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Assessment of nutritional status among post menopause women in Gaza city

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ABSTRACT

Diet is one of the most important and modifiable lifestyle determinants of human health. Both under nutrition, over nutrition and other nutritional problems, diet play a major role in morbidity and mortality and therefore assessment of nutritional status is a cornerstone of efforts to improve the health individuals and populations through the word. The menopause in women between forty and fifty is a normal physiological stage for all women and accompanied by many symptoms and diseases that have a close relations with nutritional status of women. Many researchers have been carried out over the world concerned the nutrition of menopause women, unfortunately little information are available in our area. Therefore, this research aims to study nutritional status of women in menopause period in the Gaza Strip in order to reach dietary factors that increase or decrease the symptoms of menopause and to determine the healthy diet of those women. A group of 116 women were selected from women attending some pharmacies and clinics in Gaza City, Jabalya and Shati refugee camp at the ages of 40 to 60 years, women who suffer from intermediate symptoms of menopause was 44%, while 36% of them have light symptoms and only 20% women have no symptoms of menopause. 56% of women have no daily physical activity and 51% are obese. Results showed statistical significance about physical inactivity and obesity among post menopause women. From nutritional point of view results showed significant dietary calcium intake insufficiency, Vitamin D insufficiency and bad dietary habits. The results showed that women have no knowledge about nutrition and lifestyle at pre and post menopause, so we recommend a health and nutritional education targeting this group of population. Finally, we recommended that menopause women should take healthy balanced diet and have regular physical activity and visit clinics regularly to make physical and laboratory examinations.

KEYWORDS

Menopause women;
Menstrual cessation;
Nutrition and lifestyle;
Gaza city.

INTRODUCTION

The menopause is defined as ovarian failure due to loss of ovarian follicular function accompanied by estrogen deficiency resulting in permanent cessation of menstruation and loss of reproductive function[18]. The World Health Organization (WHO) and the Stages of Reproductive Aging Workshop have defined menopausal transition as the time of an increase in follicle-stimulating hormone and either increased variability in menstrual cycle length, two skipped menstrual cycles with 60 days or more of amenorrhea, or both[13]. Once the ovarian follicles cease to exist, the hormone estrogen is no longer produced in the large quantities needed to stimulate growth of the lining of the womb (endometrium) in preparation for fertilization. Thus, much smaller quantities of estrogen are produced and menstruation ceases[2]. In 1990, there were an estimated 467 million women aged = 50 years in the world. This number is expected to increase to 1200 million by the year 2030[19]. With menopause, an array of changes occurs gradually over a period of several years, involving changes in bleeding patterns, hot flashes, sleep disturbances, weight changes, vaginal discomforts, changes in sexuality, osteoporosis (or loss of bone mass), as well as changes in mood and cognition[8]. Epidemiologic studies have shown that symptoms occur more commonly in parts of the world where Western dietary habits prevail, and clinical studies have found that dietary factors (fiber and perhaps fat) influence hormone concentrations and activity[2]. Osteoporosis is a serious problem for postmenopausal women which increases the risk of bone fracture and worsens with age, increasing from 4% in 50–59 year age bracket to 50% in 80 years old women. Bone fractures are also prevalent in these women[15]. Isoflavonoids are phytoestrogens present in soybeans concomitantly with soy protein, and they resemble estradiol in structure and manner of action. Isoflavones such as genistein and daidzein bind weakly to estrogen receptor alpha and more strongly to estrogen receptor Beta, and as this binding is tissue-specific, they possess organ-specific estrogenic and antiestrogenic effects[10]. Several studies have shown that women who consume large amounts of soy-based phytoestrogens have fewer menopausal complaints. High consumption of phytoestrogens in Asian countries has been suggested to account for the low risk of CVD, breast and endometrial cancers, and osteoporosis-related fractures in these countries[10]. Menopause, of course, represents an entirely normal phase in every woman's life during which women suffers from unexplained symptoms. Nutritional studies play a great role to help menopause women understanding about what they should eat and what not, and what are the important factors for menopause health. For these women in Gaza strip, studying the factors that affecting their menopause are so important to help them to improve their life. In the Gaza strip, there is limited information on nutritional status and it's indicators among post menopause women so this study assessed the nutritional status among these women and it's indicators by using some anthropometric measurements, socioeconomical factors, and dietary habits. However, a study prepared by Hania et al., 2008[6], was concerned in occurrence of osteoporosis among menopause women in Gaza strip was show unawareness of women concerning osteoporosis as their daily practices. They were suggested that the women who had last period for more than five years have the highest osteoporosis occurrence percentage (36.91%) while the lowest percentage, (7.1%) was for women who had last period for = one year[6].

Our objectives in this study was to determine the prevalence of underweight, overweight and obesity among post menopause women in Gaza strip, and studying the relationship between physical activity and the severity of symptoms of menstrual cessation. We aim also to study the relationship between socioeconomic status, education level, demographic, usual dietary habits and the nutritional status for these women, and to determine the attitudes & knowledge about menstrual cessation and its management among post menopause women in Gaza strip. The effect of vitamin D supplements, and the relationship between number of pregnancies on back & joint pain, in addition to studying the effect of soy phytoestrogens in diet and the severity of menopause symptoms will be determine. Finally, the mean age of menorrhea and dysmenorrheal among post menopause women in Gaza strip will be assessed.

METHODS

Demography of the study area

Gaza strip is a narrow area of land lying on the coast of the Mediterranean Sea. Its position on the

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crossroads from Africa to Asia made it a target for occupiers and conquerors over the centuries[11]. The Gaza strip is considered one of the most populated areas in the world with a poverty level reaching 70% and a population of children reaching about 50% of the total population[12]. In the Gaza Strip more than 1.5 million people live in an area of 360 Km2. The population is distributed in cities, small villages and high concentration in eight refugee camps (this represent two third of the population). GS is divided into five governorates: North, Gaza city, Mid zone, Khanyonis, and Rafah[11].

Study tool

This study is a retrospective non randomized study that will target post menopause women in Gaza strip. The study will target postmenopause women who visit some of pharmacies and health care clinics for acute illness or to get usual health investigations. This study implemented in three main geographical areas in Gaza strip which are Gaza city, Shatea' and Jabalia camp. The sample size are 116 women, respondents are taken as follow: 51 % of sample from Gaza city, 25 % from Jabalia Camp, 23% from Shatea' Camp. The interviews performed with a questionnaire to obtain information on age, socioeconomic status, occupation, educational level, marital status, income, symptoms of menopause and its intensity, knowledge about symptoms and treatment, dealing with symptoms, physical activity, usual dietary intake and anthropometric factors (weight, height). A food frequency questionnaire was done to measure the usual dietary intake. Based on a list of commonly consumed foods, for each food or food group, the subjects were asked to report their frequency of consumption on average in the appropriate interval. The participant weighed in light clothing without shoes by an electronic weighing scale, the height measured by a stadiometer, Body mass index (BMI) computed as the ratio of weight (kg) per height squared (m2). BMI classified into five categories as follows: <18 (underweight), 18.5–24.9 (normal weight), 25-29.9 (overweight) and above 30 (obese)[19].

Questionnaire design and interview

The questionnaire was designed to include some information of the menopause women including sociodemographic factors, attitudes and knowledge, health and nutritional history, physical activity, severity of symptoms of menstrual cessation, prevalence of underweight, overweight and obesity, the effect of soy intake on the symptoms of menstrual cessation and its related diseases and the mean age of menorrhea and dysmenorrheal among post menopause women in Gaza strip. The questionnaire was translated into Arabic. Questionnaire validity was also tested after circulating the questionnaire to six experts in the field of nutrition and health and working on all the comments and advices

Data collection and statistical analysis

All the data obtained from the questionnaire were entered in SPSS 15 software and analyzed using ANOVA and t test in order to detect significant variation among up to two parameters. Differences were considered statistically significant at $p < 0.05$.

RESULTS

Socio-demographic variations

Age

Age distribution of the study sample (N=116) ranged from a minimum of 46 years old to maximum 78 years old with a mean of 53.4. The majority of the sample was between 50 and 55 years old and three women were above 75 years.

Distribution, educational level and income rate

116 menopause women were included in this study, TABLE 1 illustrates their distribution among Gaza strip, educational level, and Income rate of their families:

TABLE 1 : Socio-demographic variations:

	Characteristic	No.	%
1	**Location:**		
	(A) Gaza City	60	51.7%
	(B) Jabalia Camp	29	25%
	(C) Beach Camp	27	23.3%
	Total	116	100%
2	**Educational Level:**		
	(A) None	34	29.3%
	(B) Primary or preparatory	16	13.8%
	(C) Secondary	41	35.3%
	(D) University and more	25	21.6%
	Total	116	100%
3	**Monthly Income Rate**		
	(A) less than 300$	61	52.6%
	(B) 300-600	44	37.9%
	(C) more than 600$	11	9.5%

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Employment status

Eighty six percent of the women were housewives and didn't have any work, 9% were teachers and the reminder worked in other jobs as tailors (1.7%), accountant (0.9%) and seller (2%).

Health status

The following table (TABLE 2) illustrates health information as they introduced in the questionnaire:

TABLE 2 : Health information that describes the status of menopause women:

Questions	Major	Minor
The mean of age of menorrhea	14.1 years	--
Minimum age of menorrhea	11 years	--
Maximum age of menorrhea	25 years	--
The mean of age of cessation of menorrhea.	54.5 years	--
Minimum age of cessation of menorrhea.	30 years	--
Maximum age of cessation of menorrhea.	60 years	--
The severity of symptoms of post menopause	44% was intermediate	36.2% was light
Women suffer from irregular menorrhea and vaginal bleeding.	58.6% No	41.4% Yes
Women suffer from back and joint pain	67.2% yes	32.8% No
Women suffer from hot flushes and night sweet.	37.9% Yes	62.1% No
Women suffer from Osteoporosis	22.4% Yes	77.6% No
Psychological problems.	27.6% Yes	72.4% No
Women that have not knowledge about treatment lines of symptoms of menopause	78.4% Yes	21.6% No
Women don't use any of treatment lines of symptoms of menopause	83.6% Yes	16.4 % No
Women that deals with symptoms.	37.1% with confidence	19.8% of them deals by irritability
Information about symptoms	42.2% no information	37.9 % have information from friends
physical activity daily	56% No	19% walk one hour daily
Women that increase their weight after menopause.	62.1% Yes	37.9% No
Weight	51.7% obese.	8.6% normal 27.6% overweight

Effect of physical activity on the severity of symptoms

TABLE 6 : Effect of physical activity on the severity of symptoms

Physical activities	Severity of symptoms		
	Light	Intermediate	Severe
Yes (N=19)	47.36%	26%	26%
No (N= 65)	16.9%	40%	43.07%

Dietary intake of food and supplements

TABLE 3 : Food and supplements consumption of menopause women

Food or supplements	Major	Minor
Egg Consumption	64% eat less than one egg daily	32.7% eat one egg daily
Nuts	27.6% don't	41% eat it once weekly.
Milk	54.3% don't	45.7% drink one cup of milk daily
Tea	72.4% drink two or more cups	36.9% drink three or more cups
Soybean	75% No	25% Yes
Nutritional supplementation	62.1% No	37.1% Yes
Ca2+ supplements	84.5% No	15.5% yes
Iron supplement	92.2% No	7.8% Yes
Vit. E supplement	95.7% No	4.3% Yes
vit.D supplement	94% No	6% Yes
vitamins and minerals	79.3% No	20.7% Yes

Weight classification

TABLE 4 : Women weight classification according to body mass index (BMI).

Variables according to Body mass index	Habitation place		
	Gaza city (N=52)	Jabalia refugee (N= 23)	
			P-value
Underweight	0 %	0 %	
Normal weight	9.6 %	4.3 %	0.008
Over weight	26.9 %	21.7 %	
Obese	63.5 %	73.9 %	

Physical activities and BMI

TABLE 5 : Relationship between physical activities and BMI:

Physical activities	Obese	Overweight women who	Normal weight women
Yes (N= 19)	10.52%	15.78%	73.68%
No (N= 65)	64.61%	23.07%	12.3 %

Back and joint pain & the use of vitamin D supplements

TABLE 7 : Back and joint pain & the use of vitamin D supplements:

Variables	Back and joint pain		
	Yes (N=77)	NO (N=38)	P-value
Use Vitamin D	9.1 %	0 %	0.05
Not use Vitamin D	90.9 %	100 %	

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Back and joint pain & the use of soy bean

TABLE 8 : Back & joint pain and the use of soy bean in diet:

P-value	Total %	Severity of symptoms			Soybean consumption (N= 116)
		Severe %	Intermediate %	Light %	
	25	4.31	12.07	8.62	Yes (%)
0.002	75	39.66	24.13	11.2	No (%)
	99.99	43.97	36.2	19.82	Total (%)

Osteoporosis and the use of calcium supplements

TABLE 9 : Osteoporosis and the use of calcium supplements

Osteoporosis			Variables
P-value	NO (N= 89)	Yes (N=26)	
0.05	12.4 %	26.9 %	Use Ca supp.
	87.6 %	73.1 %	Not use Ca supp.

Relationship between BMI and back and joint pain

TABLE 10 : Relationship between BMI and back and joint pain:

Normal weight	Overweight women	Obese	Women who have back & joint pain
0.026%	24%	49.33%	Yes (% regarding the total sample)
3.44%	0.8%	11.2%	No

Multiparity & back and joint pain

TABLE 11 : Relationship between No. of pregnancy & back & joint pain:

Total (N= 116)	No. of pregnancy before menstrual cessation		Back and joint pain
	4 or more (N= 76)	Less than 4 (N= 40)	
72.41%	79.76%	20.23%	Yes (%)
27.58%	28.12%	71.87%	No (%)

DISCUSSION

This study was the first cross sectional, retrospective study of its kind to evaluate and to report in the nutritional intake and physical activities of menopause women in Gaza. The association between daily dietary intake of some foods and nutritional supplements and the menopause symptoms, back and joint pain, and osteoporotic symptoms was determined. Despite questionnaire alone couldn't reflects all the image, this simple baseline information considered initial data on risk factors of menopause suffering in Gaza. One of the aims of this study was to show women awareness of the consequences of diet and life styles upon their health. The study results showed either significant association between the suggested risk factors and menopause, or it denied others. The following sections describe these relationships according to the results:

Socio-demographic variation

The present study was conducted among 116 post menopause women in Gaza strip, were 51 % of the studying sample was from Gaza city and 49 % from refugee camps and this represent socio demographic varieties among women.

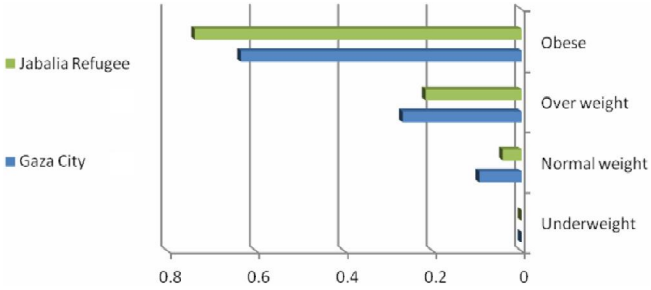

Figure 1 : 51.7% of the sample were obese, more than half of obsess women are from Jabalia refugee, only 21.7 % of the sample have normal weight.

The study focused also on the educational levels in relation to the location. We found that 68% of women who have high educational level live in Gaza city while 70% of women who have no education live in refugee camps (38% in Beach Camp & 32% in Jabalia Camp).

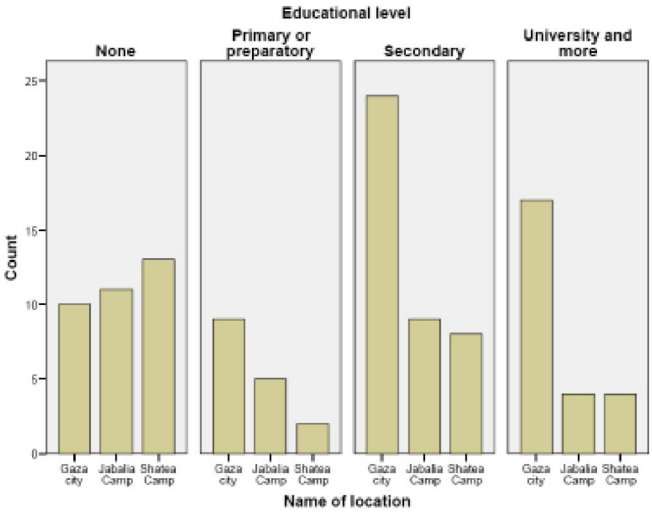

Figure 2 : Educational level distribution among Gaza city and refugee camps

Weight and physical activities

Physical activity has repeatedly been shown to have many health benefits in various populations including

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those in the menopause transition. The Canadian physical activity guide for older adults recommends getting at least 30-60 minutes of moderate intensity of physical activity on most days[9]. The Centre for Disease Control and Prevention suggests a minimum of 60 minutes per day to prevent weight gain[3]. In menopausal and postmenopausal age women, studies have shown that exercise has beneficial effects on body composition[16]. This study represents that 56 % of menopause women not perform any physical activity. In the other hand, 51.7 % of sample are obese, 27.6 % are overweight which consider a major risk factor for cardiovascular disease, osteoporosis, diabetes and other related problems (Outagamie County Public Health Division).

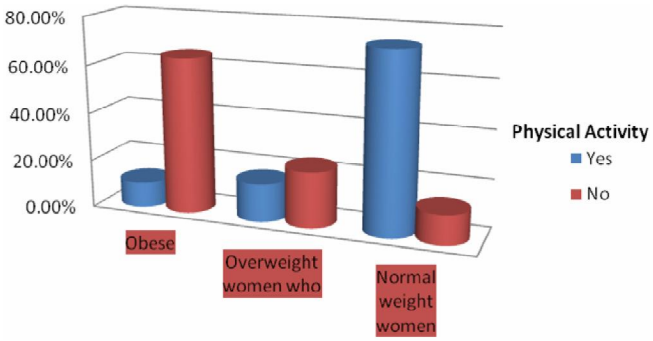

Figure 3 : Correlation between physical activity and body weight

A significant correlation between physical activity and BMI have been found in this study, two thirds (64.61%) of women who didn't perform physical activities (N= 65) were obese, 23.07% of them were overweight and only 12.3 % of these women had normal weight. One of the main causes of obesity is lack of physical activity (Outagamie County Public Health Division).

Effect of physical activity on severity of menopause symptoms

It has been indicated that exercisers have fewer health problems than sedentary[1]. Study of the influence of physical activity on menopause symptoms in Saskatchewan- Canada found that any effect of physical activity on menopausal symptoms is indirectly through the alteration of body composition. Women with lower percent body fat report less weight gain and fatigue. There was no significant relationship between physical activity levels and reporting of hot flashes/night sweats, insomnia, limb numbness, headache, psychological symptoms or urogenital symptoms[4]. About Three fourth (74%) of women who perform physical activity in our study have light to moderate symptoms while the reminders (26%) have severe. And also 43% of the sedentary women suffered from severe symptoms. In relation to body weight, no relation between body weight and the severity of symptoms which excludes its relation to the effect of physical activity on the severity of symptoms.

Effect of weight on severity of symptoms

We found that there are no significant relationship between body weight of women and their symptoms severity.

Body weight and back & joint pain

In our study we found that there is no significant relationship between obesity and suffering from back & joint pain while the increase in BMI increase back and joint pain. About back and joint pain multi factorial may play a role as estrogen deficiency, multi gravid, employment nature that 40 % of our samples are teachers and bad dietary habits (deficient vitamins and minerals).

Menopause symptoms

The results of this study showed that 37.9% of post menopause women suffer from hot flushes and night sweet, Hot flushes may be triggered by certain events such as smoking, spicy foods or caffeine and modifying these factors may well help[1]. In our study we found that a significant relationship between caffeine consumption & Severity of symptoms.

Intake of Hormone replacement therapy

Hormone replacement therapy can relief menopausal symptoms[14], we found that 83% of Post menopause women don't take replacement therapy neither from chemical sources nor from natural sources (phytoestrogens: flaxseed – soybean oil) so the women should also be advised to take more foods that contains phytoestrogens as flaxseed & soybean oil.

Effect of soy bean intake

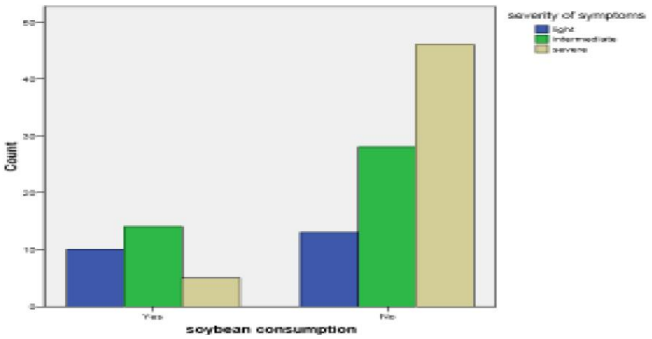

Figure 4 : Women, who have soy bean in their diet, had less symptoms severity than those who haven't.

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It was found that a significant relationship between consumption of soy bean oil & severity of postmenopausal symptoms. Other study In Japan (Kyoko et al., 2010)[17], found that soy isoflavone supplements significantly decreased the bone resorption marker urinary deoxypyridinoline (DPD) and showed no significant effects on the bone formation markers serum bone alkaline phosphatase (BAP) and OC in menopausal women . This study shows that there is significant relationship between soybeans consumption and relief of joint pain among post menopause women that the 25% of study sample who consume soybean to relief their menopause symptoms had no or light joint pain.

Relationship between calcium & vit. D intake and osteoporotic symptoms

The results of this study show that a significant relationship between Ca^{+2} & vitamin D supplementation and osteoporosis, while women who don't take calcium supplements & vit. D have more tendency to suffer from osteoporotic symptoms, also our study show a significant relationship between vit. D supplements & back & joint pain, it was found that women who don't take vit. D supplements suffering from joint & back pain. In addition, 64% of post menopause women eat less than one egg daily, this indicate that they don't take sufficient dietary calcium and vit. D. Other factor that may play a role in osteomalacia and osteoporosis tendency is that old age women don't convert sunlight into essential vit. D as efficiently as they did when they were young age. Also, Absorption of dietary calcium decreased as a result of bad dietary habits especially intake of tea with meals.

Causes of psychological problems

The results of this study show that 27.6% of post menopause women suffer from psychological problems. This may be due to sedentary lifestyle (Exercise may help by improving general well-being and by improving stamina and fitness). Estrogen deficiency or lack of replacement therapy also can play a role. One of the factors that may play a role in this problems that women have not information about this period and the symptoms included in it, we found that 42.2% of post menopause women have not any information about symptoms comparing with 37.9 % have some information from friends. This means that post menopause women are deficient in culture despite of their education level.

Relationship between multiparty and back & joint pain

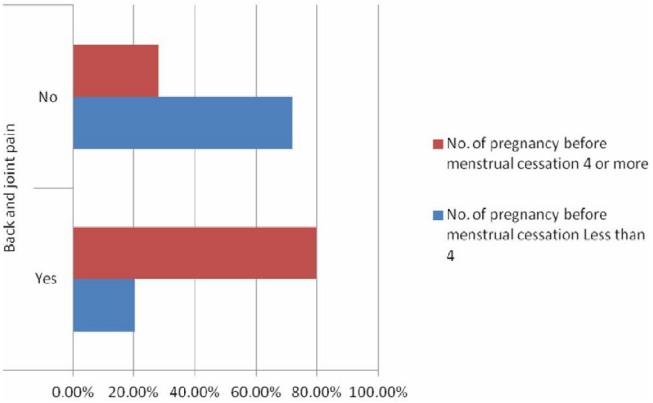

Figure 5 : Multiparty founded as one of the factors that cause back & joint pain when women became menopause.

The results of this study show that 79.76% from women who suffers from back & joint pain had higher no. of pregnancies. This is due to pregnancy and breastfeeding are associated with changes in maternal calcium homeostasis, resulting in decreased bone mineral density (BMD)[7]. There is little data in the literature about the effect of pregnancies on menopausal symptoms. In contrary to our results, Janaka et. al., 2010 didn't find detrimental effect of parity on maternal BMD after menopause[7]. In other study, it was found that a clear effect of parity on Calcium metabolism[5].

CONCLUSION

Post-menopausal stage is a critical stage of women life which needs a special concern in nutrition and life styles. In Gaza, we found that 44% of menopause women suffer from intermediate symptoms and 36.2% are suffering from light symptoms. In parallel, 42% of menopause women have no information about menopause symptoms. It was focused on Body Mass Index of these women, we found that 51.7% of the study sample are obese, 27.6 % are overweight. As we mentioned, 67.2% of Women suffer from back and joint pain, 79.76% of them had higher no. of pregnancies which indicates the relationship between multiparity and back & joint pain. Although we found that no significant relationship between obesity and back & joint pain, it is noticed that an increase in BMI cause increase in back & joint pain in menopause. In addition, back and joint pain found to be little or disappeared with women who are regularly take soy bean in their diet. Most

menopause women in Gaza didn't use any supplementation to promote their lives because they have no knowledge about the importance of these supplements in their life stage. 78.4% of Women that have not knowledge about treatment lines of symptoms of menopause. 15.5% of women use Ca^{+2} supplementation and only 6% of them use vitamin D supplementation. Regarding to socio demographic variations, any relations between these variations and menopause symptoms aren't founded except that more than half of obese women are from Jabalia refugee camp.

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