

[Bone](#). 2011 Dec 8. [Epub ahead of print]

Independent predictors of all osteoporosis-related fractures among healthy Saudi postmenopausal women: The CEOR Study.

[Rouzi AA](#), [Al-Sibiani SA](#), [Al-Senani NS](#), [Radaddi RM](#), [Ardawi MS](#).

Source

Center of Excellence for Osteoporosis Research, King Abdulaziz University, Jeddah, Saudi Arabia; Department of Obstetrics & Gynecology, Faculty of Medicine & King Abdulaziz University Hospital, King Abdulaziz University, Jeddah, Saudi Arabia.

Abstract

This study was designed to identify independent predictors of all osteoporosis-related fractures (ORFs) among healthy Saudi postmenopausal women. We prospectively followed a cohort of 707 healthy postmenopausal women (mean age, 61.3 ± 7.2 years) for 5.2 ± 1.3 years. Data were collected on demographic characteristics, medical history, personal and family history of fractures, lifestyle factors, daily calcium intake, vitamin D supplementation, and physical activity score. Anthropometric parameters, total fractures (30.01 per 1000 women/year), special physical performance tests, bone turnover markers, hormone levels, and bone mineral density (BMD) measurements were performed. The final model consisted of seven independent predictors of ORFs: [lowest quartile (Q(1)) vs highest quartile (Q(4))] physical activity score (Q(1) vs Q(4): ≤ 12.61 vs ≥ 15.38); relative risk estimate [RR], 2.87; (95% confidence interval [CI]: 1.88-4.38); age ≥ 60 years vs age < 60 years (RR=2.43; 95% CI: 1.49-3.95); hand grip strength (Q(1) vs Q(4): ≤ 13.88 vs ≥ 17.28 kg) (RR=1.88; 95% CI: 1.15-3.05); BMD total hip (Q(1) vs Q(4): ≤ 0.784 vs 0.973 g/cm²) (RR=1.86; 95% CI: 1.26-2.75); dietary calcium intake (Q(1) vs Q(4): ≤ 391 vs ≥ 648 mg/day) (RR=1.66; 95% CI: 1.08-2.53); serum 25(OH)D (Q(1) vs Q(4): ≤ 17.9 vs ≥ 45.1 nmol/L) (RR=1.63; 95% CI: 1.06-2.51); and past year history of falls (RR=1.61; 95% CI: 1.06-2.48). Compared with having none (41.9% of women), having three or more clinical risk factors (4.8% of women) increased fracture risk by more than 4-fold, independent of BMD. Having three or more risk factors and being in the lowest tertile of T-score of [total hip/lumbar spine (L1-L4)] was associated with a 14.2-fold greater risk than having no risk factors and being in the highest T-score tertile. Several clinical risk factors were independently associated with all ORFs in healthy Saudi postmenopausal women. The combination of multiple clinical risk factors and low BMD is a very powerful indicator of fracture risk