

## Promoting Worker Health: Determinants of Calcium Intake, Physical Activity and Bone Mineral Density among Taiwanese Premenopausal Women

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**Background:** Preventive behaviors and risk factors for osteoporosis have been widely studied. However, little is known about the contributors of calcium intake, physical activity, and bone mineral density (BMD) in Asian premenopausal women. **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. **Subjects:** 357 female workers from an electronic company in Taiwan (response rate: 84%; 30-49 years old with a mean age of 37). **Method:** A cross-sectional study. The Sahara clinical bone sonometer (measuring the BMD of the calcaneus of the dominant side) and a questionnaire were employed. **Data Analyses:** Parametric and nonparametric statistics were used. Cutoff scores of calcium intake and physical activity 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 ( $R\text{-square} = .204$ ). Joining group exercise, perceived severity of osteoporosis, benefits/barriers to physical activity and self-efficacy for physical activity were significant predictors of physical activity ( $R\text{-square} = .209$ ). 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 ( $R\text{-square} = .122$ ). **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. 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.

**Key words:** Osteoporosis preventive behaviors (i.e., calcium intake and physical activity), Health beliefs, Bone mineral density.