OSTEOPROSIS AMONG MENOPAUSAL WOMEN AND NURSING IMPLICATIONS

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ABSTRACT

Objectives: The aim of this study was to examine the impact of nursing implications (educational program on their knowledge) for osteoporosis among menopausal women. **Subject and Methods:** The study was carried out in the rheumatic and rehabilitation outpatients' clinic at Mansoura University Hospital at Mansoura city using a quasi-experimental (pre & post test) design. The subjects of the study were 120 menopausal women attending the rheumatic and rehabilitation outpatients' clinic at Mansoura University Hospital and being diagnosed as positive for osteoporosis. Data were collected using one tools devised specifically for the study. **Results**: The results revealed that there was a significant improvement in the women' knowledge score about osteoporosis especially definition, causes, signs and symptom, risk factors, intervention, diagnosis and management meanwhile, the scores in the follow up (after 3 months) tend to decline. **Conclusion**: Educational program has a significant and improvement impact on the menopausal women's knowledge regarding osteoporosis that tends to decline with the progress of time. **Recommendations:** Further research is required to investigate the effect of counseling program for osteoporotic women on their quality of life.
Key words: Osteoprosis, menopausal women, nursing implications.

INTRODUCTION

Osteoporosis is highly prevalent among postmenopausal women, although it can affect people of all ages and both sexes. Worldwide, approximately one-third of women aged 60–70 years and two-thirds of women aged 80 years and older had osteoporosis *(Abd-Allah, 2000, Ilich and Kerstetter, 2009)*. The risk of fracture for a 50-year-old white woman is estimated at over 70%, the risk of hip fracture alone is about 14%. Morbidity from fractures is substantial, and mortality is increased by about 20% after hip fracture *(Keam & Plosker, 2006).*

Osteoporosis is a condition that can be prevented and treated if diagnosed early and accurately. Unfortunately, it is often undiagnosed until a fracture occurs. Therefore, the number of people who are screened for this disease must be increased *(Abdel-Sabour, 2007)*. Measuring bone mineral density (BMD) is the most important tool in the diagnosis of osteoporosis. The gold standard for measuring BMD is the dual-energy X-ray absorptiometry (DEXA) densitometer, a specialized X-ray device that precisely quantifies BMD at the spine, femur, and other skeletal sites **(Isqure and Simnett, 2002).**

Dual-energy X-ray absorptiometry (DEXA) scans are noninvasive and comfortable for the patient, with very low radiation requiring only 10 minutes for the entire examination. With the onset of menopause, rapid bone loss occurs which is believed to average approximately 2–3% over the following 5–10 years, being greatest in the early postmenopausal years *(Keam & Plosker, 2006).*

Menopause is a physiological event in the women's life. It is caused by aging of ovaries which leads to decline in the production of ovarian Gonadotrophins, Estrogen and Progesterone **(Akkus et al. 2009)** The deficiency of these hormones elicits various somatic, vasomotor, sexual and psychological symptoms that impair the overall quality of life of women *(Delavar & Hajiahmadi, 2011).*

The mean age of the menopause in Egypt is 46.7 years, which is low compared to many countries, but this age has been rising in the past few years in the west, probably because of the different socio-cultural attitudes towards the menopause in different communities **(Booth et al.,2004).** The western woman attitude towards the menopause is generally positive and about one third of them considers the menopause as a normal physiological change *(Sallam et al., 2006).*

Effective disease management programs for osteoporosis involve patient education, recurrent BMD assessment, and the use of non-pharmacologic and pharmacologic interventions **(Clifford and Rosen, 2007).** The nursing role focuses on client education about prevention of disease, the identification and minimization of controllable risk factors *(Whitaker et al., 2012).*

AIM OF STUDY:

The aim of this study is to examine the impact of nursing implications (educational program on their knowledge) for osteoporosis among menopausal women.

SUBJECT AND METHODS:

Research Design:

A quasi-experimental intervention study, with pre-post assessment to evaluate the effect of the implemented training program in changing menopausal women knowledge and opinion toward osteoporosis.

Setting:

The study was conducted in Rheumatic and Rehabilitation Outpatient Clinic of Mansoura University Hospital in Mansoura City. This hospital is a teaching hospital affiliated to the Ministry of High Education. It attracts women from all over Dakahlia Governorate, but principally from Mansoura city and all nearby areas. It provides low cost heath services for women with obstetrics and gynecological problems compared with other private centers and clinics.

Sample:

Menopausal women attending the previously mentioned setting and being diagnosed as positive for osteoporosis were included in the study sample. Their total number was 120 women.

Tools of data collection:

One tool was developed and used by the researcher for data collection.

Concerning the educational program for osteoporotic menopausal women:

A structure interviewing schedule was developed to be used for the pre and post test to assess the effectiveness of the educational program. It was consisted of the following parts:

Part 1: socio-demographic data: such as age, occupation, education and their source of knowledge about osteoporosis.

Part 2: Knowledge and opinion questionnaire to assess:

- Women knowledge regarding osteoporosis; definition, risk factors and consequence, investigations.

- Women' opinion concerning the prevention and management of osteoporosis and their role in seeking early medical advice.

Educational Program:

The aim of the program was to improve menopausal women knowledge and opinion related to osteoporosis, which in turn improve their quality of their life. It was conducted through three phases, pre-planning, planning, implementation, and evaluation.

- **Phase I** *(Program Planning):* The program was designed based on the identified needs and demands of women, and in the light of the most recent pertinent literature.

- **Phase II** *(Program Implementation):* The training program was implemented for recruited women. Each session took about two hours per day. The program was presented in clear and concise form, using different teaching methods such as discussion, simulations, and role-playing. A booklet prepared by the researcher was distributed to the participants.

    Since it was difficult to fit all the study subjects at the same time in the program, the training program was implemented for a group of 10-15 women in 3 sessions. Each session took about one hour and at the end of each session each women was assessed for her understanding of the instructions.

    Different teaching methods as short lecture, group discussion, role playing, demonstration, and re-demonstration, were used. Also different audio visual materials were used as pamphlets, small books, diagrams picture, posters, real equipments and life situations. These were used to facilitate teaching of each topic.

- **Phase III (Evaluation Phase):** After program implementation, a post-test was done immediately. Then, a follow-up test was done after three months of program implementation. The same study tools were used to evaluate the effect of the training

program on the women's knowledge, opinion, by comparing the results before program with those after and follow-up phases.

Tools Validity and Reliability:

The tools were developed by the researcher based on review of related literature and similar tools. They were exposed to face and content-validated by a panel of experts in obstetrics and gynecology from nursing and medical discipline. The reliability of the tool was assessed through measuring its internal consistency using Cronbach alpha coefficient method.

Pilot Study:

Before embarking on the actual study, a pilot study was conducted on 40 (10% of study sample) menopausal women, who were excluded from the study. It was done for evaluating the applicability and clarity of the tools as well as assessing the feasibility of the study and finds the possible obstacles and problems that might face the researcher and interfere with data collection. It also aimed to estimating the time needed for the interview. Modifications were done according to the pilot results. The time required for the interview was 30 minutes.

RESULTS

Table (1) points to statistically significant improvement in women's knowledge about osteoporosis at the post-test and the follow up (P=<0.001). As the table shows the percent knowledge scores at the pre-test was slightly more than one tenth and range between 10.8% - 14.2 % for the definition of osteoporosis, causes, signs and symptoms, and medication used respectively. At the post-test and follow up the proportion rose up to reach between two thirds and three fourth who gave complete answers, (65.8%, 68.3%, 73.3%, 64.2% and 60.8 respectively).

Table (2) illustrates the changes in knowledge of women scores in relation to the importance of diet, intake of calcium as well as keeping themselves away from beverages before and after the program. It is evident that the scores of knowledge was very low before the program and ranged from 5.8 %-14.2 %. For the components of the balance diet and the sources of vitamins and its importance in the diet ranged from 5% -11.7% as well as the intake of harmful beverages and importance of nutritional system to prevent

osteoporosis. After program implementation statistically significant improvement were revealed in all areas of knowledge during the post-test and follow up (P=<0.001).

Table (3) indicates the number and percent distribution of the studied subjects according to measures of controlling osteoporosis over time. It is evident that there were statistically significant changes after the program and in the follow up in relation to patient's compliance to the medication, BMI & Dexa screening (P=<0.001), prevention of osteoporosi (P=<0.001), as well as avoiding fractures (P=<0.001).

Table (4) shows there was a statistical significant difference regarding osteoporotic women nutritional habits practice to reduce osteoporosis risk factors that include inadequate calcium and vitamin D intake, increase intake of fat, coca, and decrease intake of fiber and iron at immediate and follow up phases of the intervention (p<0.001). While there was no statistical difference between their level of knowledge immediate post and follow up phases.

Women's knowledge about unhealthy life style risk factors of osteoporosis throughout program phases is illustrated in **table 5**. Statistically significant improvements are noticed at both the post-program (p<0.001), and follow-up (p<0.001) phases. The percent of women having the ability to manage stressful life situation, sharing social activities and avoid exposure to sunlight have increased from a pre-program level of(35.8%,37.5%,46.7%) to a post-program level of (15%, 13.3%, 11.7%) and then slightly declined to (16.7%, 30%, 15%) at the follow up phase of the program.

Table 6 shows the correlation between studied women with osteoporosis total score of knowledge and score level of knowledge regarding life style practice and compliance. It is clear from the table that women' knowledge was improved after the implementation hence, before the program none of the women who have "good knowledge level was "good" compared to 66.7 % after the program. Regarding the women' knowledge of life style score of the study group, the majority of those who had "good knowledge level also had "unsatisfactory" practice (85%) compared to 15% after the program.

Table (1): Distribution knowledge of studied women regarding osteoporosis at the different phases of intervention (n=120).

Item	Pre		Post		Follow up		χ2(1)	P	χ2 (2)	P	χ2 (3)	P
	No	%	No	%	No	%						
Define the osteoporosis												
Incomplete answer	107	89.2	41	34.2	48	40	74.47	<0.001	63.23	<0.001	1.18	>0.05*
Complete answer	13	10.8	79	65.8	72	60.0						
Causes of osteoporosis												
Incomplete answer	106	88.4	38	31.6	44	36.6	68.33	<0.001	79.59	<0.001	0.808	>0.05*
Complete answer	14	11.7	82	68.3	76	63.3						
Signs and symptoms of osteoporosis												
Incomplete answer	103	85.9	32	26.6	40	33.3	77.93	<0.001	72.31	<0.001	1.57	>0.05*
Complete answer	17	14.2	88	73.3	80	66.7						
Medication affecting osteoporosis												
Incomplete answer	105	87.5	43	35.9	48	40	65.56	<0.001	76.27	<0.001	1.32	>0.05*
Complete answer	15	12.5	77	64.2	72	60.0						
Prevention of osteoporosis												
Incomplete answer	105	87.5	43	35.9	48	40	65.56	<0.001	67.99	<0.001	2.41	>0.05*
Complete answer	15	12.5	77	64.2	74	61.7						
How to prevent the osteoporosis												
Incomplete answer	103	85.9	47	39.2	54	45	53.77	<0.001	64.93	<0.001	0.929	>0.05*
Complete answer	17	14.2	73	60.8	66	55.0						

Table (2): Distribution of studied women regarding nutritional knowledge at the different phases of intervention (n=120).

Item	Pre No	Pre %	Post No	Post %	Follow up No	Follow up %	$\chi^2(1)$	P	$\chi^2(2)$	P	$\chi^2(3)$	P
The sources of calcium?												
Incomplete answer	103	85.8	60	50	68	56.6	49.14	<0.001	33.83	<0.001	1.99	>0.05*
Complete answer	17	14.2	60	50.0	52	43.3						
Important of dairy products to prevent osteoporosis												
Incomplete answer	109	90.8	48	40	56	46.7	71.95	<0.001	61.80	<0.001	1.53	>0.05*
Complete answer	11	9.2	72	60.0	64	53.3						
Important of V-D to prevent osteoporosis												
Incomplete answer	113	94.1	49	40.8	55	45.8	80.16	<0.001	67.89	<0.001	0.889	>0.05*
Complete answer	7	5.8	71	59.2	65	54.2						
Important of protein to prevent osteoporosis												
Incomplete answer	102	85	48	40	56	46.6	64.74	<0.001	57.92	<0.001	1.29	>0.05*
Complete answer	18	15.0	72	60.0	64	53.3						
Sources of vitamins & minerals?												
Incomplete answer	105	87.5	49	40.8	54	45	73.82	<0.001	63.03	<0.001	0.668	>0.05*
Complete answer	15	12.5	71	59.2	66	55.0						
Fluid assessing absorption of calcium?												
Incomplete answer	108	90	41	34.2	50	41.7	85.03	<0.001	72.48	<0.001	1.71	>0.05*
Complete answer	12	10.0	79	65.8	70	58.3						
Fluid prevent absorption of calcium?												
Incomplete answer	111	92.5	39	32.5	45	37.5	111.00	<0.001	104.42	<0.001	0.745	>0.05*
Complete answer	9	7.5	81	67.5	75	62.5						
What is the balanced diet?												
Incomplete answer	114	95	43	35.8	48	40	101.03	<0.001	86.58	<0.001	1.56	>0.05
Complete answer	6	5.0	77	64.2	72	60.0						
What is the nutritional attitudes leading to osteoporosis?												
Incomplete answer	114	95	37	30.9	43	35.9	124.84	<0.001	105.60	<0.001	2.47	>0.05*
Complete answer	6	5.0	83	69.2	77	64.2						
What is the nutritional system to prevent osteoporosis?												
Incomplete answer	106	88.3	53	44.2	57	47.5	67.09	<0.001	63.23	<0.001	0.305	>0.05
Complete answer	14	11.7	67	55.8	63	52.5						

Table (3): Distribution of studied women regarding measures of controlling osteoporosis over time knowledge at the different phases of intervention (n=120).

Item	Pre		Post		Follow up		$\chi^2(1)$	P	$\chi^2(2)$	P	$\chi^2(3)$	P
	No	%	No	%	No	%						
The importance of preventing fragile fractures												
Incomplete answer	103	85.8	56	46.6	63	52.5	64.08	<0.001	59.52	<0.001	0.900	>0.05*
Complete answer	17	14.2	64	53.3	57	47.5						
The importance of screening												
Incomplete answer	103	85.9	47	39.2	54	45	71.58	<0.001	64.93	<0.001	0.929	>0.05*
Complete answer	17	14.2	73	60.8	66	55.0						
The importance of sports to prevent osteoporosis												
Incomplete answer	98	81.6	57	47.5	61	50.8	42.48	<0.001	39.21	<0.001	0.291	>0.05*
Complete answer	22	18.3	63	52.5	59	49.2						
Treatment of osteoporosis												
Incomplete answer	102	85	51	42.5	56	46.7	48.98	<0.001	42.56	<0.001	0.513	>0.05*
Complete answer	18	15.0	69	57.5	64	53.3						
How to treat osteoporosis												
Incomplete answer	103	85.8	56	46.6	63	52.5	64.08	<0.001	59.52	<0.001	0.900	>0.05
Complete answer	17	14.2	64	53.3	57	47.5						
Important of dental care and teeth brushing to prevent teeth problems												
Incomplete answer	109	90.8	48	40	56	46.7	71.95	<0.001	61.80	<0.001	1.53	>0.05*
Complete answer	11	9.2	72	60.0	64	53.3						

Table (4): Distribution the studied subjects regarding their nutritional life style practice and nutritional risk factors at the different phases of intervention (n=120).

	Time of Assessment	Usually		Sometimes		Never		$\chi^2(1)$	P	$\chi^2(2)$	P	$\chi^2(3)$	P
		No	%	No	%	No	%						
Inadequate calcium intake	Pre	50	41.7	57	47.5	13	10.8	74.42	<0.001**	41.35	<0.001**	20.97	<0.001**
	Immediate-post	11	9.2	34	28.3	75	62.5						
	Follow-up	40	33.3	24	20.0	56	46.7						
Inadequate vitamin D intake.	Pre	64	53.3	43	35.8	13	10.8	83.90	<0.001**	23.69	<0.001**	38.46	<0.001**
	Immediate-post	10	8.3	35	29.2	75	62.5						
	Follow-up	28	23.3	64	53.3	28	23.3						
Eating hot and spicy foods	Pre	62	51.7	43	35.8	15	12.5	85.98	<0.001**	34.35	<0.001**	18.47	<0.001**
	Immediate-post	9	7.5	31	25.8	80	66.7						
	Follow-up	24	20.0	48	40.0	48	40.0						
Increase intake of colas/sodas	Pre	63	52.5	43	35.8	14	11.7	74.97	<0.001**	25.39	<0.001**	22.87	<0.001**
	Immediate-post	10	8.3	41	34.2	69	57.5						
	Follow-up	40	33.3	32	26.7	48	40.0						
Decrease fiber intake	Pre	34	28.3	73	60.8	13	10.8	65.93	<0.001**	16.84	<0.001**	20.70	<0.001**
	Immediate-post	6	5.0	44	36.7	70	58.3						
	Follow-up	40	33.3	32	26.7	48	40.0						
Decrease protein intake	Pre	58	48.3	48	40.0	14	11.7	59.07	<0.001**	17.52	<0.001**	15.93	<0.001**
	Immediate-post	13	10.8	45	37.5	62	51.6						
	Follow-up	23	19.2	58	48.3	39	32.5						
Inadequate intake of water.	Pre	61	50.8	47	39.2	12	10.0	53.29	<0.001**	12.02	<0.001**	21.19	<0.001**
	Immediate-post	17	14.2	47	39.2	56	46.7						
	Follow-up	36	30.0	60	50.0	24	20.0						
Increase foods high in fat.	Pre	45	37.5	60	50.0	15	12.5	42.95	<0.001**	39.48	<0.001**	7.90	<0.05*
	Immediate-post	14	11.7	48	40.0	58	48.3						
	Follow-up	28	23.3	32	26.7	60	50.0						
Increase sugar and salt in intake.	Pre	45	37.5	57	47.5	18	15.0	31.24	<0.001**	39.65	<0.001**	2.11	<0.001**
	Immediate-post	24	20.0	38	31.7	58	48.3						
	Follow-up	28	23.3	28	23.3	64	53.3						
Increase use of steroids, as they decrease bone density	Pre	68	56.7	38	31.7	14	11.7	53.38	<0.001**	25.41	<0.001**	6.90	<0.05*
	Immediate-post	19	15.8	45	37.5	56	46.7						
	Follow-up	36	30.0	40	33.3	44	36.7						
Decrease iron intake.	Pre	57	47.5	60	50.0	3	2.5	113.40	<0.001**	63.15	<0.001**	7.65	<0.05*
	Immediate-post	15	12.5	39	32.5	66	55.0						
	Follow-up	32	26.7	32	26.7	56	46.7						

Table (5): Distribution unhealthy life style practice of the studied subjects at the different phases of intervention (n=120).

	Time of Assessment	Never		Sometimes		Usually		χ2(1)	P	χ2 (2)	P	χ2 (3)	P
		No	%	No	%	No	%						
Don't mange stressful situation.	Pre	43	35.8	65	54.2	12	10.0	39.53	<0.001**	31.44	<0.001**	0.618	>0.05
	Immediate-post	18	15.0	48	40.0	54	45.0						
	Follow-up	20	16.7	52	43.3	48	40.0						
Avoid participating in appropriate exercise	Pre	45	37.5	66	55.0	9	7.5	63.10	<0.001**	58.29	<0.001**	11.46	<0.05*
	Immediate-post	16	13.3	39	32.5	65	54.2						
	Follow-up	36	30.0	24	20.0	60	50.0						
Increase risk to falls	Pre	42	35.0	73	60.8	5	4.2	69.17	<0.001**	34.87	<0.001**	10.82	<0.05*
	Immediate-post	19	15.8	38	31.7	63	52.5						
	Follow-up	36	30.0	44	36.7	40	33.3						
Not doing the physical examination including an annual measurement of height and weight.	Pre	61	50.8	47	39.2	12	10.0	54.45	<0.001**	72.00	<0.001**	2.45	>0.05*
	Immediate-post	19	15.8	41	34.2	60	50.0						
	Follow-up	16	13.3	32	26.7	72	60.0						
Exposure t smoking (negative positive)	Pre	67	55.8	42	35.0	11	9.2	57.97	<0.001**	54.59	<0.001**	0.320	>0.05*
	Immediate-post	21	17.5	39	32.5	60	50.0						
	Follow-up	24	20.0	36	30.0	60	50.0						
Avoid exposure to sun daily	Pre	56	46.7	53	44.2	11	9.2	74.18	<0.001**	59.43	<0.001**	1.19	>0.05*
	Immediate-post	14	11.7	34	28.3	72	60.0						
	Follow-up	18	15.0	38	31.7	64	53.3						
Over weight	Pre	71	59.2	40	33.3	9	7.5	88.10	<0.001**	87.85	<0.001**	0.465	>0.05*
	Immediate-post	12	10.0	39	32.5	69	57.5						
	Follow-up	15	12.5	40	33.3	65	54.2						

Table (6): Distribution of total score of knowledge about osteoporosis and knowledge regarding life style practice of the studied women at different time of

Score	Time of Assessment	Pre-Intervention		Immediate Post		Follow up		χ2(1)	P	χ2 (2)	P	χ2 (3)	P
		No	%	No	%	No	%						
Total knowledge score	Poor	90	75.0	1	0.8	5	4.2	168	<0.001**	147.20	<0.001**	4.74	>0.05*
	Average	30	25.0	39	32.5	48	40.0						
	Good	0	0.0	80	66.7	67	55.8						
Total knowledge of life style practice score	Unsatisfactory	102	85.0	10	8.3	40	33.4	138.63	<0.001**	64.17	<0.001**	21.24	<0.001**
	Satisfactory	18	15.0	110	91.7	80	66.7						

intervention.

DISCUSSION

It was obvious from the results of the current study that the majority of the women didn't know the signs and symptoms of osteoporosis and only few women who gave correct answer before the program implementation **(Ettinger, 2003).** This result could be attributed to the fact that the salient feature of the disease was not common for all of them unless it is incidentally detected by accurate screening **(Delarvar and hajihmadi, 2011).** This result was supported by *Burlet et al. (2006)* who reported that slightly more than half of the women of their sample didn't know the main symptoms of osteoporosis.

Patient's compliance to adequate dietary practices and therapeutic treatment for osteoporosis are mandatory. The results of the current study revealed that most of the women had incomplete information about those aspects before the program (**Deenison and Cooper, 2006).** This indicates that the woman's beliefs are completely in contrary to the desired situation that means perceived benefit are stronger than perceived barriers. Therefore, it seems that the resultant of these two beliefs might weaken the preventive practice *(Clifford, 2007).*

As for women lifestyle**,** the present result has demonstrated that women in the osteoporotic group were more likely to prefer sedentary life, did not participate in social activity and were not able to cope with life stressors. Furthermore, the majority had sometimes or often the feeling of worrying state and having the feeling of loneliness and fear.

The implementation of the current study intervention led to significant improvement of the knowledge of women in the post-test and follow up compared with the pre-test. The findings are certainly related to the content of the educational program which was custom-tailored to the needs of the osteoporotic women, and also its process which followed the principles of adult learning with more active participation and open discussion.

In agreement with these present study findings *William & Shiel (2008)* evaluated the impact of osteoporotic educational program on gain in knowledge by menopausal women. It was noted that the knowledge of women pertaining to risk factors and consequences of osteoporosis improved considerably after education. On the same line, *Abdurrahman et al. (2010)* reported that the majority of their patients have insufficient knowledge about causes and predisposing factors of osteoporosis before education which significantly improved after the program.

Considering the Egyptian women's inaccurate or insufficient knowledge and their untoward attitude to the preventive acts of osteoporosis, could be explained by the fact that health professionals, doctors, nurses or mass media as TV or newspaper in the clinic do not usually explain the meaning of the disease and concentrate on the medical treatment of osteoporosis or bone problems **(Collinge and Gordner, 2008).** Similar findings concerning women` knowledge about osteoporosis were revealed by *Akkus (2009)* who found that education increases knowledge about osteoporosis and in turn changes practice of women who have the risk to this disease to the best.

The implementation of the present study intervention led to significant improvement among studied women in the post test and follow up in changing their life style and cope with daily life stressors than in the pre test. In this respect, *William & Shiel (2008)* has emphasized that health provider should use simple applications and stimulations in order to simplify the information and help attendants to apply their knowledge to practice **(Jette et al., 2011)** .

CONCLUSION:

Based on study findings, it can be concluded that:

The women` knowledge about disease was significantly improved during the program phases; at the post test and follow up after 3 months. Also, there was an improvement in women' knowledge about the prevention and management of the disease after the implementation of the program.

RECOMMENDATIONS:

Based on the study findings, the following recommendations are required to be implemented*:*

☐ Increasing women awareness about osteoporosis and its effect on women quality of life and upgrading their knowledge about the possible ways of its prevention and treatment.

☐ Counseling woman about different resources that the community at Mansoura already provide for her as health insurance, free tests, free drugs which could help her in the assessment of osteoporosis, and particularly for the measurement of bone mineral, which is central to the definition of osteoporosis.

☐ Changing women lifestyle; in relation to nutrition, exercise, avoiding fractures, receiving appropriate medical treatment, indulging herself in social activities and coping with life stresses are strategies used to prevent osteoporosis and alleviate its severity.

☐ A training program is essential for maternity nurses to upgrade their knowledge and practice to provide quality care to postmenopausal women, especially those who are more vulnerable to this disease.

☐ The booklet developed by the researcher could be distributed to menopausal women in different areas and utilized by nurses for further counseling

☐ Further research is required to investigate the effect of counseling program for osteoporotic women on their quality of life

REFERENCES:

Abd-Allah ME. (2000): Serum Calcium Level and Radiological Appearance of Second Metacarpal Bone in Normal Postmenopausal Women, Master thesis in, Faculty of Nursing, Ismailia, Suez Canal University.

Abdel-Sabour M. (2007): Value of quantitative ultrasonometry in assessment of postmenopausal osteoporosis. Master thesis in, Physical, Rheumatology and Rehabilitation Midicine. Faculty of Medicine. Ain Shams University.

Abdrrahman W., Delate CE. and Van D. (2010): Osteoporosis Influencing Post menopausal women at E Massoura City. Master thesis in, Maternal and Newborn Health Nursing, Faculty of Nursing, Zagazig University

Akkus Z. Camdeviren H. and Celik F. (2009): Determination of osteoporosis risk factors using a multiple regression model in postmenopausal Turkish women. Saudi Med J; 26(9): 1351-1359.

Booth SL., Broe KE., Peterson JW., Cheng DM., Dawson-Hughes B., Gundberg CM., Cupples LA., Wilson PW. and Kiel DP. (2004): Associations between vitamin K biochemical measures and bone mineral density in women. Journal of Clinical Endocrinology and Metabolism. October; 89(10): 4904-9.

Burlet N. and Reginster JY. (2006): the first dual acting treatment for postmenopausal osteoporosis. Clinical Orthopedics and Related Research. February ; 443: 55-60.

Clifford J. and Rosen M. (2007): Postmenopausal Osteoporosis. Clinical practice New England journal of medicine. Available at http: www//content.nejm.org/cgi/reprint/353/6/595.pdf Last Accursed on: 1/ 6 /2012. 9 AM.

Collinge C., Lebus G. and Gardner MJ. (2008): Osteoporosis in orthopedic trauma patients. Diagnosis and Treatment Protocol. The National Institutes of Health; 22(8): 541-7.

Delavar1 MA. and Hajiahmadi M. (2011): Factors Affecting the age in Normal Menopause and frequency of Menopausal Symptoms in Northern Iran. *Medical Journal* Iran Red Crescent Med; 13(3):192- 198.

Dennison E. and Cooper C. (2006): Epidemiology of osteoporosis. The National Institutes of Health; 32(4): 617- 29.

Ettinger MP. (2003). **Aging** bone and osteoporosis. Strategies for preventing fractures in the elderly. October 13; 163(18): 2237-46.

Ilich JZ. and Kerstetter JE. (2009): Nutrition in bone health revisited. A story beyond calcium. Journal of the American College of Nutrition. November/December; 19(6): 715-37.

Isqure A. and Simnett I. (2002): Health and Well- Being for Older People. Philadelphia. Elsevier Science Limited; 109-37.

Jackson B., Oden A. and Laet C. (2005): The burden of hospitalized fractures in United State .The National Institutes of Health;16(2): 222-8.

Jette N., Lix LM., Metge CJ., Prior HJ. and McChesney WD. Leslie (2011). **Association of Antiepileptic Drugs With Nontraumatic Fractures: A Population-Based Analysis**. *Archives of Neurology;* 68 (1): 107 DOI.

Keam SJ. and Plosker GL. (2006): Prevention and treatment of osteoporosis in postmenopausal women. Defining the role of Alendronate. Disease Management and Health Outcomes. May; 12(1): 19-37.

Sallam H., Galal AF. and Rashed A. (2006): Menopause in Egypt: past and present perspectives, The Suzanne Mubarak Regional Center for Women's Health and Development, Egypt, 9 (6): 421-429**.**

Whitaker K., Stoppler M. and Wartofsky L. (2012): Available at http: //www.emedicine-health.com/menopause/article_em.htm. Last Accursed on: 9/May/2012, 12AM. ***William C. and Shiel JR. (2008):*** Osteoporosis. Available at: http://www.medicinenet.com/osteoporosis/article.htm Last Accursed on: 5/ 3/2012, 10.30 PM.

هشـاشـة الـعظـام عند السـيدات أثنـاء فترة انقطـاع الطـمث والتدخل الضمني للتمريض.

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الـخـلاصـة

الدراسة الحالية دراسة شبة تجريبية هدفها تقييم تأثير التدخل التمريضي (برنامج تعليمي) علي معلومات السيدات في سن انقطاع الطمث في عيادة الروماتيزم والتأهيل بمستشفي جامعة المنصورة. وشملت عينة البحث (120) سيدة من المترددات علي العيادة ، وقد تم تجميع البيانات عن طريق استخدام استمارة استبيان للسيدات لتقييم معلوماتهن عن هشاشة العظام وتم تجميع الاستمارات قبل البدء في البرنامج وبعد تنفيذ البرنامج مباشرة ثم بعد ثلاث أشهر. وقد أسفرت نتائج البحث علي وجود تحسن واضح في معلومات السيدات بعد تنفيذ البرنامج مباشرة ولكن حدث تراجع بسيط في المعلومات الخاصة بالمرض لدي السيدات أثناء المتابعة بعد تنفيذ البرنامج بثلاث أشهر. بناء على نتائج الدراسة أوصى بأهمية وضع برامج تعليمية لمختلف الفئات العمرية لزيادة وعيهن تجاه المرض، وضع برامج تعليمية للممرضات لتحسين معلوماتهن وادائهن العملي لتوفير الرعاية المميزة للسيدات في سن انقطاع الطمث.

الكلمات الاسترشادية : هشاشة العظام ، سن انقطاع الطمث ، الدور التمريضي .