

Raising Awareness' of Risky Women of Osteoporosis towards Healthy Lifestyle

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Abstract: Osteoporosis is a major threat to public health today and the most common bone disease world wide. Osteoporosis is a disease in which the density and quality of bone is reducing and increasing the risk of fracture. There is an increased awareness that osteoporosis is an international health care concern that affects millions of individuals worldwide, women are four times more likely than men to develop the disease. Therefore, raising awareness of risky women of osteoporosis towards healthy lifestyle can help the maintenance of healthy behaviors and reduction of life style factors that inhabit bone density. So, the aim of this study was raising the awareness' of risky women of osteoporosis towards healthy lifestyle. A quasi experimental design was used. The study was conducted from September 2008 up to January 2009, and the sample included 130 women. Three tools were developed by the researchers to cover the actual life style and assess the knowledge about osteoporosis and its prevention before and after awareness session and evaluate these sessions by using 3 points lickert scale. Results revealed that 65.4% of women preferred fatty and starch food, 84.6% of them were drinking black tea, cola or coffee while 57.6% lacked physical exercises. There was significant difference ($p \leq 0.05$) between studied women mean score of life style pre and post implementation of awareness session regarding dietary habits and exercises. Study concluded that studied women had unhealthy life style which may lead to osteoporosis. However, raising awareness' had positive effect on their life style.

Keywords: Lifestyle; Osteoporosis; Awareness; Risk factors

INTRODUCTION

Osteoporosis is a major public health problem, which has enormous social and economic impact around the world. (1) Osteoporosis is defined by the World Health Organization (WHO) in women as a bone mineral density 2.5 stander deviations below peak bone mass. The term "established osteoporosis" includes the presence of a fragility fracture. Osteoporosis is mostly common in women after menopause when it is called postmenopausal, and it occurs in anyone in

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the presence of particular hormonal disorders and other chronic diseases or as results of medications.⁽²⁾

The prevalence rate of osteoporosis in Egypt was 5.237.182 persons in 2004.⁽³⁾ Osteoporosis Foundation predicts that by 2015, 41 million people aged 50 years or older will experience osteoporosis unless something is done to improve early diagnosis and treatment.⁽⁴⁾

Life style is the way of living of individuals, families (households), and societies, which they manifest in coping with their physical, psychological, social, and economic environments on a day-to-day basis⁽⁵⁾.

Physical inactivity and a sedentary lifestyle as well as impaired neuromuscular function (e.g., reduced muscle strength, impaired gait and balance) are risk factors for developing fragility fractures,⁽⁶⁾ Smoking can lead to lower bone density and higher risk of fracture and this risk increases with age.⁽⁷⁾ Prolonged use of

corticosteroids is the most common cause of secondary osteoporosis. It is estimated that 30-50% of patients on long-term corticosteroid therapy will experience fractures.⁽⁸⁾ Early menopause and removal of ovaries can increase the risk of osteoporosis. In addition to dietary style such as drinking Cola and caffeine, lack of calcium and vitamin D intake, as well as increase salty food intake.⁽⁹⁾

Identifying and treating women at risk of fracture who have not yet sustained a fracture will substantially reduce the long-term burden of osteoporosis. Reducing the risk of first fracture from 8% to 2% can reduce the 5-years fracture incidence from approximately 34% to 10%.⁽¹⁰⁾

On the other hand, sunlight exposure can increase Bone Mass Density (BMD) of vitamin D deficient bone and lead to prevention of non vertebral fractures.⁽¹¹⁾ Epidemiologic evidence suggests that physical activity and fitness is associated with reduce risk of osteoporosis; maintain

bone mineral density in postmenopausal women and reduce hip fracture. ⁽¹²⁻¹⁴⁾

Nursing profession plays a significant role in the prevention and detection of osteoporosis, as well as in the management of osteoporosis. There is an increased awareness that osteoporosis is an international health care concern that affects millions of individuals worldwide. ⁽¹²⁾ Injuries and the resulting potential disabilities related to osteoporosis, admissions to hospitals, long-term hospitalization are burdening the health care systems of nations due to the significant costs associated with care and treatment. ⁽¹²⁾ Cultural beliefs of Egyptian women, manifested in lifestyle behaviors, may influence osteoporosis development.

A study done in Egypt revealed that Egyptian women did not know much about osteoporosis, however the incidence of osteoporosis was increased with menopause age. There exists a need for an awareness campaign in order to

educate them about this important stage of their lives. ⁽¹⁵⁾ Egyptian women must be informed about the risks involved with some of the traditional health beliefs and practices that leads to osteoporosis. Healthcare providers have a challenge and responsibility to develop an acceptable approach for osteoporosis prevention. ⁽¹⁶⁾ Therefore, this study was carried out in order to raise the awareness' of risky women of osteoporosis towards healthy lifestyle.

METHODS

Study hypothesis

H: Awareness sessions on osteoporosis will help risky women to behave healthy life style

Research design

A quasi experimental design was used in the study

Setting

The study was carried out at the faculty of Nursing, Mansoura University.

Sampling

The minimum required subject to test the research hypothesis was 105 women according to Fleiss.⁽¹⁷⁾ α -level, two-sided = **0.05**, β -level = **0.01**, proportion= 70% and null hypothesis value= 50%

Subjects

Subjects comprised 150 women who were at risk of osteoporosis out of 400 women who admitted to measure bone density; just 130 women at risk were willing to participate in the study.

The following measurements were done for all attended women:

- Bone density was measured by using DEXA scan Dual- energy X- ray absorptiometry, Women whose T-score is between -1.0 and -2.5 were at risk and were included in the study according to WHO 1994.⁽¹⁸⁾
- Blood pressure. Women with more than 140/90 mmgh were also at risk according to Linda 2005.⁽¹⁹⁾

Researchers took into consideration the

following inclusion & exclusion criteria:

Inclusion criteria

- 1- Working women at Mansoura University
- 2- Age from 45 up to 59 years
- 3- The presence of one or more of the following risk factors:

- Lack of dairy product intake.
- Drinking Colas, caffeine and increasing salt in food.
- Lack of vitamin D and calcium supplementary.
- Lack of exercise.
- Intake of cortisone,
- Intake of hormonal replacement therapy or using hormonal contraception. In addition to smoking.

Exclusion criteria to control the confounding factors

- 1- Women who were complaining from osteoporoses
- 2- Women who were complaining from chronic diseases including:
 - Hypertension
 - Diabetes mellitus

- Kidney diseases

Material

Researchers developed three tools that were used in this study. Tools were constructed in Arabic language to avoid misunderstanding

1-Tool I Life style interview sheet which consisted of four parts:

Part one: Included the socio-demographic data of the women such as, age, occupation, residency, marital status and number of children.

Part two: Included women's health profile such as medical history, surgical history and family history.

Part three: Included women's life style such as eating pattern which included (9 questions), physical exercise (7questions), medications (6 questions) and smoking (3 questions).

Part four: Included women's physical activity as ability of movement (3 questions), vitality and energy (4 questions) and ability to work (2

questions)

A 3 point lickert scale from 1 to 3 (1representing not at all, 2 representing yes to some extent and 3 representing yes all time) was used for parts three and part four.

2-Tool II Awareness session questionnaire sheet.

The Awareness session questionnaire sheet covered the topics related to osteoporosis (definition of osteoporosis, high risk group, treatment, control and prevention and life style, risk factors and bad habits e.g., smoking, drink coffee & tea, physical activities and stressors .

3-Tool III Evaluation session questionnaire sheet.

The evaluation questionnaire sheet was developed to assess the participant satisfaction regarding to training program in terms of program achieve their expectation, objectives, time, coordinators competent, organization, scientific materials, place

where the session was held in. It consists of three likert scale; each item is rated from "unsatisfied= 1", "satisfied= 2" and "Strongly satisfied= 3".

Methods

I-Preparation phase

1-Administrative process:

a. Official permission to conduct the study was obtained from the dean of the Faculty of Nursing, Mansoura University, and Vice president for community and environmental health.

b. Announcement for the time of measuring bone density and awareness campaign sent to all faculties and administrative departments in the university.

2- Development of the study tools

a. The structured interview sheet and structured questionnaire sheets were developed by researchers to assess life style of women's at risk for osteoporosis, awareness session and evaluation session.

b. A jury of five expertises from community nursing was appointed to test content validity and clarity. The recommended modifications were done

c. A pilot study was carried out on five working women chosen randomly from the Faculty of Nursing and excluded from the study subjects.

d. Reliability of the all tools was tested by using Crombach Alpha. Unrealistic items were omitted. Regarding to the knowledge test, the pre-tests indicated that the tool prepared for data collection were understandable and were able to illicit the required information reasonably well. Thus, no major changes were made to the questionnaire.

e. Educational materials were prepared.

3- Data collection:

Data was collected during the period from September 2008 up to January 2009.

II-Implementation phase

1- Awareness session development:

The researchers informed women at risk to attend the awareness sessions. These sessions were repeated 6 times, each session lasted for 2 hours through out 3 days for six groups of participant women

- a. Each session covered definition of osteoporosis, risk factors, sign and symptoms for one hour and one hour for healthy life style & osteoporosis prevention
- b. The first awareness day consisted of three sessions, for three groups of participating women 2 groups of which included 23 studied women and one group included 24 women.
- c. The second awareness day consisted of 2 sessions, for two groups of participating women; each group included 25 studied women.
- d. The third awareness day consisted of one session, for one group of participating women including 20 studied women.
- e. A variety of interactive teaching

methods that encouraged interactive group discussions, interactive learning and brain storming were used. In addition to power point presentations, flip chart and the distribution of handouts.

III-Evaluation and follow up phase

The same interview sheet was used to reassess women's life style and physical activity through telephone interview & personal interview after three months from the awareness session.

Statistical analysis

Data were analyzed by using SPSS software version 14.0. The level of significance was set at 0.05. Paired t- test was used to find out the difference in lifestyle and quality of life's scores before and after the awareness sessions. Correlation coefficient person test was used to correlate the effect of lifestyle on physical abilities.

Ethical considerations

Written informed consent was obtained

from participated women. This consent included simple explanation of the aim of the study, and they were assured that their participation is voluntary, they can withdraw at any time and the collected data will be treated confidentially.

Results

Table (1) presents the Socio-demographic characteristics of the studied women working in Mansoura University. Non- educated women represented 24(18.5%), while the majority 106(81.5%) were educated and were clerk employers. More than half of the women 74 (56.9%) lived in urban areas and nearly two thirds of them 82 (63.1%) were married.

Table (2) This table revealed that studied women had unhealthy habits related to diet; most of them {85(65.4%)} preferred fatty and starchy food; the majority {110 (84.6%)} were drinking black tea, cola or coffee, and none of them took supplementary calcium or vitamin D, but were exposed to sunlight. Moreover, 75

(57.7%) lacked of exercises, 36(27.7%), 20 (15.4%) of them were either exposed to cortisone & hormonal replacement therapy or were using hormonal contraception respectively, and only 5(3.8%) of them were smokers.

Table (3) illustrates the presence of a significant difference ($P \leq 0.05$) between the life style mean score of studied women pre and post the implementation of awareness sessions regarding dietary habits, exercises. The table also shows the absence of a significant difference regarding medication and smoking ($P > 0.05$).

Table (4) shows a significant ($P \leq 0.05$) increase in the mean scores of ability of movement by 12.5%, for energy, by 10% for vitality and by 13.5% for ability to work after implementation of the raising awareness sessions.

Table (5) shows a significant ($P \leq 0.05$) positive correlation between dietary habits and ability of movement. In addition, the

ability to work significantly improved with the increasing scores of exercise. Generally there is a significant ($P \leq 0.05$) positive correlation between life style scores and physical abilities scores

Table (6) shows that 110(84.6%) of participants was the satisfaction level of participants regarding the raising awareness was strongly satisfied that the program fulfilled their expectations and intended objectives were achieved. Moreover 32 (24.6%) of them was satisfied with scientific materials while 15 (11.5%) of participants was dissatisfied about the time of the program.

Discussion

Osteoporosis is a major worldwide health problem, more particularly in the Middle East Region where the prevalence of low bone mass is higher than in Western countries. Lifestyle during adolescence have significant preventive role to avoid osteoporosis in adulthood. ⁽²⁰⁾ Therefore, raising awareness of risky women of

osteoporosis towards healthy lifestyle can help the maintenance of healthy behaviors and can reduce the life style factors that affect bone density. ⁽²¹⁾

Regarding life style, the present study revealed that studied women had unhealthy habits related to diet, in terms of preferring fatty and starchy food, as well as drinking black tea and cola with dairy meals. In addition, participants lacked milk supplementary calcium and vitamin D intake (Table2) which significantly affected their ability of movement (Table 5). This study was in agreement with other studies, which revealed that deficiency of dietary intake affect the ability of movement. ⁽²²⁻²⁴⁾

Moreover, studies that were recently carried out in Japan, Spain and Austrian demonstrated that dietary intake is effective for maintaining bone mass and low calcium and vitamin D intake are risk factors for osteoporosis. ⁽²⁵⁻²⁷⁾

The present study illustrated other factors that predispose to osteoporosis,

namely; absence of practicing physical exercise, prescribing medications to each other, taking unnecessary medications, and smoking among minority of participants. All of these factors would negatively affect their physical abilities in terms of reduced ability of movement and ability to work which showed positive significant correlation with physical exercise and dairy habits (Table5). The present findings are confirmed by several studies, which indicated that active lifestyle filled with varied physical activities strengthens muscles, improves bone strength and increases bone mineral density; in addition, work ability is strongly associated with lifestyle. ⁽²⁸⁻³⁰⁾

The International Osteoporosis Foundation (IOF) encourages raising awareness in relation to, early detection and improved treatment of osteoporosis which improves healthy lifestyle. ⁽²⁹⁻³¹⁾ providing health information related to prevention of osteoporosis in different forms either

guidelines, information pamphlets and health educational campaigns, increase the adherence of individuals to healthy lifestyle measures. ^(15,29,32-34) Previous studies confirm the findings of the present study where significant changes in participants' lifestyle related to dietary habits and physical exercises were recorded after raising their awareness. This is confirmed by Blalock et al. (2000) ⁽³⁵⁾ and Tussing and Novakofski (2005) ⁽³⁶⁾ who reported that providing educational information regarding dietary prevention of osteoporosis raised women's awareness about increasing calcium intake and weight bearing exercise. ^(35,36) In addition Peterson et al. (2000) ⁽³⁷⁾, found that education cause effective changes in behavior for prevention of osteoporosis.

Conclusions

This study concluded that health education sessions about raising awareness of risky women to osteoporosis helped in improving their lifestyle in terms of dietary habits and physical exercise as well as their physical abilities in terms of movement and

ability to work. Moreover, there was a significant positive correlation between the life style scores and physical abilities scores.

Recommendations

1- National effort is needed to provide parents information about bone health and osteoporosis prevention and educate

younger generations how to achieve and maintain optimal peak bone mass and reduce the risk of osteoporosis through health education sessions.

2- Mineral density tested for postmenopausal women could be included in health insurance plans.

Table 1: Distribution of the studied women working in Mansoura University according to their socio-demographic characteristics

Socio-demographic data	Number n=130	%
Level of education		
Non educated	24	18.5
Educated		
Secondary	52	40
University	54	41.5
Occupation		
Employers	106	81.5
Workers	24	18.5
Residence		
Rural	56	43.1
Urban	74	56.9
Marital status		
Single	26	20
Married	82	63.1
Widow	12	9.2
Divorced	10	7.7

Table 2: Distribution of the studied women working in Mansoura University according to the presence of osteoporosis risk factors

Lifestyle parameter	Number n=130	%
Lack of vitamin D and calcium supplementary	130	100
Drink cola & caffeine	110	84.6
Increasing salt in diet	100	76.9
fatty and starch food	85	65.4
Lack of dairy product intake	85	65.4
Lack of exercise	75	57.7
Intake of cortisone	36	27.7
Intake of hormonal replacement therapy or using hormonal contraception	20	15.4
Smoking	5	3.8

Persons may have more than one risk factor

Table 3: Mean scores of life style of studied women before and after the raising awareness sessions

Lifestyle parameter	Total score	%of change	t- test	P	Mean ± S.D	
					Before	After
Dietary habits	27	12.2%	5.61	0.000*	17.9±3.1	21.2± 2.9
Exercise	21	13.3%	2.9	0.005*	11.7± 3.1	14.5± 6.3
Medication	18	2.7%	0.88	0.37	14.5± 3.2	15± 2.8
Smoking	9	5.5%	1.23	0.22	7.5± 2.3	8.00± 2.6
Total scores	75	6.8%	3.37	0.01*	52.6± 6.9	57.7± 9.6

*Significant at $P \leq 0.05$

Table 4: Mean scores of the physical activity of studied women before and after the raising awareness sessions

Physical activity parameter	Total score	% of change	t-test	P	Mean \pm S.D	
					Before	After
Ability of movement	12	12.5%	2.8	0.007*	7.6 \pm 3.7	9.1 \pm 1.5
Daily living	12	10%	2.2	0.03*	7.7 \pm 3.8	8.9 \pm 1.5
Ability to work	12	13.3%	2.7%	0.009*	7.9 \pm 3.9	9.5 \pm 1.4
Total scores	36	65%	4.22	0.000*	68.2 \pm 11.1	76.0 \pm 8.8

*Significant at $P \leq 0.05$

Table 5: Correlation between scores of lifestyle and physical abilities

lifestyle	Physical abilities							
	Ability of movement		Vitality and energy		Ability to work		Total scores	
	r	P	r	P	r	P	r	P
Dietary habits	0.53	0.000*	0.016	0.68	0.09	0.31	0.972	0.000*
Physical exercise	0.14	0.096	0.15	0.08	0.32	0.000		

*Significant at $P \leq 0.05$

Table 6: Satisfaction of the studied high risk women regarding the raising awareness sessions

Item	Level of satisfaction N=130		
	Dissatisfied	Satisfied	Strongly satisfied
Program achieved their expectations	6 (4.6%)	14 (10.8%)	110 (84.6%)
Achieving Program objective	6 (4.6%)	14 (10.8%)	110(84.6%)
Enough time	15 (11.5%)	23 (17.7%)	106 (81.5%)
Coordinators competency	0	23 (17.7%)	107 (82.3)
Appropriate organization	0	31 (23.8%)	99 (76.2)
Appropriate scientific materials	0	32 (24.6%)	98 (75.4)
Appropriate place	0	33 (25.4%)	97 (74.6)

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