Menopause, Menopausal Symptoms, Climacteric

Introduction:

Menopause is an inevitable feminine milestone that signals the end of reproductive phase of a woman during which a great transition, physically and emotionally in woman's life occur and the start of a new post-reproductive phase of life. [1-3]. It is usually confirmed when a women has not had a menstrual period for one year; twelve consecutive months.[4-6] The increase in life expectancy in all regions of the world, implies in the increase of female longevity and time of life after menopause. Developments in modern medicine have significantly prolonged the life span of humans including women throughout the world. [7]

Various preventive medicines and improvements in the treatment of disease have also, led to a rapid extension of the anticipated life expectancy and lifespan of women in Egypt. Most women spend one-third to one-half of their lifetime in postmenopausal time. The increasing average length of the postmenopausal life span emphasizes the importance of menopause in today's society. The world population of women aged over 60 years was below 250 million in 1960 and it is estimated that in 2030 1.2 billion women will be peri or postmenopausal and this will increase by 4.7 million a year and will be in menopause transition. [8 , 9]

Menopause is a physiological process, which takes place universally in all women who reach midlife. It occurs within long process of menopausal changes that occurs (immediately prior to menopause when endocrinological, biological, and clinical features of approaching menopause commence) and at least the first year after the menopause. [10] Absence of menstruation occur naturally as a part of the aging process in physiologically menopause or as a result of pregnancy, lactation or precipitating artificially due to exogenous hormone use, dietary deficiencies, or surgical removal of the uterus or ovaries.[11]

Menopause is one of the problems of advancing age process which gain increased attention because of the growing emphasis on women's right, as well as the increase in life expectancy of women reaching this period.[12] During the 20th century, women are generally more educated, seeking better nutrition, and are seeking information related to health and disease. Latterly due to changes in the health care system and focus upon preventative care; women express a desire to be more knowledgeable regarding symptomatology and treatment options of symptoms associated with menopause. [13]

The proportion of women living to the menopause and beyond has increased over the last centuries. The life expectancy of women has rapidly increased and is now about 80 years for females in developed countries. About 95% of females are born to live to experience the menopause. (14) According to Aso (1998), there were some 467 million women aged 50 years and over throughout the world. The average age of the menopause has been estimated as being 51 years. (14) In Egypt, the mean age of the menopausal woman is 46 years. (15)

In the late 20th life expectancy for females in the East Asian region in almost all countries above 45 years of age ranged from 15.3% to 24.0%, and those above 65 ranged from 3.8% to 6.6%. (15) In Japan, the proportion of the population above 65 years of age in 1995 was 14.5%. According to U.S. census data 2000 to 2006, there are more than 48 million American women aged over 50 years, and nearly 60 million women aged 45 years and over which constitutes 17% of the total population. (16)

In Egypt, at 2000, women aged 50 years and more constituted 14.03% of the female population. This number is estimated to rise to 20.9% of the female population by the year 2025. In the Eastern Mediterranean Region, women age was 68.2 years at 2000 - 2005, and it is estimated that this number will rise to 78.7 years for 2045 -2050.This estimation suggests increases in the proportion of postmenopausal women in the future. (16)

According to Korea National Statistical Office reported that the average life expectancy for Korean women was 77.4 years in the year 2000. According to the recent population census, 20.86 million of Korean women were older than 45 years of age. The data indicate that the lifespan after menopause for Korean women occupies one third of the total life expectancy and the distribution ratio of Korean women who are more than 45 years old occupies one fourth of the total population of Korean women. (17)

World Health Organization (WHO) defines the term menopause as the permanent cessation of menses resulting from loss of ovarian follicular activity. (18) Menopause may be called climacteric or peri-menopausal period, while climacteric means the whole process of menopause; pre-menopause; during menopause; and post-menopause (19)

Menopause occurs naturally or induced. Natural menopause is recognized after 12 months of amenorrhea that is not associated with a pathologic cause, while induced menopause

is an immediate menopause by surgical removal of the ovaries as a result of medical intervention such as chemotherapy or pelvic radiation. [20]

Menopause is a critical transitional period in women's lives not only accompanied by biological changes, but also by social and psychological changes occurring at the time around menopause, such as changes in the relationship with children and spouse, taking care of elderly relatives, changing body image, and decrease libido which lead to sexual problems. [21] These changes may create stress, anxieties for some women. Increased menopausal symptoms affect identity, self-esteem, work performance, family, social relationships, and the quality of life of menopausal women. Each woman responds to and interprets her symptoms within the context of her own situation; her adjustment depends on her support system, as well as her access to care. [22, 23]

Menopausal women report a variety of symptoms. This may include short term changes such as physical symptoms as well as psychological symptoms. The physical symptoms include changes in periods, vasomotor symptoms (hot flushes, night sweats), changes in sexual desire and joint pain. On the other hand, Psychological symptoms include sleep problems, and mood changes and swings. There are also long term changes, such as osteoporosis and risk for heart disease due to increases in weight, blood pressure and cholesterol levels. [24, 25]

Menopausal transition makes women more aware of future health risks due to increased symptomatology and help-seeking behavior. In the future, menopause may act as a "window of opportunity" for health promotion and life style modification as alternative and non-pharmacological therapy. [25]Therefore, understanding health issues of postmenopausal women is important to the identification of their health needs in order to provide competent care as well as cope with menopausal symptoms. [23]

A caring gynecological nurse must adopt a holistic approach and tender advice regarding diet, lifestyle and relaxation techniques to help alleviate menopausal symptoms of their patient. For achieving its role competently nurses should understand different menopausal symptoms and severity to plan a strategy of care based on evidence. There is limited published data concerning menopausal symptoms and its severity. Therefore, the study aimed to identify the severity of menopausal symptoms and its related factors.

Aim of the study

The aim of this study was to Identify Factors associated with the severity of menopausal symptoms in postmenopausal women.

Research question:

What are the **Factors associated with the severity of menopausal symptoms in postmenopausal women**?

II. Materials and Method

Materials

Research design

An explanatory descriptive cross-sectional research design was used to carry out this study.

Setting

The study was conducted in the outpatient clinics at El Shatby Maternity University Hospital. Alexandria, Egypt. It is a university hospital affiliated to the Faculty of Medicine – University. It provides obstetrics and gynecological health care service for all pregnant, laboring, puerperal women, normal and high risk in the governorates of Alexandria, Beheira, Marsa Matrouh and Kafr El Sheikh. It has establishment of five units in El Shatby Hospital: Infertility and Fertility treatment Unit, Advanced Endoscopic Surgery Unit, Initiation of the establishment of a unit of research and treatment of endometriosis, start establishing the embryo and pregnant unit, & Start the Oncology Unit. The outpatient includes a clinic for treatment of uterine bleeding, Infertility clinic, Oncology Clinic, Clinic for follow - up of pregnancy and critical pregnancy, and Clinic for gynecological care services and family planning. This hospital was chosen because it has a high turnover, serve four governorate with a large number of population and different specialty in obstetrics and gynecology.

Subjects

A convenience sampling technique is used to select a total of 240 participant eligible women attending the outpatient clinic at El Shatby Maternity University Hospital in Alexandria were selected to participate in the study based on of their availability at the time of data collection and

willingness to participate in the study as well as met the inclusion criteria. Women either attending El Shatby Maternity University Hospital themselves or accompanying their relatives in outpatient clinics Women were approached as they were entering or leaving the outpatient clinic. Women were invited to take part in the study from December 2016 up to February, 2017. The sample size was determined based on The Epi info program. It was used to estimate sample size using the following parameters:

a. Population size= 900 over 3 months
b. Expected frequency = 50%
c. Acceptable error = 5%
d. Confidence coefficient = 95
e. Estimated Minimal sample size = 234

Inclusion criteria: In the present study only women who were available at the time of data collection and willing to participate in the study, recruited. In addition, women who were 45 to 60 years old and above, with natural menopause (absence of menstruation for 12 consecutive months) or postmenopausal with no hormonal replacement therapy were included.

Exclusion criteria:

Women with previous hysterectomy or under hormonal replacement therapy (HRT). Women submitted to radiotherapy or chemotherapy because of cancer, bilateral oophorectomy or premature menopause, i.e. menstrual cycle interruption earlier than 40 years.

Data collection tools:

Two Tools: were used to collect the necessary data for the research.

Tool I: Socio-demographic characteristics, menstrual, medical surgical reproductive history and personal & social habits structured interview questionnaire. It was developed by the researcher based on current and relevant literature. It was divided into two parts as follow:

Part one: Concerned with participants' Socio-demographic data, menstrual, reproductive, and medical surgical history.

a. Socio-demographic data, pertaining to age, origin, marital status, education, current occupation and husband data such as to age, origin, marital status, education, current occupation and smoker or not. It includes lasted to questions related to the type of the family, if any of children live with parent or not and level of family income.
b. Menstrual history of the participants such as age at menarche, previous regularity of menstruation, duration and interval, if menstruation completely absent or not? If absent what is the reason?
c. Reproductive history includes questions about number of gravidity, parity, type of delivery, number of children and use of family planning.
d. Medical surgical history which includes presence of chronic diseases, gynecological disease and history of surgical operation.

Part two: Concerned with personal & social habits such as, practice of exercise, smoking, as well as weight and height.in addition to question about recent family stressful situation, mother's age at menopause, use of hormonal replacement therapy, or herbals for menopausal therapy as well as treatment with chemotherapy.

Tool II:

Greene Climacteric Scale developed by Greene J (1990) [(26)]. It was developed to measure the severity of menopausal symptoms and translated by Ebrahim S (2006) [(27)]. It comprises 21 statements with 4 points Likert scale. Statement are divided into four main groups; ***psychological symptoms, somatic symptoms, vasomotor symptoms***, and additional item related to ***sexual function.***

- **Psychological symptoms** (N=11 Statement), are further sub-divided to measurement of ***anxiety*** (items 1,2,3,4,5 and 6) and measurement of ***depression***(items 7,8,9,10 and 11)
- **Somatic symptoms** (items12, 13, 14, 15, 16, 17 and 18).
- **Vasomotor symptoms** (items 19, 20), and an additional item related to sexual function (items 21).

The subject's response to each statement varies between: not bothering (0), bothering a little (1), quite a bit bothering (2), and extremely bothering (3).

Each subject was instructed to choose one of the four possible responses that are the closest to how she feels with the statement. The response categories were scored 0, 1, 2, and 3 according to the woman's degree of the symptom she feels.

The total score varies of "between" 0 to 63, which was computed by summing the responses of all scale items. Scoring of severity of menopausal symptoms sub-items and total score were computed and ranked into:

-Bothering a little 0 <21.

-Quite a bit bothering 21 - < 42.

-Extremely bothering 42 ≤ 63.

Method:

The study was executed according to the following steps:

1- Permission to collect data after explaining the purpose of the study was obtained.
2- Tool 1 was developed by the researchers after extensive review of recent and related literature.
3- Tools II Greene Climacteric Scale developed by Greene J (1990).[26] It was developed to measure the severity of menopausal symptoms and translated by Ebrahim S. (2006). [27].
4- A pilot study was conducted on 10 % of the study sample from El Shatby Maternity University Hospital and they were excluded from the total study subject's number. The pilot study aims to validate the effectiveness of the study instrument and the value of the questions to elicit the right information to answer the research question and to establish the reliability of the questionnaire. In addition to ascertain the clarity, feasibility, simplicity of all the questions, estimate the time required for the interview to be completed, and review the overall responses of the women, as well as the applicability of the tools to identify obstacle that might interfere with the process of data collection. Necessary modifications based on the results of pilot study were applied.
5- Each study subject was individually interviewed in the outpatient clinic in waiting area before or after met with obstetrician. The estimated duration of each interview was about

15 minutes. Data collection started from December 2016 up to February, 2017, two days per week.

6- Statistical analysis: Latest version of the statistical software package SPSS (Version-21) was used. The collected data was revised, categorized, coded, computerized, tabulated and analyzed. Descriptive statistics and Multivariate analysis were used to identify and compare the socio-demographic ------

Ethical considerations:

Before embarking to data collection, an informed oral consent was obtained from each recruited women to share in the study. Prior consent, full information provided to the women by the researcher and explaining the purpose of the study, as the informed consent covers all the required elements such as study title, aim and process of data collection. All participants were assured that their participation is voluntary and they have the right to withdraw at any time & the right to ask any question at the end of the interview. In addition, her anonymity, privacy, and confidentiality of her data were all emphasized prior starting the interview. Each study participant was approached separately. The average fill out time of each interview was about 15 minutes. Questions were asked personally by the researchers.

Results

Table (1): Number and percent distribution of the study subjects according to their socio-demographic characteristics

Socio- demographic characteristics	Studied females (n=240)	
	No.	%
Age in years		
• <50	11	4.6
• 50<55	82	34.2
• 55<60	98	40.8
• ≥60	49	20.4
Range	48-68	
Mean ±S.D.	56.2± 6.8	
Level of education		
• Illiterate	58	24.2
• Basic education(primary-preparatory)	62	25.8

• Secondary education	82	34.2
• University	38	15.8
Social status		
• Married	146	60.8
• Divorced	42	17.5
• widow	35	14.6
• Single	17	7.1
Occupation		
• Employees	42	17.5
• worker	59	24.6
• House wives	102	42.5
• Retired	37	15.4
Residence		
• Urban	104	43.3
• Rural	136	56.7
Family type		
• Nuclear	152	63.3
• Extended	88	36.7
Monthly income		
• Enough	90	37.5
• Not enough	150	62.5

Table (1):continue

Socio- demographic characteristics	Studied females (n=240)	
	No.	%
Husband age (188 only)		
• <50	10	5.3
• 50<55	50	26.6
• 55<60	80	42.6
• 60+	48	25.5
Husband's education		

• Illiterate	52	21.7
• Basic education(primary-preparatory)	72	30.0
• Secondary education	45	18.8
• University	19	7.9
Husband's Work		
• worker	58	24.2
• Employee	51	21.3
• Retired	79	32.9
Husband smoking		
• No	125	52.1
• Yes	115	47.9

Table (I) shows that the Mean ± SD of the subject's age was 56.2 ± 16.8 specifically, more than one-third (34.20% and 40.80%) of them were either in their early (50<55year) or late (55-<60) fifties, respectively. Only 4,6% of them were less fifty. One- third (34.20%) of them have a secondary school education. Only 15.8% of them were university graduates. More than two– fifths (42.5%) of them were housewives. More than one-half (56.7%) of them dwelled in urban areas. Slightly more than three -fifths (60.8% and 63.3%) of them were married, , and lived in nuclear families respectively. Slightly more than one-third (37.5%) of them did consider their families' income enough.

In relation to subject's husband, the table also exhibit that the Mean ± SD of the husband's age was 59.8 ± 17.9. About one-fifth (18. 8%) of them have a secondary school education. Only 7.9% of them were university graduates. A substantial proportion (32.9%) of them were retired. The rest was almost equally either workers (24.2%) or employees (21.2%). More than two fifths (47.9%) of them were smoking

Table (2): Number and percent distribution of the study subjects according to their Menstrual and menopausal history.

Menstrual and menopausal history	Number	Percent

Age at menarche (Year)		
• >**14**	223	92.9
• 14+	17	7.1
Duration of Menstruation (Days)		
• 3 -5days	195	81.2
• >5	45	18.8
Interval of Menstruation (Days)		
• <21	85	35.4
• 21-35	122	50.8
• >35	33	13.8
Amount of Menstrual flow:		
• Moderate	162	67.5
• Excessive	78	32.5
Duration of Menopause/ years		
• 1>5	125	52.1
• 5>10	89	37.1
• 10 +	26	10.8

According to table (2) the vast majority (92.9%) of the study subjects had menarche during their early teens 14 years old. Menstrual interval ranged between 21-35 days among 50.8% of them. The majority (82.2%) of them had menses lasting for 3- 5 days while a minority of them 18.8% had more than 5 days duration. About Two -thirds (67.5%) of them had moderate amount of menstrual flow compared to 32.5%of them who had an excessive menstrual flow. More than one half (52.1%) and more than one third (37.1%) of them had menopause lasting for 1-5 years and 6-10 respectively, while a minority of them 10.8% had more than 10 years duration

Table (3): Number and percent distribution of the study subjects according to their reproductive history.

Reproductive history	Number	percent
Gravidity		
• No	30	12.5
• 1-2	52	21.7

• 3-5	136	56.7
• >5	22	9.2
Parity		
• 0	32	13.3
• 1-2	54	22.5
• 3-5	140	58.3
• 5+	14	5.8
Mode of delivery		
• Normal	56	23.3
• CS	82	34.2
• Both (Normal then C.S).	70	29.2
• No	32	13.3
No. of living children		
• 1-2	55	22.9
• 3-5	142	59.2
• 5+	11	4.6
Previous use of contraceptive methods		
• No	82	34.2
• Yes	158	65.8
Presence of medical disease		
• Yes	215	89.6
• No	25	10.4
Types of chronic disease(N=215)		
• Diabetes mellitus	82	38.1
• Hypertension	65	30.2
• Renal disease	13	6.05
• Bronchial asthma	14	6.5
History of operations		
• Yes	184	76.7
• No	56	23.3
Type of surgery (n=184)		
• gynecological surgery*	103	55.9
• general surgery**	35	19.0
• both	46	25.0

*mainly caesarean section, hysteroscopy, dilatation and curettage,

**appendectomy, cholecystectomy, tonsillectomy

Table (3) Exhibits that more than one-half (56.7%) of the study subjects were had 3-5 pregnancies. Only 9.2% were pregnant five times or more. More than one -fifth (22.5%) of them had one or two delivery. About three- fifths (58.3%) of them had 3-5 deliveries. A few (5.8%) of

them had five or more deliveries. As regard the type deliveries, more than three- quarters (76.3%) of them had vaginal deliveries. while 4.9% of them had cesarean sections. In addition, almost three- fifths (59.2%) of them had 3-5 children, while minority of them 4.6 % had five children and more. About two-thirds (65.8%) of them use contraceptive methods.

The table also shows that, the majority 89.6% of the study subjects were suffering from chronic disease such as diabetes mellitus (38.6. %), hypertension (30.2%), renal disease (6.05%), and bronchial asthma (6.5%) Yet a substantial proportion (76.9%) of them had a history of surgical operations. Whereas more than one- half (55.4%) of these operations were gynecological surgeries such as caesarean section, hysteroscopy, dilatation and curettage.

Table (4): Distribution of the studied group regarding habitat and behavior.

habitat and behavior.	**Number**	**Percent**
Physical activities (exercise)		
No	187	77.9
Yes	53	22.1
Number of Physical activities /week		
1	10	18.9
2-3	36	67.9
Daily	7	13.2
Duration of Physical activities /time		
<15 min.	9	17.0
15-30	22	41.5
>30	22	41.5
Do you smoking		
Yes	0	0.0
No	240	100
Weight		
Under weight	20	8.3
Normal weight	92	38.3
Over weight	85	35.4
Obese	43	17.9

Asking the participants about practice of physical activities, only 22.2% reported yes on practices of exercise while more than three quarters (77.9%) of them did not practices any form of exercise.

The table also reveals that more than two-thirds (67.9%) of women reported that exercise had done 2-3 times per day. And more than two- fifths (41.5%) stated that physical activities were practices more than 30 minutes. Regarding BMI, It was observed that 17.9% of participants were obese and 35.4% were overweight. While the women who were normal body weight and underweight constituted 38.3% and 8.3% respectively. In relation to smoking, all women (100%) did not smoking.

The figure (1) illustrates that more than one-third (40.4% and 42.5%) of the study

Subjects reported that menopausal symptoms were mild and moderate respectively,

Compared to less than one fifth (17.1%) of them who reported that they were severe

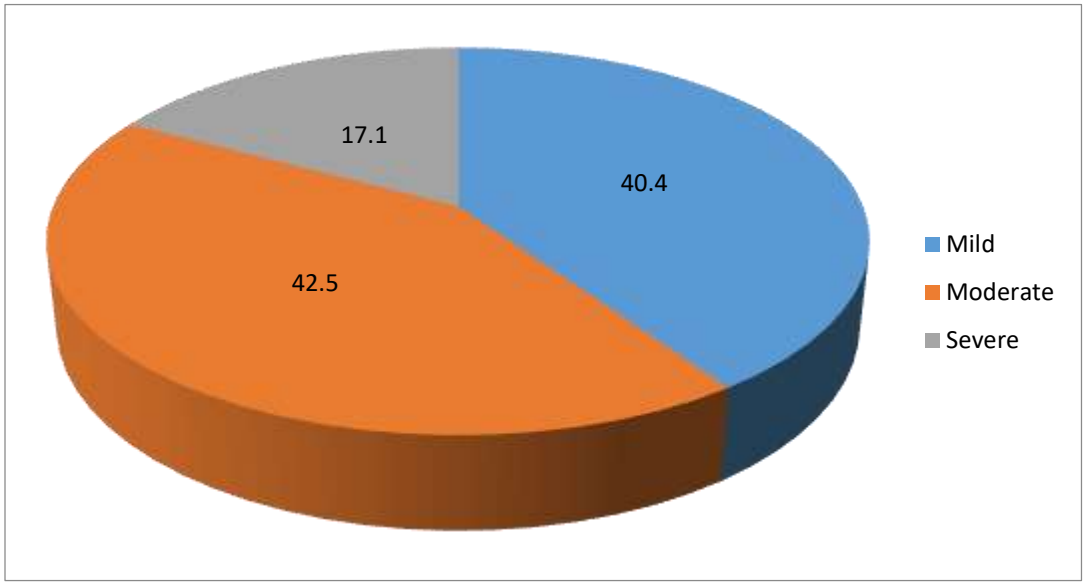

Figure (1): Percentage distribution of the study subjects total score of severity of menopausal symptoms according to Lergen scale

Table (5): Relation between symptoms of menopause and socio- demographic data, menstrual history and duration of menopause

Variable	Lergen symptoms of menopause						Total "n=240"	X^2 p
	Mild "n=97"		Moderate "n=102"		Severe "n=41"			
	No.	%	No.	%	No.	%		
Age								
<50	2	3.1	1	1.0	8	19.5	11	
50<55	27	41.5	36	35.3	19	46.3	82	4.65
55-60	47	72.3	40	39.2	11	26.8	98	0.013*
60+	21	32.3	25	24.5	3	7.3	49	
Education								
Read & write	32	33.0	15	14.7	11	26.8	58	
Less than secondary	20	20.6	25	24.5	17	41.5	62	1.98 0.285
Secondary	29	29.9	45	44.1	8	19.5	82	
University	16	16.5	17	16.7	5	12.2	38	
Occupation								
Professional	25	25.8	32	31.4	2	4.9	59	
Employee	22	22.7	16	15.7	4	9.8	42	9.85
House wife	30	30.9	45	44.1	27	65.9	102	0.006*
Retired	20	20.6	9	8.8	8	19.5	37	
Marital status								
Married	57	58.8	86	84.3	3	7.3	146	12.9
Divorced	22	22.7	6	5.9	14	34.1	42	0.002*
widow	16	16.5	5	4.9	14	34.1	35	
Single	2	2.1	5	4.9	10	24.4	17	
Age at menarche								
<14	52	53.6	45	44.1	25	61.0	122	3.83
>14	45	46.4	57	55.9	16	39.0	118	0.147
Duration of menstruation								
3 days	61	62.9	16	15.7	13	31.7	90	3.58
4-5	20	20.6	68	66.7	17	41.5	105	0.107
>5	16	16.5	18	17.6	11	26.8	45	
interval between menstruation								
<28 days	52	53.6	25	24.5	8	19.5	85	5.02
28-35 days	22	22.7	70	68.6	30	73.2	122	0.069
>35 days	23	23.7	7	6.9	3	7.3	33	
Duration of Menopause								
1>5	72	110.8	50	49.0	3	7.3	125	22.1

5>10	7	10.8	45	44.1	37	90.2	89	0.001*
10 +	18	27.7	7	6.9	1	2.4	26	

Table (5) denotes relation between severity of menopausal symptoms and socio-demographic data, menstrual history and duration of menopause.

Regarding demographic data, the table reveals that there was statistically significant difference between the severity of menopausal symptoms and age, occupation as well as marital status. As regard age, more than two- fifths (46.3%) of study subject aged 50 -55 had severe symptoms compared to 26.8% and 7.3% of those aged 55-60 and more than 60 respectively. Considering occupation,. It was observed from table that about two thirds (65.5%) of the housewives had severe symptoms compared to only 4.9 % and 9.8% of the professional and employee respectively. In relation to marital status, only 7.3% of married women reported severe symptoms compared to more than one third (34.1% &34%) of divorced and widow as well as about one quarter (24.4%) of single women.

On the other hands, there was no statistically significant difference between the severity of menopausal symptoms and educational level. Where less than one fifth (12.2%& 19.5%) of participants either had university or secondary level of education reported severe symptoms compared to 16.7% & 44.1 % of them reported moderate symptoms respectively. P= 0.285

Inquiry about menstrual history revealed that there was statistically insignificant difference among the severity of menopausal symptoms and age at menarche, duration of menstruation and interval between menstruations. Where P = 0.147, 0.107 & 0.069 respectively.

Concerning duration of menopause, the table also reveals that the majority of women (90.2%) who reported severe symptoms had duration of menopause 5 to less than 10 years compared to only 2.4% of those that duration of menopause 10 years and more . that there was statistically significant difference between the severity of menopausal symptoms and duration of menopause P= 0.001

Table (6): Relation between Lergen symptoms of menopause and participants' habit, behaviors and medical history

Variable	Lergen symptoms of menopause						Total "n=240"	X^2 P
	Mild "n=97"		Moderate "n=102"		Severe "n=41"			
	No.	%	No.	%	No.	%		
Sporting								
No	50	51.5	100	98.0	37	90.2	187	66.8
Yes	47	48.5	2	2.0	4	9.8	53	0.001*
Weight								
Under weight	16	24.6	3	2.9	1	2.4	20	
Normal weight	42	64.6	42	41.2	8	19.5	92	20.11
Over weight	32	49.2	49	48.0	4	9.8	85	0.001*
Obese	7	10.8	8	7.8	28	68.3	43	
medical disease								
D.M.	16	16.5	35	34.3	31	75.6	82	0.001*
Hypertension	10	10.3	21	20.6	34	82.9	65	0.001*
Renal disease	3	3.1	4	3.9	6	14.6	13	0.036*
Bronchial asthma	4	4.1	5	4.9	5	12.2	14	0.045*

Table (6): exhibit relation between Lergen symptoms of menopause and physical activities, BMI and medical history. The table revealed that there were statistically significant difference between severity of menopausal symptoms and physical activities, BMI and medical diseases.. Where, the majority (90.2%) of participants who reported lower levels of physical activity had severe menopausal symptom compared to only 9.8 of physically active women. In addition, More than two -thirds (68.3%) of obese women had severe menopausal symptoms compared to only 19.5% of normal weight women ($p < 0.01$). Regarding chronic diseases, the table also revealed the majority of women (75.6n% & 82.9%) with history of diabetes and hypertension reported severe menopausal symptoms compared to only 34.3% and 20.6% without history of the same previous mention diseases had moderate menopausal symptom

Table (7): Multivariate analysis of different risk factors which affected on Lergen symptoms of menopause.

Variable	Relative risk	C.I (95%)	P value
Age	1.62	(0.36-0.72)	0.001*
Marital status			
Married	1.0		
Divorced	1.63	0.42-0.89	0.013*
widow	1.6	0.61-0.92	0.045*
Single	1.8	0.55-0.83	0.002*
Work			
Professional	1.0		
Employee	1.06	0.62-1.69	0.265
housewives	1.92	0.36-0.70	0.016*
Retired	1.72	0.36-0.82	0.002*
Duration of Menopause			
1-5	1.0		
5-10	1.5	0.22-0.81	0.023*
>10	1.2	0.46-1.65	0.098
Medical disease	1.69	0.32-0.86	0.022*
Physical active (practice exercise)	1.72	0.61-0.86	0.013*
obesity	2.11	0.31-0.81	0.027*

Table (7): shows multivariate analysis of different risk factors which affected on Lergen symptoms of menopause. It was obvious that, after the multivariate analysis, it could be observed that the severe menopausal symptoms were inversely associated with age (PR 1.62; CI 95% (0.36-0.72; (P <0.001).

Women who were within 5–10 years of menopause presented nearly 1.5 times higher prevalence of moderate to severe symptoms when compared with those with more than 10 years after menopause ($p < 0.023$).

Housewives women (PR 1.92; CI 95% 0.36-0.70; $p < 0.016$) and Retired (PR 1.72; CI 95% 0. 0.36-0.82; $p < 0.002$) presented higher prevalence of menopausal symptoms compared with employee and Professional women.

Women who were Divorced (PR 1.63; CI 95% 0.42-0.89; $p < 0.013$) and widow

(PR 1.6; CI 95% 0.61-0.92; p 0.045) as well as Single women (PR 1.8; CI 95% 0.55-0.83; $p < 0.002$) presented higher incidence of severe symptoms compared with married one.

The table also, revealed that women who had history of medical diseases and who did not practice exercise (PR 1.69; CI 95% 0.32-0.86; $p < 0.022$) and (PR 1.72; CI 95% 0. 0.61-0.86; $p < 0.013$) respectively, were associated with higher prevalence severe symptoms

And finally, the prevalence of women who had obesity presenting severe symptoms was 2.11 times higher than normal weight.

Table (8): Number, percent and Ranking of different symptoms in the Lergen symptoms of menopause.

different symptoms in the Lergen symptoms of menopause.	Number	Percent	Ranking
Physical and mental exhaustion	125	52.1	5
Tension	98	40.8	8
Numbness	77	32.1	14
Expressive	84	35.0	12
panic	80	33.3	13
Difficulty concentrating	60	25.0	16
tiredness	110	45.8	7
Loss of interest	65	27.1	15
Feeling sad	45	18.8	17
crying	32	13.3	18
Sharpness	25	10.4	20
Dizziness and fainting	22	9.2	21
Pressure in the body and head	30	12.5	19
Headache	172	71.7	2
Difficulty sleeping	115	47.9	6
muscle and joint pain	184	76.7	1
Loss of sensation	92	38.3	9
Breathing difficulty	90	37.5	10
Hot flush	165	68.8	3
Night Sweat	142	59.2	4
Loss of interest in sex	85	35.4	11

Table 8 shows frequency and ranking of menopausal symptoms. It was observed that

The most common menopausal symptoms for all women (n = 240) were muscle and joint pain 76.7%, headaches 71.7%, hot flushes 68.8% and night sweat 59.2%, physical and mental exhaustion 52.1% as well as Difficulty sleeping 47.9%.
Moreover, the less frequent symptoms feeling sad 18.8% , crying 13.3%, Pressure in the body and head 12.5%, Sharpness10.4%, Dizziness and fainting 9.2%.

Discussion

Menopause is a universal event that occurs within a long process of climacteric change when clinical, biological, and endocrinological symptoms of menstrual cession occur. [(1)] The timing of menopause as well as women's experience of menopausal symptoms varies between populations and within populations [(2)].The incidence of menopausal symptoms is influenced by socio-demographic/ sociocultural factors, economical stresses, and general health status, individual perception of menopause, genetic and racial differences and reproductive parameters like parity[(3)].

Thus, it is necessary to understand the process of menopause and women's health. Understanding women's health requires an awareness of the context of women's life, as well as extensive research to clarify influencing factors of women's quality of life. This approach is very useful for healthcare planning to improve women's quality of life. The present study was done to determine Factors associated with the severity of menopausal symptoms in postmenopausal Egyptian women.

The results of the current study revealed that the mean age of menopause among the study subjects was 56.2 ± 16.8 years. This result is nearly consistent with the findings of four other researchers. *First*: dhillon et al. (2006) [(4)]. They had investigated the prevalence of menopausal symptoms in women in **Kelantan, Malaysia**. Their results revealed that the mean age of menopause was 51.14± 2.1 years. *Second*: **Nisar N, Sohoo NA** (20**09**)[(3)] . They had evaluated Frequency of menopausal symptoms and their impact on the quality of life of women in **Hyderabad Sindh, Pakistan**. Their results had indicated that the Mean age of women was 52.17 ± 6.019 years. Third: **Palacios et al** (2010) [(5)]. They had assessed age of menopause and impact of climacteric symptoms by geographical region, Madrid, Spain. Their results had indicated that the mean age of menopause was 51.14± 2.1 years. *Fourth*: **Goda R** (2014) [(6)]. They had investigated Coping strategies of menopausal symptoms among working women, In **Alexandria, Egypt**. She reported that the mean age of menopause was 54.45± 2.2 years**.** . On the other hand this same result is incongruent with

the findings of El Ibiary S (1995) [7]. She had conducted a study titled awareness of working women about menopausal changes' in Tanta University, Egypt. Her results revealed that mean age of menopause was 45± 2.2 years.

This could be explained by the fact that women now generally better educated, receive better nutrition, and express a desire for educational information regarding symptomatology of menopause and treatment.

Menopause result in short term physical effects such as night sweating, hot flushes, in addition to psychological symptoms such as depression, and mood swings. Long term effects such as heart and osteoporosis disease may also occur which may affect the middle age women's quality of life. [8,9]

The current study revealed that the most commonly symptoms were muscle and joint pain 76.7%, headaches 71.7%, hot flushes 68.8% and night sweat 59.2%, physical and mental exhaustion 52.1% as well as Difficulty sleeping 47.9%. This may be due to degenerative changes associated with bone loss resulting from reduced plasma levels of estrogen. And fluctuating levels of estrogen in the blood from premenopausal to postmenopausal period.

This result is relatively consistent with the findings of **ayatollahi et a**l (2005) [10]. They had conducted a study titled " age at natural menopause and socio-demographic determinants" **In Shiraz, Iranian**. They found that the most common symptoms associated with menopause were muscle pain 75.1% night sweats 69%, and hot flushes 67.9%. In addition, this result is relatively falls in line with study of **loutfy I et al** (2006) [11] about "women's perception and experiences of menopause" **in Alexandria**, **Egypt**. Their study had revealed that the most frequently symptoms were tiredness, headache and hot flushes.

Also, The current finding is relatively similar to the study o done by **Gharaibeh et al** (2010)[2] about "Severity of menopausal symptoms of Jordanian women" in Jordan . They found that vasomotor signs were the highest scores for severity as manifested by hot flushes 66.69% and night sweating 70%. Moreover, the present finding is partially in accordance with the findings of Rahman et al (2011)[12] They had studied the menopausal symptoms assessment among middle age women in **Bangladesh**, where they found that the higher frequency of musculoskeletal pain 77% and headaches 65% reported in postmenopausal and peri-menopausal women. Furthermore,

this same result is in line with the findings of the previously mentioned Egyptian study by **Goda R** (2014) [6]. She concluded that the most commonly symptoms were muscle and joint pain 72%, headaches 64%, hot flushes 46.67% and night sweat 58.67%

The reasons for variation in frequencies may be attributed to the fact that menopausal symptoms are influenced by socio-demographic/ socio-cultural factors, economic stress, and general health status, individual perception of menopause, genetic and racial differences and reproductive parameters like parity [13].

The severity of menopausal symptoms compromise daily life activities and social life; thus, impairing quality of life. Menopausal symptoms may vary in frequency and severity [!4].

The results of the current study revealed a statistically significant difference between the severity of menopausal symptoms and age of women. Where more than two- fifths (46.3%) of study subject aged 50 -55 have severe symptoms compared to 26.8% and 7.3% of those aged 55-60 and more than 60 respectively. The current finding is relatively similar to the study of Silveira ILD et al (2007) [15]. They found that older women "aged 60 years and more" reported fewer menopausal symptoms compared with younger women. They added that women aged 60 years and older had around 0.38 times less chance of presenting moderate to severe climacteric symptoms. On the contrary, study of De Lorenzi et al (2005) [16] about disagree with the present study. Although they noticed that the obtained score of severe symptoms decreased as age increased but significant statistical relation was not demonstrated.

Findings of the current study found that there was no statistically significant difference between the severity of menopausal symptoms and educational level. The present finding is relatively congruent with the study of Chim et al (2002) [17] about the prevalence of menopausal symptoms in a community in Singapore. Maturitas and study of Chaillet et al (2006)[18] about"_ age at menopause and menopausal symptoms among Malaysia women. They found that no significant correlation between the severity of menopausal symptoms and the education.

On the other hand, the result of this study is not in line with study done de Lorenzi et al (2009) about quality of life and related factors among climacteric women from south Brazil which concluded that lower education level led to a significant decrease in the quality of life [19]. Also doesn't match with that of Kalarhoudi (2011) about assessment of quality of life in menopausal

period which suggested that working status, educational level, income, and marriage had influence on the quality of life in menopausal women and affect women coping with menopausal symptoms. They further elaborated that having accurate and reliable knowledge about the period of menopause is facilitated with the increase in the level of education.[20] This discrepancy could be attributed to study sample differences, cultural background and ethnic variation .

The present study results revealed a statistically significant difference between the severity of menopausal symptoms and occupation. Where about two thirds (65.5%) of the housewives have severe symptoms compared to only 4.9 % and 9.8% of the professional and employee respectively. This result is kind of expected because working condition increase socialization that may help in getting others experiences, information and help express feelings. In addition, Employed women also seem to have more opportunities for self-realization outside the home and thus report milder menopause symptoms [21].

This result is relatively in accordance with the findings of **Nisar N and Sohoo NA (2009)** [3] they had studied Frequency of menopausal symptoms and their impact on the quality of life of women. Their results had revealed that 95% of the females who suffered from menopausal symptoms were housewives. In addition, the current finding is partially in congruence with the study done by **Abdulmatty G et al** (2010)[22], who had investigated the Effect of menopausal symptoms on women's quality of life . They mentioned that working women have more responsibilities and they can cope in a better way with menopausal symptoms. Moreover, the present finding is relatively in consistent with the study of **Lee MS et al** (2010) [23] about Factors influencing the severity of menopause symptoms in Korean postmenopausal women. In Korea, where they found that Housewives experience the menopause associated vasomotor symptoms more than working women. They also added that Working women have more communication with other people that is why they suffer from mild symptoms.

On the contrary with this present study result, Becker et al (2001) [21] who had studied the psychological distress around menopause which found that no significant correlation emerged between the menopausal symptoms, education and working/ non-working condition.

The quality of the marital relationship plays an important role in midlife women's physical and psychological well-being which is characterized by strong cohesion, support. Caring often

provides a buffering and positive effect against stressful life events and disease. On the other hand, relationships brought with tension and conflict may have a particularly negative impact on women's health and wellbeing [24].

The findings of the current study showed that there is statistically significant difference between severity of menopausal symptoms and marital status. Where, only 7.3% of married women reported severe symptoms compared to more than one third (34.1% &34%) of divorced and widow as well as about one quarter (24.4%) of single women. The result of the present study is in harmony with the study done by Dennerstein et al (2000)[25] about a prospective population based study of menopausal symptoms, which stated that widowed, separated, and divorced women had higher rates of depression than married women [25].Also, the result is congruent with the study done by Yanikkerem et al (2012) about relationship between women's attitude towards menopause and quality of life found that women with a negative attitude towards menopause were associated with more frequently reported symptoms compared to women with a positive attitude. The women whose relationships with their husbands were negatively affected had higher vasomotor, psychosocial, physical, and sexual symptom scores [26].

The possible explanation for this result is that women became more vulnerable to depression due to interpersonal problems, family conflict increased stress in the presence of less social support from the spouse which led women to be dissatisfied with their relationships [27].

The present study findings showed that there is statistically significant difference between severity of menopausal symptoms and duration of menopause. Where, the majority of women (90.2%) who reported severe symptoms had duration of menopause 5 to less than 10 years compared to only 2.4% of those that duration of menopause 10 years and more . . This may be due to the fact that after some years of menopause, hormonal stability occurs, leading to reduction or absence of symptoms that previously impaired quality of life.

The present study is relatively concordant with the study done by **Da Fonseca AM et al (2013) [28]** about "Impact of age and body mass on the intensity of menopausal symptoms in 5968 Brazilian women " in Brazil, where they reported that menopausal symptoms tended to reduce with time after menopause. In addition, the current finding is relatively similar to the study of Capistrano **et**

al (2015) [29] in Brazil, titled "Factors associated with the severity of menopausal symptoms in postmenopausal Brazilian women ". They found that study subjects within 6–10 years of menopause presented nearly 1.4 times higher incidence of moderate to severe symptoms compared with those with more than 10 years of menopause.

On the other hands, the current finding also doesn't match with that of **Fernandez-Alonso et al** (2010), they reported no significant difference was detected concerning time after menopause and moderate to severe symptoms [30]. These contradicting results between the present study and the aforementioned research may be explained in the light that there is methodological difference between data collection

Regarding BMI, The present study results revealed a statistically significant difference between BMI and severity of menopausal symptoms. Where, 68.3% of obese women had severe menopausal symptoms compared to only 19.5% of normal weight women ($p < 0.01$).The current finding is relatively in congruence with the study of **Fernandez-Alonso et al** (2010)[30] about " Obesity is related to increased menopausal symptoms among Spanish women. They found that obese women presented 3.35 times more chances to present moderate to severe symptoms compared with non-obese women ($p < 0.01$). In addition, it relatively matches with the previous mentioned study of **Da Fonseca et al** (2013) [28] they found that obese women reported more symptoms than non-obese women. They added that that obese women reported more severe vasomotor symptoms.

Such an agreement between the results of the current study & the previous results is emphasized by some literatures which had reported that it is hypo estrogenism -related symptoms. Other relevant literatures pointed to the significant actions of adipose tissue, such as thermal isolation, produce higher body temperatures and result in increased vasomotor symptoms, being a possible explanation for association between severe climacteric symptoms and higher BMI [31, 32].

Exercise and physical activity have benefits for general health and well-being but also offer conflicting evidence for roles in menopausal symptoms. The current study showed that the majority (90.2%) of participants who reported lower levels of physical activity had severe menopausal symptom compared to only 9.8 of physically active women. This result is in line with the findings Canário AC (2012) [33] they had assessed the impact of physical activity on menopausal symptoms in middle-aged women and Tan M et al (2014) [34]. They had assessed the

effect of physical activity and body mass index on menopausal symptoms in Turkish women. They all had revealed that a significant decrease in the mean scores of all MRS domains of women as their physical activity increase. Also, some studies reported that Women with a sedentary lifestyle reported more psychological symptoms, somatic/pain and vasomotor symptoms than did women who exercised regularly [35- 37].

On the other hand the present study's same results is not in the line with Whitcomb BW et al (2007) [38]. They had studied Physical activity and risk of hot flashes among women in midlife in **Maryland, USA.** Their study had concluded that frequent physical activity in midlife may be associated with risk of greater severity and frequency of menopausal hot flashes.

Regarding chronic diseases, the finding of the current study revealed a statistically significant difference between chronic illness and severity of menopausal symptoms. Where, the majority of participant (75.6% & 82.9%) with history of diabetes and hypertension reported severe menopausal symptoms compared to only 34.3% and 20.6% without history of the same previous mention diseases had moderate menopausal symptoms. The current finding is relatively similar to the study of **Kumari M et al** (2004) [39] and the cross-sectional study done by **Tan et al** (2014) [34]. They found that Menopausal symptoms were experienced less by women who were, with no history of chronic disease

Conclusion

Age constituted a protection factor for moderate to severe symptoms, whereas having within 6–10 years of menopause, smoking and being unemployed or a housewife were factors related to higher prevalence of moderate to severe menopausal symptoms.

Recommendation

There is a need to improve awareness among the menopausal women and healthcare provider on menopausal symptoms and variety of intervention ranging from lifestyle modifications to pharmacological interventions, including hormonal/non-hormonal and complementary therapies.

Healthcare providers should practice an evidence-based management in offering the best management for these women. The hope to see women embracing menopause gracefully should be upheld by everyone, rather than leaving them suffering in silence.

References

1. Miller H & Griffith J. Instruction for Obstetric and Gynecologic Patient. 3rd ed . 2003; Philadelphia: W.B. Saunders 153.
2. Wallis A. Text book of women's health. 8th ed. 2006; Lippincott Raven Publisher: New York, 721.
3. McPherson, K.I. Nurse-researchers respond to the medicalization of menopause. In: Flint,M., Kronenberg, F., and Utian,W. 1990;. New York: New York Academy of Science. 180-4
4. Arroyo A, YehJ. Understanding the menopausal transition, and managing its clinical challenges. Sex Report Menopause 2005; 3:12-7.
5. World Health Organization. Research on the menopause in the 1990: report of a WHO Scientific Group. WHO tech rep ser.; 1990; 2:12–20.
6. Lee M., and et al. Factors Influencing the Severity of Menopause Symptoms in Korean Post-menopausal Women. J Korean Med Sci. 2010; 25(5): 758–765.
7. Cheng MH, Wang S, Wang P, Fuh J. Attitude towards menopause among middle aged women: a community survey in an Island of Taiwan. Maturitas 2005; 52(3): 348-355.
8. World Health Organization. Research on the menopause in the 1990s: report of a WHO scientific group. WHO technical report series. Geneva: World Health Organization. 2015.
9. Jin YL, Chang SS. The attitude of postmenopausal women towards hormone replacement therapy. 1997; Geneva, Switzerland.
10. Word Health Organization (WHO). Research on the menopause. World Health Organization: 2009; Technical Report Series Geneva, 670, Geneva: WHO.
11. Kaufert, P.A. The social and cultural context of menopause. *Maturitas*. 1996; 23:169-80.
12. Matthews K. Myths and realities of the menopause. Psychosomatic Medicine (1992); (54):1-9.
13. Stamps V. Assessing symptom perception and management of menopausal symptoms in middle-aged women in a faith-based community. University School of Nursing, USA, Master Theses of Science in Nursing (2010); 5-7.
14. Heinemann LA, Potthoff P, Schneider HP. International versions of the menopause rating scale (MRS). Health Qual. Life Outcomes 2003; 1:28.
15. United Nations. Demographic yearbook, New York: United Nations, Department of International and Social Affairs (1993).
16. U.S. Census Bureau. Annual estimates of the population by five-year age groups and sex for the United States, 2006.
17. Sallam H, Galal AF, Rashed A. Menopause in Egypt: past and present perspectives. Climacteric (2006) ;(9):421–9.
18. WHO. Report on the reproductive morbidity of post menopausal women: how to avoid the tragic implications of the "graying of nations", Beirut, Lebanon. (1998); (4): 115-18. Available at: http://www.who.int/mediacentre/factsheets/fs370/en/index.html. Retrieved on 10 December 2013.
19. Dorothy M. Menopause Text book of women's health. Lippincott Raven Publisher; New York :(1998); 721-23.

20. Rahman S, Zainudin S, and Mun V. Assessment of menopausal symptoms using modified Menopause Rating Scale (MRS) among middle age women in Kuching, Sarawak, Malaysia. Asia Pacific Family Medicine. 2010; 9-15.
21. Wibur J. The relationship among menopausal status, menopausal symptoms and physical activity in midlife women. Family and Community Health (1995); 13(3):67-78.
22. Wallis T. Textbook of women's health.[1st] edition. Lippincott-raven publisher, Philadelphia (1998); 721.
23. The Jacobs Institute of Women's Health Expert Panel on Menopause Counseling. Guidelines for counseling women on the management of menopause. Washington, DC: Jacobs Institute of Women's Health, 2000.
24. Deeks A and McCabe: Wellbeing and menopause: an investigation of purpose in life, self-acceptance and social role in pre-menopausal, peri-menopausal and postmenopausal women. Quality Life Res (2004); 13: 389-98.
25. Dennerstein L, Dudly E, Hopper J, Guthrie J & Burger H: A prospective population based study of menopausal symptoms. Obstetric Gynecology (2000).
26. Greene J. Menopause Symptoms: Climacteric Scale. 20 January 2017. Available at URL: http://www.menopausematters.co.uk/greenescale.php Retrieved on: 20 January 2017.
27. Ebrahim S. Self-care measures to relieve menopausal symptoms. Faculty of Nursing, Ain Shams University, Egypt. Unpublished Master Thesis (2006); 28-29.
28.