

Original Article

Evaluation of Knowledge and Self-Efficacy about Osteoporosis Perception among Females in the Faculty of Nursing in Port-Said, Egypt

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Abstract

Background: Osteoporosis can severely affect the patient's health, function, quality of life and it is also becoming a social disease. The best way to prevent osteoporosis is increase osteoporosis knowledge and enhancing woman self efficacy.

Aim: The aims of this study were to evaluate the osteoporosis knowledge levels and self- efficacy perceptions of female in Port-Said Faculty of Nursing and to determine demographics characteristics were effect on osteoporosis knowledge and self efficacy perception.

Methods: A one-group quasi-experimental design with repeated measurements was conducted. The sample consisted of 133 of female who work and study in the faculty. Data were collected by a Demographic Questionnaire, Osteoporosis Knowledge Test and Osteoporosis Self- Efficacy Scale.

Results: The majority (n= 54, 40.60%) ranged in age from 26 to 32 years. Participant osteoporosis knowledge (15.20±3.70) and osteoporosis self-efficacy perception mean scores (1425.54±36.11) were low. It has been determined that osteoporosis self-efficacy increases as osteoporosis knowledge increases.

Conclusion: The findings clearly indicate that women did not have adequate knowledge about osteoporosis and their self-efficacy of osteoporosis is low. Educational interventions can be undertaken to improve women knowledge and strength self efficacy.

Key word: Knowledge of osteoporosis, Self-Efficacy, educational program, osteoporosis.

Introduction

Osteoporosis is a disease in which the density and quality of bones reduce. It is a silent thief, producing no symptoms until a fragility fracture occurs (Chan et al., 2007; Yang et al., 2013; McLendon & Woodis,

2014). Quality of life of the individual can negatively affected by osteoporosis as all living activities of the individual was deteriorated related to pain and increased dependency on other may cause social isolation, self-esteem decrease, body image

changes and depression (Masterson, 2006; Chatlert et al., 2008). Moreover, Osteoporosis is a serious metabolic bone disease to negative effect on economic that causes loss of labour, loss of work and use of expensive medicine for a very long time and hospital long stay (Sasser et al. 2005, Masterson 2006).

Insufficient awareness of osteoporosis and related education are among the most important reasons for osteoporosis. A number of studies have investigated the role of knowledge in preventing the development of osteoporosis and reported that women, men and health professionals have serious deficits in knowledge, and educational interventions are useful in increasing knowledge (Amre et al., 2008; Zhang et al., 2012; Puttapitakpong et al., 2014). Health education can decrease the overall costs of health care by preventing expensive complications of chronic illnesses. Implementation of education programme is one strategy that can produce changes in osteoporosis preventive behaviors. The study conducted by (Sedlak et al., 2000; Bohaty et al., 2008) showed that knowledge alone is not enough to start the preventive behaviors of osteoporosis. Therefore, health education based on reinforcing self efficacy can positively affect in self-care behavior and prevention of osteoporosis (Zhang et al., 2012; Ozturk and sendir, 2011).

According to (Bandura, 1994) self-efficacy is the judgment of the individual regarding herself/himself in terms of the capacity of organizing and successfully implementing the activities which are necessary to show a certain performance. Individuals whose self-efficacy perception are high prefer doing more challenging things than the individuals whose self-efficacy perception are low and they channel themselves to reach those objectives (Endicott, 2013; Zhang et al., 2012; Ozturk and sendir, 2011).

The nurses have the responsibility to reinforce their professional role as advocates for a new generation to take charge of their bone health. Indeed, we would argue that health promotion and disease prevention

should be an integral part of nursing practice. Nurse-initiated osteoporosis prevention programmes for young adults have the potential to reduce osteoporosis risk and thus prevent or delay the development of the disease (Chang et al.2007; Zhang et al., 2012).

Bone mass and bone density increase the most during childhood and adolescence in both sexes, and usually peak bone mass is maximized by the age of 30 (Yang et al., 2013; McLendon and Woodis, 2014). For most women, bone mass remains stable until menopause, when the loss of estrogen in conjunction with aging is associated with a decline in bone mineral density. Studies indicate that young adults can increase their peak bone mineral density, promote long-term bone health, and reduce the risk of disease later in life by following a well-balanced diet including calcium-rich food, physical activity and health lifestyle practices (Yang et al., 2013; McLendon and Woodis, 2014). Therefore, young adults are a targeted group for osteoporosis prevention. If young adults maximize their bone density, they can prevent or delay the development and severity of osteoporosis.

Aim

The aims of this study were to evaluate the osteoporosis knowledge levels and self-efficacy perceptions of female in Port-Said Faculty of Nursing and to determine demographics characteristics were effect on osteoporosis knowledge and self efficacy perception.

Methods

Design

A one-group quasi-experimental design with repeated measurements was used to evaluate the osteoporosis knowledge levels and self-efficacy perceptions of female in Port-Said faculty of nursing.

Participants

A convenience sampling method consisted of 133 female members was used, and all young female were recruited from the faculty of

nursing. They were recruited via an announcement and notice board.

The majority of them were student and some had full time work. Eligibility criteria of the inclusion of these participants were determined on the basis of age (aged 18 and over), gender (female), and willingness to participate in the study.

Women were excluded if they had gone 12 or more months without a menstrual period, or had had both ovaries surgically removed, and/or they had previously been diagnosed with osteoporosis. Women had a chronic disease, such as renal failure, heart disease or diabetes mellitus.

Data collection instruments

Data were collected via a demographic questionnaire, osteoporosis Knowledge Test (OKT) and Osteoporosis Self-Efficacy Scale (OSES). These instruments were handed out by researchers to all participants in face-to-face interviews in a faculty lecture room.

Demographics Questionnaire

Demographics questionnaire was developed based on the literature review and included questions regarding socio-demographical characteristics (age, gender, marital status, education, working status, income).

Osteoporosis Knowledge Test (OKT) was developed by Kim et al., 1991 and is a 24-item tool consisting of multiple choice questions regarding knowledge about or the facts of osteoporosis. The test items address a variety of topics, including the relationship of activity levels, exercise and dietary intake of calcium on osteoporosis prevention. When scoring OKT, correct answers are coded as 1, incorrect answers as 0. A perfect test score on OKT is 24. OKT has two subscales: OKT Calcium (items 1–9 and 17–24) and OKT Exercise (items 1–16). OKT Calcium and OKT Exercise share 9 common items (items 1–9) (Kim et al., 1991; Sedlak et al., 2000).

The Osteoporosis Self- Efficacy Scale (OSES) was developed by Horan et al., 1998 is a 21-item visual analogues scale. Items are scored by measuring the participants' responses on a scale with a range of 0 to 100

for each item. The tool consists of two subscales, OSES-Exercise scale (items 1-10) and OSES-Calcium scale (items 11-21). In order to calculate the scores for each subscale, the scores are added for each item within the respective subscale. Then the total is divided by the number of items in the respective scale, thus obtaining the individual subscale score for OSES-calcium.

Educational Intervention

After completing the OKT and OSES, the participants were presented an educational program. The osteoporosis educational program was developed by the principal investigator from contemporary empirical knowledge and the guidelines of the National Osteoporosis Foundation, 2013.

The educational program addressed the definition, prevalence, and etiology of osteoporosis; risk factor identification; physical signs of the disease; preventive and diagnostic measures; and treatment. Programme consisted of three lessons, each of which lasted for 2 hours. Each lesson consisted of a slide presentation supplemented by printed handouts.

The osteoporosis educational program, lectures, slide presentation and related questionnaires were reviewed for content validity by five experts and then were adjusted according to the experts' suggestions for improving their clarity and appropriateness. Prior to the program's implementation, a pilot study was conducted to determine if the intervention protocol was effective and had been described in sufficient detail, and to identify unanticipated effects.

The pilot study was conducted at another site with 15 women whose characteristics were similar to those who received the intervention in this study. Two weeks after the educational intervention, the OKAT, OSES were again administered.

Except for demographic and health history data, questions on the post intervention were formatted exactly like those in the pre intervention, which facilitated a direct pre- and post comparison.

Ethical considerations

Ethical issues were considered and consent was obtained from the Dean of the Faculty prior to initiation of the study. An information sheet and a signed consent were provided to all participants. Participants were informed regarding the purpose of the research before the study. Participants were also informed about their right of not partaking in the study and that such a decision would not incur any 'penalties' against them. The anonymity and confidentiality of participants were guaranteed.

Statistical analysis

Statistical analysis of the data was made by using the Statistical Package for Social Science for Windows (SPSS) version 19 (SPSS, Chicago, IL, USA). Frequency and percentage values of the group variables, arithmetic means and standard deviations were calculated. Student's paired t-test was used to determine whether the differences between the pre- and posttests of OKAT and OSES were significant. The level of significance established for a two-tailed t-test was 0.05.

Results

In table (1) is illustrated that a total of 133 college female participants completed the informed consent, and the questionnaires. Socio-demographic characteristics of college-age women are depicted in table (1), 35.34% their age ranged from 18-25 years, while 6.02% their age ranged from 40-46 years. More than fifty (51.13%) of the study sample were students (ranged from first to fourth academic years), while 48.87% were employment bachelor degree. About 45.11% were single, and 35.34% was widowed. From the results presented in table (2) it is revealed that the mean score of post-intervention of OKT is (18.09±3.01, 20.20±2.42) more than mean score of pre-intervention of OKT (13.89±3.50, 15.98±3.59) respectively among the participants in both groups whose age ranged from (18- 25, 26 – 46) ($p < .05$). As a result of the educational status, it was found that,

post- intervention of OKT mean scores (20.62±2.05, 18.18±2.99) were higher than the mean score of pre- intervention of OKT (16.32±3.15, 16.32±3.15) respectively among Student participants and employee participants ($p < .05$).

Table 3 shows that a significant increase in influence on college-age women to adopt lifestyle behavioral changes to both exercise (pretest mean = 66.21±23.15 compared with post-test mean ±SD 78.26±20.02) with $p < 0.05$ and calcium intake (pretest mean ±SD 76.34±19.94 compared with post-test mean ±SD 84.40±16.28) with $p < 0.05$. The total OSES score also increased from pretest (mean ±SD = 1425.54±36.11 compared with post-test mean ±SD 1629.23±31.47) and the change ($p < 0.05$).

Discussion

Osteoporosis, is a metabolic bone disease, negatively affects all living activities of the individual, movement notably and causes fractures, pain and body image changes (Masterson, 2006; Yang et al., 2013; McLendon and Woodis, 2014). There is no cure for osteoporosis, therefore, the most effective way of managing this disease is prevention. This study found that knowledge score among the study participant was low, similar to those reported by (Amre et al., 2008; Puttapitakpong et al., 2014; Endicott, 2013). These low pre intervention knowledge scores may indicate that public health education on osteoporosis is deficient. Previous studies have shown that many women of all ages lack knowledge about osteoporosis or do not perceive themselves as being at risk for developing bone loss and osteoporosis-(Zhang et al., 2012; Ozturk and Sendir, 2011, Endicott, 2013).

The osteoporosis knowledge score was statistical significant increased in the post education intervention. This may be due to the voluntary nature of participation in the programme as it could be expected that participants would show readiness to learn about interested topic, live healthy and independent. Many Studies (Zhang et al., 2012; Ozturk & Sendir, 2011; Endicott,

2013) have shown have proven—adequate knowledge is a predictor for engaging in preventive behaviors. The present study also revealed knowledge mean score in older age group higher than the younger age groups that finding can be explained with the higher sensitivity of women at the menopause period to the changes and impacts caused by hormonal alterations. People gain more experiences as they grow older in their lives.

The present study also revealed that educational intervention positively affects osteoporosis self-efficacy perception. Similarly, the studies revealed that planned health education enhancing self-efficacy perception of women to accomplish the require behaviors to prevent osteoporosis (Zhang et al., 2012; Ozturk and Sendir, 2011;

Endicott, 2013). This study found self-efficacy regarding calcium and exercise scores were quite low in pre intervention similar finding was reported in other studies (Sedlak et al., 2000; Chang et al., 2007; Zhang et al., 2012; Ozturk and Sendir, 2011; Endicott, 2013).

The lowest pre intervention self-efficacy score in the present study regarding exercise suggested that young adults had least confidence in performing exercise and lack of community support for women to exercise. Physical exercise requires strong determination and many Egyptian women neglect it when they encounter obstacles such as violating social codes.

Table 1: Distribution college-age women according to their socio-demographic characteristics (N=133).

Socio-demographic Characteristics	No	%
Age		
18-25	47	35.3
26-32	54	40.6
33-39	24	18.0
40-46	8	6.0
Educational Status		
Student participant (From First to Fourth academic years)	68	51.1
Employment bachelor degree	65	48.9
Marital Status		
Single	60	45.1
Married	25	18.8
Widowed	47	35.3
Divorced	1	0.8

Table (2) Pre and Post Osteoporosis Knowledge Test (OKT) Scores

Variable	No	Pre- intervention (Mean ±SD)	Post- intervention (Mean ±SD)	t-test	P-value
All age	133	15.20±3.70	19.43±2.82		
18- 25	47	13.89±3.50	18.09±3.01	8.0	<.05*
26 - 46	86	15.98±3.59	20.20±2.42	12.40	<.05*
Student participant	68	16.32±3.15	20.62±2.05	12.52	<.05*
Employee participant	65	16.32±3.15	18.18±2.99	9.28	<.05*

(*) statistically significant at $p < .05$.

Table 3: Pre and post program osteoporosis self-Efficacy scale descriptive statistics

Self-Efficacy Scale	Mean ±SD	t-test	P VALUE
Pre Exercise OSES	66.21±23.15	8.53	< 0.05*
Post Exercise OSES	78.26±20.02		
Pre Calcium OSES	76.34±19.94	7.00	< 0.05*
Post Calcium OSES	84.40±16.28		
Pre OSES Total	1425.54±36.11	9.08	< 0.05*
Post OSES Total	1629.23±31.47		

(*) statistically significant at $p < .05$.

Recently, some community groups were created to encourage all people to exercise and provided good support to Egyptian women to exercise without violating social codes. In this regard Trainer, 2012 reported that Arabic women tended to lead very sedentary lives and it was common for women to report not leaving their house except for work and shopping and spending time in kitchen, clean home, watching TV were universally sedentary in nature.

Concerning, the calcium intake, the present study found significant improvement of knowledge and improve self efficacy in this regard post intervention. It is also important to address factors that decrease calcium absorption. In Egypt, bran added to bread, binds to calcium and affects its optimal absorption. Also, media promoted glamour of skin whitening, so most Egyptian women currently tend to avoid exposure to sun and sun tanning has become unpopular in Egypt.

Furthermore, increased age delays calcium absorption. Despite all of that, our study participants showed improved knowledge and self-efficacy.

Limitations

This study has some limitations in relation to the small, nonrandomized sample selected from study performed at a single institution, limiting the generalizability of the findings. It is also recommended that studies be conducted, not just with the female patients, but also with male patients who are at risk for osteoporosis. Despite these limitations, this is the first study to address the osteoporosis knowledge levels and self-efficacy perceptions of female in Port-Said faculty of nursing. Another limitation of this study warrants consideration when interpreting the results. We assessed post-test measures shortly following completion of the educational program. Therefore, we do not know whether this was the optimal time for measuring the effects

Conclusion

The results indicated that women participants display low level of knowledge and self-efficacy with regard to the osteoporosis.

Osteoporosis educational program clearly increased knowledge and develops self-efficacy perceptions of the participants women. Knowledge about osteoporosis positively affects osteoporosis self-efficacy perception.

Women may engage in self-efficacy perceptions which would help to prevent osteoporosis, if they are informed regarding the effects and risk factors of osteoporosis, and the preventative behaviors associated with osteoporosis. Education about osteoporosis need to start early in the premenopausal years and not be delayed to the postmenopausal years as this may reduce morbidity later in life.

Conflicts of interest

The authors declared no potential conflicts of interest with respect to the research, authorship, or publication of this article.

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