Significance of the Project

Osteoporosis: Silent and debilitating chronic disease that causes porous bone

Current Status: Rapidly increasing incidence - specifically in post-menopausal women / 45 million women, age 50 years or older, currently have osteoporosis (CDC, 2013)

Annual Health Care Expenditure: $19 billion (NOF, 2012)

Purpose: To increase osteoporosis knowledge and improve self-efficacy of preventative behaviors to promote early primary prevention within young adult collegiate females prior to attainment of peak bone mass

PICO/T Question

In young adult collegiate females (P), how does an osteoporosis educational intervention (I) compared to current education (C) effect osteoporosis knowledge and self-efficacy of osteoporosis prevention (O) over a one-month time period (T)?

Review of the Literature

Key Terms: osteoporosis, education, self-efficacy, prevention

Inclusion Criteria: Literature must: a) be peer-reviewed, b) be published in English, c) language from 2000 to 2013, d) assess an in-service educational intervention, e) include young adults (18 to 24 years of age) within population of interest, and e) measure outcomes of osteoporosis knowledge and/or self-efficacy of osteoporosis prevention

Exclusion Criteria: Eliminated literature included: a) data focused predominantly on school-aged participants, b) data focused predominantly on post-menopausal women, c) data focused on high-risk populations, d) data focused solely on male populations, or e) interventions focused on pharmaceutical therapy education.

Databases Used: Cochrane Collaboration, JBI, CINAHL, Medline, ProQuest Nursing and Allied Health Source, and Google Scholar

Literature Results: 374 hits → Initial title review: 60 → 1st abstract review: 24 → 2nd abstract and 1st full-text review: 14 → Multiple full-text reviews and application of inclusion and exclusion criteria: 10 relevant (1 retrieved through citation chasing)

Synthesis of Evidence

Evidence / Level | Design | Sample | Outcomes Measured
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Bohay et al. (2008) | Quasi-experimental 1-group Pre-test/Post-test | N = 80 Young adult females 19 to 30 years old | Osteoporosis Knowledge; Ca and Vit. D Intake
Chan et al. (2007) | Quasi-experimental 2-group Pre-test/Post-test | N = 46 Young adults 18 to 30 years old | Knowledge - Self-Efficacy; OSSS
Franzen (2011) Bachelor Thesis | Systematic Review Graduate Project | Young adult females | Knowledge - Self-Efficacy; OSSS
Nieto-Vazquez et al. (2009) | RCT 2-group Pre-test/Post-test | N = 105 Undergraduate females 18 to 25 years old | Knowledge - Self-Efficacy OSSS
Pinet et al. (2003) Master Thesis | RCT 2-group Pre-test/Post-test | N = 106 Undergraduate females 17 to 21 years old | Knowledge - Prevention; OBPS
Rodzik (2008) | Quasi-experimental 1-group Pre-test/Post-test | N = 149 College females 18 to 48 years old | Knowledge - Self-Efficacy OSSS
Sedlak et al. (1998) | RCT 2-group Pre-test/Post-test | N = 31 Undergraduate females | Knowledge - Self-Efficacy; OBPS
Sedlak et al. (2000) | Quasi-experimental 3-group Pre-test/Post-test | N = 84 females Young adults (n=31) Intermediate (n=35) Nurses (n=18) | Knowledge - Prevention; OBPS
Werner (2005) | Literature Review | Healthy women | Osteoporosis Knowledge; Educational Interventions
Zhang et al. (2012) | Quasi-experimental 1-group Pre-test/Post-test | N = 256 Undergraduate females Avg. Age: 18.8 years old | Knowledge - Self-Efficacy; OBPS

Decision to Change Practice

National Initiatives: Healthy People 2020 and the National Osteoporosis Foundation (NOF) encourage osteoporosis education among young adults

Common themes: Recurring themes for best practice included implementation of the following: a) the health belief model (HBM), b) continuing education setting, c) one-time educational session, d) NOF guided slide show presentation, e) group discussion, and f) provision of take home materials

Frameworks

ACE Star Model: EBP framework to guide planning, implementation, and evaluation of the project / Organizer for examining and applying EBP (Stevens, 2004).

Health Belief Model: Theoretical model to guide the EBP project / Utilized to understand and improve health promotion since the beginning of its existence / Guided dialogue during the slide show presentation and discussion prompts

Implementation

IRB: Exempt Review

Setting: University in northwest Indiana within a kinesiology course required of all incoming freshman students

• Kinesiology Course Objective: Educate students about healthy lifestyles

• Outcomes: Effect on osteoporosis knowledge and self-efficacy of preventative behaviors

• Short-Term Goals: Increased osteoporosis knowledge and improved self-efficacy of prevention post-intervention

• Long-Term Goals: Decreased incidence of osteopora and osteoporosis in post-menopausal women as well as inclusion of the osteoporosis health promotion educational intervention within the kinesiology curriculum indefinitely

Intervention: One-time 50 minute in-service osteoporosis educational intervention implemented during normal scheduled class time for all 12 incoming freshman students

• NOF Slide Show Presentation: Osteoporosis patient education

• Identification

• Risk factors

• Prevention

• Diagnosis

• Treatment

• Group Discussion: Allowed for clarification of material and further comprehension and incorporation of the HBM

• Take-Home Materials: NOF brochures and pocket guides

Data Collection: Submitted electronically via Blackboard at 3-time intervals: pre-intervention, immediately post-intervention within 48 hours, and 3-weeks post-intervention / Baseline demographic data also electronically collected

Evaluation Tools

Demo: Demographic Data Form

• Participant Characteristics: Age, Ethnicity, Marital Status, College of Study, and Annual Income

• Exercise Habits: Frequency and Type of Exercise

• OSTE: Osteoporosis Knowledge Test

• Result Categories: Total, Risk Factors, Nutrition, and Exercise

OSES: Osteoporosis Self-Efficacy Scale

• Result Categories: Total, Calcium Intake, and Exercise

Future Implications

Practice: Encourage kinesiology professors and health care providers of young adult females to incorporate osteoporosis education in course curriculums and patient visits

Theory: Comprehension and perception of the threats of osteoporosis remains a weakness among young adults

Research: Dissemination of research and EBP is needed to further promote osteoporosis education among young adults within the college setting

Education: Encourage incorporation of the osteoporosis educational intervention within the kinesiology course curriculum indefinitely

Conclusion

Evidence indicates that osteoporosis educational interventions among young adult collegiate females can be successful at increasing knowledge and improving self-efficacy. Similar objectives within young adult females could improve knowledge and self-efficacy of prevention for increased primary prevention of other chronic diseases.

Evaluation

Participant Characteristics: N = 60+ freshman females enrolled a kinesiology course

• Age: Avg. 18.38 years – Range 18 to 23 years

• Ethnicity: Predominantly – Caucasian (90.0%)

• Marital Status: Predominantly – Single, never married (98.3%)

• College of Study: Arts and Science (43.3%), Nursing (21.7%), Engineering (13.3%), Business (11.7%), and Christ College and Undecided (10.0%)

• Income: Range Below $10,000 to Above $150,000

Exercise Habits: Assessed frequency and type of exercise conducted

• Frequency: None to Seldom (18.3%), 2 to 3 times weekly (43.3%), 4 to 6 times weekly (28.3%), More than 6 times weekly (10.0%)

• Most Common Type of Exercise: Cardio (60.0%), Combination: Cardio and Muscle-strengthening (30%), Flexibility (5.0%), Muscle-strengthening or None (5.0%)

Data Analysis: Repeated-Measures ANOVA and Post-Hoc paired t-tests

• ANOVA Significance: p < 0.05 / Significant value *=

• Post-Hoc Significance: p = 0.017

• OSTE Results: ANOVA - Total* (F (2,56) = 89.234, p = 0.000); Risk Factors* (F (2,56) = 46.063, p = 0.000); Nutrition* (F (2,56) = 64.745, p = 0.000); Exercise* (F (2,56) = 70.068, p = 0.000); Post-Hoc – All subclasses confirmed significant improvement from pre-intervention to post-intervention, immediately and after 3 weeks

• OSES Results: ANOVA – Total* (F (2,44) = 3.986, p = 0.026); Calcium (F (2,44) = 2.370, p = 0.105); Exercise (F (2,44) = 2.584, p = 0.087); Post-Hoc – Total confirmed significant improvement only from pre-intervention to immediate post-intervention

Mean Results and Post-Hoc Significance: Total and Subclass Scores for OSTE and OSES

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Acknowledgments:

Project Advisor: Dr. Amy Cory, PhD, RN, CPNP-PC
Project Facilitator: Dr. Barbara Tyree, PhD