

Evaluation Quality of Life for Adult Women with Osteoporosis in Baghdad City

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Abstract: *T A descriptive design, using the evaluation approach, is carried out to (1) evaluate the quality of life of adult women with osteoporosis at a radiology institute in the medical city; (2) determine the relationship between these women's quality of life and their social-demographic characteristics of age and socioeconomic status, BMI and gravida; and (3) identify any differences between these women's marital status groups, socioeconomic status groups, and BMI groups in terms of quality of life. A purposive "non-probability" sample of (200) adult women who were visiting the Radiology Institute in the Medical City Complex in Baghdad City is selected. A study instrument is developed for the purpose of the study which is comprised of two parts; the first part includes participants' socio-demographic characteristics, and the second part is concerned with the Quality of Life Questionnaire which includes seven subdomains of pain, activities of daily living, jobs around the house, mobility, leisure, social activities, general health perception, and mental function. Content validity of the instrument is determined through the use of panel of (10) experts and internal consistency reliability through split-half technique and the computation of Cronbach alpha correlation coefficient. Data are collected through the use of the study instrument and the structured interview technique as mean of data collection. Data are analyzed through the application of descriptive statistical data analysis approach of frequencies, percent, mean of scores, and Cronbach's alpha correlation coefficient, and the inferential statistical data analysis approach of One-way analysis of variance (ANOVA) and Fisher's exact test. The study results reveal that all osteoporosis-related quality of life subdomains are fair, except for the general health subdomain which is significant. The overall quality of life is significant. There is a statistical significant difference between women in the age group of (49-56) and women in other age groups in terms of quality of life. there is a significant difference between women's menstruation existence groups in terms of their osteoporosis quality of life. Women who still menstruate have a better osteoporosis-related quality of life than women in menopause. There are significant differences among women's gravida groups in terms of their osteoporosis quality of life. The study concludes that age has the main influence on women's osteoporosis quality of life. and the subdomains of overall pain, jobs around the house, mobility, leisure, social activities, and the general health are at approximately non-significant level (cause complaints and discomfort to these women). Only the ADLs is above the average (does not cause complaint and discomfort). The overall quality of life is significantly unsatisfying. The study recommends that it is essential to conduct future research that outreach the community at large, and to initiate health education that help in enabling women who are in different stages of adulthood to acquire skills necessary to manage and overcome complaints related to osteoporosis quality of life domains.*

Keywords: Quality of Life, Osteoporosis, Adult Women

1. Introduction

Osteoporosis is considered as a global critical health problem in large number of developed countries. It also will influence a wide range of developing countries in the next few decades [1]. Looker and others estimated that around 5.3 million American older adults experienced osteoporosis [2]. Osteoporosis is a disease that affects the human skeleton systematically. The main features of osteoporosis include reduced bone mineral density and declined bone structure, and a subsequent escalated bone fragility. The complications of osteoporosis commonly result in fractures of the spine or femur, which lead to back pain and functional impairments of persons, particularly in older adults [3, 4].

Furthermore, the aftermaths of osteoporosis will include daily activities such as physical activities or work performance. Other negative consequences of osteoporosis include falls, poor health-related quality of life (HrQoL), depressed mood, or even financial burdens upon a given society [1, 3, 5].

Quality of life (QoL) is a wide-ranging concept that involves many dimensions related to various aspects of persons' wellbeing. These aspects include general health status, and

issues related to the environment, spirituality, and economy. Health-related quality of life (HRQoL) investigates more specifically the physical, emotional and social wellbeing health aspects. Furthermore, it investigates the effect of illness and treatment on the aforementioned aspects. In postmenopausal women, the fractures resulted from osteoporosis typically occur in the distal forearm, the spine and the upper femur. However, osteoporosis can exist in the absence of fractures for many persons [5].

Osteoporosis (OP) is one of the most common non-infectious metabolic disease that results in disability and worsened quality of life. The main features of osteoporosis include diminished bone mass and bone change. Remarkably, the chance for developing osteoporosis is four times higher for women than for men [6]. OP has gained an increasing importance pertaining to quality of life, and socioeconomic aspects, since it impacts the quality of life unfavorably, and leads to social isolation. One of the most common complications of osteoporosis is the vertebral fractures which are usually accompanied by back pain and functional impairment [7].

According to The Iraqi Osteoporosis Society (IOS), there are no available epidemiological statistics about the prevalence

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of the osteoporosis in Iraq. In Lebanon, a community-based study was conducted among a random sample of (432) older adults aged (65-84) years from the greater Beirut area. The study results displayed that; by using DXA at total hip, osteopenia prevalence was found in a rate of (51%) among women and (56.6%) among men [8]. These findings account a total of (84.660) women and (82.636) men aged (65 and older) with osteopenia.

This study aims to (1) evaluate the quality of life of adult women with osteoporosis at a radiology institute in the medical city, (2) determine the relationship between these women's quality of life and their age and socioeconomic status, BMI and gravida, and (3) identify any differences between these women's marital status group, socioeconomic status groups, and BMI groups in terms of quality of life.

2. Methodology

A descriptive study, using evaluation approach, is carried throughout the present study. The study aims at evaluating the quality of life for adult women at the Radiological Institute at the Medical City Complex in Baghdad City for the period of (August, 2016- June, 2017).

A purposive "non-probability" sample of (200) adult woman whose ages range between (25 to 60) years-old. These women experience osteoporosis and visit the Radiological Institute at the Medical City Complex in Baghdad City for diagnosis and follow-up. The inclusion criteria include the following:

- 1) Women who are aged between 25 years-old to 56 years-old.
- 2) Women who are visiting the Radiology Institute at the Medical City Complex in Baghdad City for osteoporosis-related diagnosis and follow-up.
- 3) Women who have no physical disability.
- 4) Women who have agreed to participate in the study.

3. The Study Instrument

The study uses a self-report questionnaire which is comprised of two parts; (1) The Demographic Data Sheet which includes participants' demographic characteristics of age, marital status, level of education, employment and the place of residence. This part contains the history of menstruation, and the number of gravida. The first part also includes participants' socioeconomic status, which is measured by a scale constructed by Aggarwal and others [9]. It is comprised of six levels of upper high ≥ 43 , high (34-42), upper middle (26-33), lower middle (18-25), poor (10-17), and very poor ≤ 9 . Moreover, the first part includes participants' BMI which is calculated through dividing the body weight (kg) on height (m^2). This measure includes five levels; underweight < 18.5 , normal body weight or BMI (18.5-24.9), overweight (25-29.9), obesity (30-34.9), and morbid obesity ≥ 35 [10]. (2) The Quality of Life which includes the Quality of Life Questionnaire which is developed by the International Osteoporosis Foundation [11]. This questionnaire is comprised of seven subdomains of the domains of Physical Health, Psychological Health, Level of Independence, Social

Relationships, Environment, and Spirituality/ Religion/ Personal Beliefs. These seven subdomains are Pain, Activities of Daily Living, Jobs Around the House, Mobility, Leisure, Social Activities, General Health Perception, and Mental Health.

Data are collected through self-report questionnaire for the period from December 18th, 2016 through March 18th, 2017. Private meeting is conducted with participants who are unable to read and write as a mean of data collection. The average time required for data collection for each participant is (10-15) minutes. To determine the study instrument internal consistency reliability, a pilot study is conducted on (10) participants who later are excluded from the original study sample

The content validity of the study instrument is achieved by presenting it to a panel of nine experts. These experts' comments reveal that all of them have agreed that the instrument of this study is clear and adequate for measuring the phenomenon under investigation. Modifications are made on few items according to the experts' suggestions.

Data are analyzed by using the IBM Statistical Package for Social Science for Windows (SPSS Version 24).

Study Results

Table 1: Participants' Sociodemographic Characteristics (N = 200)

Variables	Frequency	Percent
Age: Mean (SD) = 45.8 ± 8.5		
26-32	21	10.5
33-40	36	18
41-48	45	22.5
49-56	98	49
Marital Status		
Unmarried	29	14.5
Married	133	66.5
Divorced	7	3.5
Widowed	25	12.5
Separated	6	3
BMI = 29.3 ± 4.5		
Underweight	0	0
Normal	29	14.5
Overweight	91	45.5
Obesity	58	29
Morbid Obesity	22	11
Is menstruation existent?		
Yes	93	46.5
No	107	53.5
If menstruation ceased, for how long (Years)? Mean (SD) = 5.5 ± 4.2		
Gravida		
None	31	15.5
1-2	26	13
3-4	61	30.5
5-6	42	21
≥ 7	40	20
Socioeconomic Status		
Poor	29	14.5
Lower Middle	98	49
Upper Middle	73	36.5

Table (1) demonstrates that participants' mean age is 45.8 ± 8.5 ; less than a half of them are within the age group of (49-56) ($n = 98$; 49.0%), followed by those who are in the age group of (41-48) ($n = 45$; 22.5%), those who are in the age group of (33-40) ($n = 36$; 18.0%), and those who are in the age group of (26-32) ($n = 21$; 10.5%).

Most of them are married ($n = 133$; 66.5%), less than a fifth are unmarried ($n = 29$; 14.5%), a lesser proportion are widowed ($n = 25$; 12.5%), and trivial proportions for each of those who are divorced and separated ($n = 7$; 3.5%), ($n = 6$; 3.0%) respectively.

Concerning participants' body mass index, less than a half of them have overweight ($n = 91$; 45.5%), less than a third have obesity ($n = 58$; 29.0%), less than a fifth have a normal BMI ($n = 29$; 14.5%), and a small proportion have morbid obesity ($n = 22$; 11.0%).

More than a half of women are in menopause ($n = 107$; 53.5%), and less than a half have menstruation ($n = 93$; 46.5%). For those who are in menopause, the mean duration of menopause is 5.5 ± 4.2 . Concerning the gravida, less than a third of women had (3-4) pregnancies ($n = 61$; 30.5%), more than fifth had (5-6) pregnancies ($n = 42$; 21.0%), a fifth had (≥ 7) pregnancies ($n = 40$; 20.0%), less than a fifth have no pregnancy ($n = 31$; 15.5%), a lesser proportion had (1-2) pregnancies ($n = 26$; 13.0%), and less than a tenth had nine or more pregnancies ($n = 19$; 9.5%). Lastly, less than a half of the participants are categorized in the lower middle socioeconomic class ($n = 98$; 49.0%), more than a third are categorized in the upper middle socioeconomic class ($n = 73$; 36.5%), and less than a fifth are categorized in the poor socioeconomic class ($n = 29$; 14.5%).

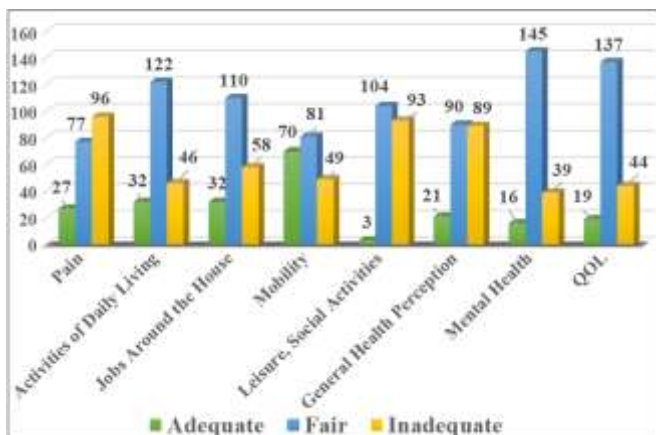


Figure 4.1: Description of Quality of Life Subdomains

Table 2: Association between Participants' Sociodemographic Characteristics and Their Quality of L

Variables	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
Age	-0.925	.251	-.259	-3.686	.000
BMI	-.286	.448	-.042	-.638	.525
Gravida	-2.127	.718	-.207	-2.960	.003
Socioeconomic Status	1.129	.375	.200	3.009	.003

B = The coefficients; Sig. = Significance; Std. Error = Standard errors; T = t-statistics

Table (2) reveals that there are significant association between participants' age, gravida, socioeconomic status, and their quality of life (p -value = .000, .003, .003) respectively.

Table 3: Analysis of Variance between Participants' Age Groups and Their Quality of Life

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	23674.111	3	7891.370	9.709	.000
Within Groups	159307.569	196	812.794		
Total	182981.680	199			

df = Degree of freedom; F = F-statistics; Sig. = Significance

Table (3) demonstrates that there are significant differences among participants' age groups in terms of their quality of life (p -value = .000).

Table 4: Multiple Comparisons among Participants' Age Groups and Their Quality of Life

(I) Age Group	(J) Age Group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
25-32	33-40	-.80159	7.82829	1.000	-21.6663	20.0632
	41-48	1.09841	7.53436	1.000	-18.9829	21.1798
	49-56	21.93197*	6.85553	.010	3.6599	40.2040
33-40	25-32	.80159	7.82829	1.000	-20.0632	21.6663
	41-48	1.90000	6.37493	1.000	-15.0911	18.8911
	49-56	22.73356*	5.55621	.000	7.9246	37.5425
41-48	25-32	-1.09841	7.53436	1.000	-21.1798	18.9829
	33-40	-1.90000	6.37493	1.000	-18.8911	15.0911
	49-56	20.83356*	5.13380	.000	7.1504	34.5167
49-56	25-32	-21.93197*	6.85553	.010	-40.2040	-3.6599
	33-40	-22.73356*	5.55621	.000	-37.5425	-7.9246
	41-48	-20.83356*	5.13380	.000	-34.5167	-7.1504

*. The mean difference is significant at the 0.05 level.

Table (4) presents that the mean difference between participants in the age group of (49-56) and other age groups is statistically significant (p -value = .010).

Table 5: Association between Participants' Age Group and Their Quality of Life

Age Group	Quality of Life Categories			Total	
	Inadequate	Fair	Adequate		
25-32	Count	2	15	4	21
	% within Age Group	9.5%	71.4%	19.0%	100.0%
	% of Total	1.0%	7.5%	2.0%	10.5%
33-40	Count	4	27	5	36
	% within Age Group	11.1%	75.0%	13.9%	100.0%
	% of Total	2.0%	13.5%	2.5%	18.0%
41-48	Count	7	31	7	45
	% within Age Group	15.6%	68.9%	15.6%	100.0%
	% of Total	3.5%	15.5%	3.5%	22.5%
49-56	Count	31	64	3	98
	% within Age Group	31.6%	65.3%	3.1%	100.0%
	% of Total	15.5%	32.0%	1.5%	49.0%
Total	Count	44	137	19	200
	% within Age Group	22.0%	68.5%	9.5%	100.0%
	% of Total	22.0%	68.5%	9.5%	100.0%

Fisher's Exact Test = 18.711, $df = 6$, P -value = 0.005

Note: 4 cells (33.3%) have expected count less than 5.

Table (5) reveals that women who are in the age group of (49-56) experience the worst osteoporosis quality of life ($n = 31$; 31.6%), followed by those who are in the age group of (41-48) ($n = 4$; 15.6%). On the other hand, women who are in the age group of 25-32) enjoy the better osteoporosis quality of life ($n = 4$; 19.0%), followed by those who are in the age group of (41-48) ($n = 7$; 15.6%). There is a significant association between women's age group and their osteoporosis quality of life (Fisher's Exact Test = 18.711, $df = 6$, P-value = 0.005).

Table 6: Analysis of Variance between Participants' Marital Status and Their Quality of Life

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6755.213	4	1688.803	1.869	.117
Within Groups	176226.467	195	903.725		
Total	182981.680	199			

df = Degree of freedom; F = F-statistics; Sig. = Significance

Table (6) demonstrates that there are no statistical significant differences between participants' marital status groups in terms of their quality of life (p-value = .117).

Table 9: Association between Existence of Menstruation and Participants' Quality of Life

Having menstruation		Quality of Life Categories			Total
		Inadequate	Fair	Adequate	
Yes	Count	12	66	15	93
	% within having menstruation	12.9%	71.0%	16.1%	100.0%
	% of Total	6.0%	33.0%	7.5%	46.5%
No	Count	32	71	4	107
	% within having menstruation	29.9%	66.4%	3.7%	100.0%
	% of Total	16.0%	35.5%	2.0%	53.5%
Total	Count	44	137	19	200
	% within having menstruation	22.0%	68.5%	9.5%	100.0%
	% of Total	22.0%	68.5%	9.5%	100.0%

Fisher's Exact Test = 15.418, $df = 2$, P-value = 0.000

Note: 4 cells (33.3%) have expected count less than 5.

Table (14) displays that women in menopause have the worst osteoporosis quality of life ($n = 32$; 29.9%) compared to women who have menstruation ($n = 12$; 12.9%). There is a significant association between existence of menstruation and women's osteoporosis quality of life (Fisher's Exact Test = 15.418, $df = 2$, P-value = 0.0).

Table 10: Analysis of Variance between Gravida and Participants' Quality of Life

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	20761.897	4	5190.474	6.239	.000
Within Groups	162219.783	195	831.896		
Total	182981.680	199			

df = Degree of freedom; F = F-statistics; Sig. = Significance

Table 11: Multiple Comparisons among Participants' Gravida and Their Quality of Life

(I) Gravida Categories	(J) Gravida Categories	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
None	1-2	-1.97519	7.67016	1.000	-23.7533	19.8029
	3-4	-2.22739	6.36184	1.000	-20.2908	15.8360
	5-6	9.49002	6.82953	1.000	-9.9013	28.8813
	≥ 7	24.27097*	6.90165	.005	4.6749	43.8670
1-2	None	1.97519	7.67016	1.000	-19.8029	23.7533

Table 7: Analysis of Variance between Participants' Body Mass Index and Their Quality of Life

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3280.692	3	1093.564	1.193	.314
Within Groups	179700.988	196	916.842		
Total	182981.680	199			

df = Degree of freedom; F = F-statistics; Sig. = Significance

Table (7) exhibits that there are no statistical significant differences between participants' BMI groups in terms of their osteoporosis quality of life (p-value = .314).

Table 8: Analysis of Variance between Existence of Menstruation and Participants' Quality of Life

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.299	1	4.299	15.316	.000
Within Groups	55.576	198	.281		
Total	59.875	199			

df = Degree of freedom; F = F-statistics; Sig. = Significance

Table (8) exhibits that there is a significant difference between women's menstruation existence groups in terms of their osteoporosis quality of life (p-value = .000).

	3-4	-.25221	6.75527	1.000	-19.4326	18.9282
	5-6	11.46520	7.19743	1.000	-8.9707	31.9011
	≥ 7	26.24615*	7.26591	.004	5.6158	46.8765
3-4	None	2.22739	6.36184	1.000	-15.8360	20.2908
	1-2	.25221	6.75527	1.000	-18.9282	19.4326
	5-6	11.71741	5.78314	.441	-4.7028	28.1376
	≥ 7	26.49836*	5.86814	.000	9.8368	43.1599
5-6	None	-9.49002	6.82953	1.000	-28.8813	9.9013
	1-2	-11.46520	7.19743	1.000	-31.9011	8.9707
	3-4	-11.71741	5.78314	.441	-28.1376	4.7028
	≥ 7	14.78095	6.37216	.214	-3.3117	32.8736
≥ 7	None	-24.27097*	6.90165	.005	-43.8670	-4.6749
	1-2	-26.24615*	7.26591	.004	-46.8765	-5.6158
	3-4	-26.49836*	5.86814	.000	-43.1599	-9.8368
	5-6	-14.78095	6.37216	.214	-32.8736	3.3117

*. The mean difference is significant at the 0.05 level.

Table (11) demonstrates that the group of women who had ≥ 7 pregnancies are different from other groups in terms of osteoporosis quality life (p-value = .005).

Table 12: Association between Gravida and Participants' Their Quality of Life

Gravida Categories		Quality of Life Categories			Total
		Inadequate	Fair	Adequate	
None	Count	8	17	6	31
	% within Gravida Categories	25.8%	54.8%	19.4%	100.0%
	% of Total	4.0%	8.5%	3.0%	15.5%
1-2	Count	3	22	1	26
	% within Gravida Categories	11.5%	84.6%	3.8%	100.0%
	% of Total	1.5%	11.0%	0.5%	13.0%
3-4	Count	5	50	6	61
	% within Gravida Categories	8.2%	82.0%	9.8%	100.0%
	% of Total	2.5%	25.0%	3.0%	30.5%
5-6	Count	11	25	6	42
	% within Gravida Categories	26.2%	59.5%	14.3%	100.0%
	% of Total	5.5%	12.5%	3.0%	21.0%
≥ 7	Count	17	23	0	40
	% within Gravida Categories	42.5%	57.5%	0.0%	100.0%
	% of Total	8.5%	11.5%	0.0%	20.0%
Total	Count	44	137	19	200
	% within Gravida Categories	22.0%	68.5%	9.5%	100.0%
	% of Total	22.0%	68.5%	9.5%	100.0%

Fisher's Exact Test = 31.683, df = 8, P-value = 0.000

Note: 4 cells (26.7%) have expected count less than 5.

Table (12) reveals that women who had ≥ 7 pregnancies experience the worst osteoporosis quality of life ($n = 17$; 42.5%), followed by those who had (5-6) pregnancies ($n = 11$; 26.2%). On the other hand, women who have no pregnancy enjoy the better osteoporosis quality of life ($n = 6$; 19.4%). There is a statistical significant association between women's gravida and their osteoporosis quality of life (Fisher's Exact Test = 31.683, $df = 10$, P-value = 0.000).

Table 13: Analysis of Variance between Participants' Socioeconomic Status and Their Quality of Life

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5687.686	2	2843.843	3.160	.045
Within Groups	177293.995	197	899.970		
Total	182981.680	199			

df = Degree of freedom; F = F-statistics; Sig. = Significance

Table (13) exhibits that there are statistical significant differences among participants' socioeconomic classes in terms of their osteoporosis quality of life (p-value = .045).

Table 23: Association between Participants' Socioeconomic Status and Their Quality of Life Categories

Socioeconomic Status		Quality of Life Categories			Total
		Inadequate	Fair	Adequate	
Poor	Count	13	14	2	29
	% within SE Status	44.8%	48.3%	6.9%	100.0%
	% of Total	6.5%	7.0%	1.0%	14.5%
Lower Middle	Count	20	70	8	98
	% within SE Status	20.4%	71.4%	8.2%	100.0%
	% of Total	10.0%	35.0%	4.0%	49.0%
Upper Middle	Count	11	53	9	73
	% within SE Status	15.1%	72.6%	12.3%	100.0%
	% of Total	5.5%	26.5%	4.5%	36.5%
Total	Count	44	137	19	200
	% within SE Status	22.0%	68.5%	9.5%	100.0%
	% of Total	22.0%	68.5%	9.5%	100.0%

Fisher's Exact Test = 10.390, $df = 4$, P-value = 0.034

Note: 1 cell (11.1%) have expected count less than 5.

Table (4-20) displays that participants who are categorized in poor socioeconomic status experience the worst osteoporosis quality of life ($n = 13$; 44.8%), followed by those who are categorized in lower middle SE class ($n = 20$; 20.4%). On the other hand, participants who are categorized in the upper middle SE class enjoy the better quality of life ($n = 9$; 12.3%). There is a significant association between participants; SE class and their osteoporosis quality of life (Fisher's Exact Test = 10.390, $df = 4$, P-value = 0.034).

4. Discussion

The duration of pain is the main feature that women negatively experienced. The overall pain level was fair. This finding was more severe than that reported by Barros and

others [12] who observe a low rate for pain intensity (3.1) on a 10-point visual analogue scale.

The overall ADLs is fair. This could be explained as the severity of pain was fair, which might not impede women's ADLs profoundly. This finding was less in severity than that recorded Stamm and others who find that osteoarthritis is associated with a (68 %) higher chance of a detracting of intense ADLs, and with a (32 %) higher chance of impairment in hand-focused ADLs. They also find that female gender is associated with an increased risk of deficits in intense ADLs [13].

Concerning the overall Jobs Around the House subdomain, lifting a heavy object and carry it for a short distance was the most activity that women most experienced with. The overall subdomain is fair. Also, the Mobility subdomain is fair in its severity. As we explained previously, the fair level of pain might not impede women's jobs around the house extremely. The overall leisure and social activities subdomains are inadequate. This could be attributed to that women's fair pain and mobility status could restrict their leisure and social activities.

There is a statistical significant difference between women in the age group of (49-56) and women in other age groups in terms of quality of life. This finding suggests that the older the age, the worse the quality of life. BMD negatively correlates with patient age [14]. In their midlife, women undergo the biologic transition into menopause. This menopause transition is divided into several stages and clinically has been categorized by international criteria developed to help assess women's reproductive stage [15]. The early menopause transition stage is specifically defined by menstrual cycles varying by seven or more days from regular cycles; the next stage is defined by intervals of skipped cycles or amenorrhea of at least (60) days. The third stage begins following the first year without menstruation and is defined as the end of perimenopause; which is then followed by a stage of early post-menopause and lasting up to six years. During the transition, women can experience vasomotor symptoms such as hot flashes and/or night sweats which may continue for five years or more years after the last menstrual period [16]. These symptoms typically occur in women ages 40 to (65) years (Gingrich and Foegel, 2003) and are more prevalent in obese women (Thurston et. al., 2009; Whiteman et.al., 2003).

Other changes that occur during the menopause transition are changes in body composition and increase in abdominal fat mass as well as associated alterations in cardiometabolic risks due to hormone-related decreases in energy expenditure and fat oxidation [16].

Health conditions (or problems) associated with central obesity in women include coronary heart disease, hypertension, type II diabetes, cancer, osteoarthritis, and gall bladder disease [17].

With respect to the link between menstruation cycle and the osteoporosis quality of life, there is a significant difference between women's menstruation existence groups in terms of

their osteoporosis quality of life. This finding is explained to the fact that the menstrual cycle is a crucial sign of bone health, where estrogen level decreases at menopause [18]. Estradiol, the main natural human estrogen, has a key role in building bone mass. Estradiol is important to achieve peak bone mass for both men and women. Estrogen helps to the maintenance of BMD by influencing calcium absorption, bone formation and remodeling [19].

Concerning the gravida and osteoporosis Quality of Life, there are significant differences among women's gravida groups in terms of their osteoporosis quality of life. This finding can be explained as bone mass loss is associated with pregnancy and lactation. Sahin and others who conducted a study to investigate the effect of shortened interpregnancy interval and gynecological history on postmenopausal osteoporosis. The study was carried out among 537 women in menopause who were assigned into two groups according to the osteoporosis status. The study results demonstrated that women who have 0-12 months between pregnancy interval are at highest risk for osteoporosis. This data analysis confirmed that being pregnant for the first pregnancy under 27 years of age gave a higher risk for osteoporosis, also [20].

Furthermore, Tsvetov and Others conducted a single-center cohort analysis to reveal if pregnancy or breast-feeding or both have a cumulative effect on BMD in premenopausal and early postmenopausal women. The study sample included (500) women aged 35-55 years received routine BMD screening. The study results exhibited that there was a negative correlation between BMD values and patients' number of births [14].

5. Conclusions

Age had the main influence on women's osteoporosis quality of life, followed by the gravida, and socioeconomic status. In other words, as women advance in age, get higher number of pregnancies, and being in lower SES class, they will experience worst osteoporosis quality life.

Divorced women and widowed women, those who are categorized as morbidly obese or obese, in menopause, who have seven or more pregnancies experience the worst quality of life. The subdomains of overall pain, jobs around the house, Mobility, Leisure, Social Activities, and the General Health are at approximately non-significant level (cause complaints and discomfort to these women). Only the ADLs is above the average (does not cause complaint and discomfort). The overall quality of life is significantly unsatisfying.

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