Contributors to Calcium Intake, Physical Activity and Bone Mineral Density among Taiwanese Premenopausal Female Workers

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Purpose of the Study

Aims: 1) To determine the influence of the Health Belief Model, health motivation, and self-efficacy constructs on calcium intake and physical activity. 2) To estimate the effects of calcium intake, physical activity, and osteoporosis risk factors on BMD.

Methods

Subjects: 357 female workers from an electronic company in Taiwan (response rate: 84%; 30-49 years old with a mean age of 37). Methods: A cross-sectional survey study. The Sahara clinical bone sonometer (measuring the BMD of the calcaneus of the dominant side) and a survey questionnaire developed by the researchers were employed. Data Analyses: Descriptive statistics, Pearson's correlations, and multiple regression analyses were performed.

Results

9.8% of the participants engaged in physical activity regularly. Their daily mean calcium intake was 465 mg. 90% of these participants' BMD was within the normal range. Health motivation and self-efficacy for calcium intake were significant predictors of calcium intake (R-square = .204). Joining group exercise, perceived severity of osteoporosis, benefits/barriers to physical activity and self-efficacy for physical activity were significant predictors of physical activity (R-square = .209). Physical activity and the levels of the osteoporosis risk factors (age, height, being sports representative, and amount of coffee intake) were significant predictors of these women's BMD (R-square = .122).

Conclusions

Self-efficacy for calcium intake ($\beta = .34$, $p < .001$) and self-efficacy for physical activity ($\beta = .17$, $p < .01$) were the two most significant predictors of these women's osteoporosis preventive behaviors (i.e., calcium intake and physical activity). Physical activity ($\beta = .21$, $p < .001$) was the most significant predictor of BMD. Practical implications to the occupational health of Taiwanese premenopausal women were discussed.