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Osteoporosis Education: Success in a Community Setting

Introduction

Bone health is important for individuals to maintain quality of life as bone disease can affect mobility, cause pain, and impact one's mental health. Around age 30, peak bone density is obtained. After this age, bone deterioration occurs at a faster rate than bone growth (Capriotti & Frizzel, 2016). One common degenerative disease of the bone is osteoporosis. It is estimated that by 2020, approximately 12.3 million adults over age 50 will have osteoporosis (U.S. Preventive Services Task Force [USPSTF], 2018). In addition to gender, other risk factors for osteoporosis include increasing age, postmenopausal age, lack of weight-bearing exercise, smoking, excessive caffeine consumption, genetics, taking certain medications, and dietary factors including lacking adequate intake of calcium and Vitamin D. Prevention is the best treatment for osteoporosis (Capriotti & Frizzel, 2016) and providing information regarding the disease and risk factors can promote prevention.

Review of Literature

Gopinathan et al. (2016) utilized the Osteoporosis Health Belief Scale (OHBS) when conducting a study to examine awareness of osteoporosis in postmenopausal Indian women. The results included that some populations may be lacking awareness of this important topic (Gopinathan et al., 2016). Chang, Chen, Chen, and Chung (2003) conducted a pilot study also utilizing the OHBS, along with other instruments (demographic scale, health status scale, knowledge scale, and prevention intention scale) to predict osteoporosis prevention intention in women. Findings included women reporting a belief of being at risk, but not believing it was easily preventable. Further, participants reported a perception that osteoporosis was not a serious problem and they would not benefit greatly from prevention. Greater than 90% of the

participants indicated receiving, but not clearly understanding, information about osteoporosis (Chang et al., 2003).

The Osteoporosis Knowledge Test (OKT) developed by Kim, Horan, and Gendler (1991) focuses on bone health promotion knowledge and includes two subscales: nutrition and exercise. Aree-Ue and Petlamul (2013) utilized the Thai version of the OKT to examine knowledge of osteoporosis in both younger and older women. Their findings indicated higher knowledge levels in younger women. The OKT was also utilized by Janiszewska, Kulik, Dziedzic, and Zolnierczuk-Kieliszek (2015) to assess peri- and postmenopausal women's knowledge of osteoporosis. The results indicated an average level of understanding of the prevention role of physical activity, risk factors, screening and treatment; and a low level of knowledge regarding important dietary factors (Janiszewska et al., 2015).

Providing education may be beneficial in increasing knowledge of osteoporosis and risk factors, which could lead to health promotion behavior changes regarding prevention of osteoporosis. Population-based nursing focuses on working with a group of individuals who share a common trait to promote better health outcomes (Curley, 2016). These groups can be populations or aggregates in certain geographic areas or other community locations where people assemble. One such population would be a faith community group (Harris, 2017). According to a 2018 gallop poll, 50% of Americans indicated being a member of a church or synagogue and 32% reported attending the church or synagogue weekly or almost weekly (Gallop, 2019). Additionally, 50% of individuals believed religion was a "very important" part of their life and 23% believed it was "fairly important" (Gallop, 2019). These findings support the value of health care professionals collaborating with leaders of faith communities to offer health education programs.

Purpose

The purpose of this quasi-experimental study was to examine the effect of a community educational offering on attendees' knowledge of osteoporosis. The research question was: Does an educational offering affect attendees' knowledge of osteoporosis as measured by the OKT?

Methodology

Approval for this study was obtained from an institutional review board at a university in the Southern U.S. Additionally, permission was received from Dr. Phyllis Gendler to utilize the OKT. The specific design type for the study was a pretest-posttest utilizing a single group and the setting was a small, rural church.

After receiving an explanation of the study, potential subjects were provided a copy of the consent form and the OKT survey as a pretest. Following the education intervention, the OKT was administered again as a posttest. Completion and submission of the pre- and post-surveys to the researchers was viewed as implied consent. Confidentiality was maintained by not having identifying information on the survey.

Sample

A convenience sample of attendees present at a regularly scheduled monthly meeting held at the church as part of an established health ministry program was utilized for the study. Seventeen adults were present for the meeting and all attendees participated in the study; however, two surveys were not utilized due to numerous blank responses ($n = 15$). For this study, due to the sample size and one specific location, demographic data was not requested to maintain confidentiality.

Instrument

The OKT was developed in 1991 and has been revised to reflect up to date evidence

(Gendler et al., 2015). The focus of the OKT is bone health promotion knowledge with nutrition and exercise as two subscales. The instrument consist of 32 items. The overall score range is 0 – 32. The exercise subscale has 20 items with a possible score ranging from 0 – 20 and the nutrition subscale consist of 26 items with a possible score ranging from 0 – 26 (Osteoporosis Knowledge Test 2011, 2012). Fourteen of the items on the OKT are included in both subscale scores (Gendler et al., 2015). The reliability coefficient (KR20) for the total instrument has been reported at 0.85 and subscales reliability coefficients for nutrition and exercise have been noted as 0.83 and 0.81 respectively (Gendler et al., 2015). For this study the Cronbach alpha for the complete instrument was 0.84 and for each subscale the alpha was 0.81 for the exercise subscale and 0.82 for the nutrition subscale.

Intervention

Two of the researchers provided a 30-minute information session utilizing a relaxed lecture format, supplemented with power point as a visual aide. The presentation included topics related to osteoporosis such as definition, prevalence, best time to build strong bone, risk factors, behaviors to prevent and/or decrease risk, recommended calcium intake, and role of Vitamin D. Throughout the program, opportunities for questions/answers were available.

Results

The overall mean score on the pretest was 16.93 ($SD = 5.02$) compared to a posttest mean of 23.13 ($SD = 2.85$). A statistical significant difference was noted between the means ($p = .0001$). For the nutrition and exercise subscales the pretest means were 14.6 ($SD = 4.34$) and 9.40 ($SD = 3.36$) respectively and the posttest mean scores were 19.4 ($SD = 2.23$) and 14.33 ($SD = 2.82$) respectively which represents a statistically significant difference ($p = .0001$).

Discussion

The purpose of this study was to examine the effect of an educational intervention on knowledge of osteoporosis. The findings demonstrate that a brief educational session can increase knowledge regarding osteoporosis. Nurses, and other health professionals can play a key role by providing education in community settings to various populations. These settings include those that offer easy access and also where individuals are comfortable, such as faith communities.

Strengths/Limitations

The strengths of the study include the study design of quasi-experimental which examines effect and the use of an instrument with established reliability. Another strength was the participation rate of those in attendance; however, limitations include the use of a small, convenience sample and lack of a control group.

Recommendations

The researchers recommend replicating this study with a larger, more heterogeneous sample; utilizing a control group; and repeating the posttest at a later date to examine retention of knowledge. Reaching out to faith communities and other community organizations to provide education regarding osteoporosis and other chronic diseases is noted to be valuable. It is also recommended that nurse educators examine the use of faith communities and other community venues as clinical sites for application of population health principles.

Conclusion

Osteoporosis is a major health concern that needs further attention due to its prevalence and impact it can have on an individual's quality of life. The findings from this study support the value of partnerships of health care agencies and educational institutions with community

populations, such as faith communities, to provide opportunities for health education which may promote healthy behaviors.

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