

Kekuatan Otot dan Kualiti Hidup dalam Kalangan Dewasa Malaysia Berisiko Keretakan Osteoporotic Rendah dan Sederhana hingga Tinggi (Muscle Strength and Quality of Life in Malaysian Adults with Low and Moderate to High Risk of Osteoporotic Fractures)

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ABSTRAK

Penurunan kekuatan otot dan kualiti hidup memberi impak tinggi ke atas dewasa yang berisiko keretakan osteoporotic. Walaubagaimanapun, kekuatan otot dan kualiti hidup dalam kalangan dewasa Malaysia yang berisiko keretakan osteoporotic tidak diketahui. Tujuan kajian kami adalah untuk mengkaji kekuatan otot dan kualiti hidup serta perkaitannya dalam kalangan dewasa berisiko keretakan osteoporotic rendah dan sederhana hingga tinggi. Kajian keratan-rentas ini melibatkan 27 lelaki dan 78 wanita (purata usia 69.3 ± 85 tahun) dari klinik Ortopedik, Hospital Canselor Tuanku Muhriz Universiti Kebangsaan Malaysia. Kebarangkalian 10 tahun untuk keretakan osteoporotic dikira berdasarkan penilaian risiko keretakan osteoporotic (FRAX) dengan ketumpatan mineral tulang femoral (femoral neck). Peserta kajian telah dikategorikan sebagai rendah dan sederhana hingga tinggi risiko keretakan osteoporotic berdasarkan keputusan FRAX titik potong 10%. Kekuatan otot extensor belakang dan kekuatan genggam tangan dominan telah diukur dengan menggunakan masing-masing sistem sel beban (load cell system) dan dynamometer tangan (hand dynamometer). Borang soal selidik kualiti hidup Eropah (EQ5Dvas) telah digunakan untuk mengukur kualiti hidup. Regresi linear berganda dilakukan dengan kualiti hidup sebagai pembolehubah bergantung dan kekuatan otot extensor belakang dan kekuatan genggam tangan sebagai pembolehubah bebas. Anggaran sebanyak 40% orang dewasa telah dikategorikan ke dalam kumpulan sederhana hingga tinggi risiko keretakan osteoporotic. Purata nilai di antara kumpulan rendah dan sederhana hingga tinggi risiko keretakan osteoporotic bagi mutu kualiti hidup adalah masing-masing 80.5 ± 13.2 dan 76.9 ± 16.9 ($p = 0.77$); kekuatan genggam tangan adalah 25.7 ± 17.3 dan 20.6 ± 5.5 kg ($p < 0.001$) dan otot extensor tulang belakang adalah 25.0 ± 7.0 dan 18.9 ± 9.5 Newton ($p < 0.01$). Kekuatan otot genggam tangan telah muncul sebagai penentu kualiti hidup dan menyumbang sebanyak 5.8% daripada jumlah varians. Peningkatan kekuatan otot boleh menyebabkan kualiti hidup yang lebih baik dalam kalangan dewasa berisiko keretakan osteoporotic.

Kata kunci: Kekuatan otot badan; kekuatan genggam tangan; keretakan osteoporotic; kualiti hidup

ABSTRACT

Reduced muscle strength and quality of life (QoL) has an impact on adults at risk of osteoporotic fractures. Muscle strength and QoL among Malaysian adults at risk of osteoporotic fractures is not known. The aim of our study was to examine muscle strength and QoL status and its relationship among adults at low and moderate to high risk of osteoporotic fractures. In this cross-sectional study, we recruited 27 men and 78 women (mean age 69.3 ± 8.5 years) from Orthopaedic Clinic, Hospital Canselor Tuanku Muhriz Universiti Kebangsaan Malaysia. A 10-year probability of major osteoporotic fractures were calculated according to WHO fracture risk assessment tool (FRAX) with femoral neck BMD (cut-point 10%). Participants were categorized as low and moderate to high risk of osteoporotic fractures based on FRAX results. Back extensor muscle strength and dominant hand grip strength were measured using a load cell system and a hand dynamometer respectively. European QoL questionnaire (EQ5Dvas) was used to measure QoL. Multiple linear regression was performed with QoL as a dependent variable and back extensor muscle strength and hand grip strength as the independent variables. Approximate 40% of adults were categorized into moderate to high risk of osteoporotic fractures. The mean values among the low and moderate to high risk of osteoporotic fractures for QoL was 80.5 ± 13.2 and 76.9 ± 16.9 ($p = 0.77$); hand grip strength was 25.7 ± 17.3 and 20.6 ± 5.5 kg ($p < 0.001$) and back extensor muscle strength was 25.0 ± 7.0 and 18.9 ± 9.5 Newton ($p < 0.01$) respectively. Hand grip muscle strength appeared to be a determinant of QoL and accounted for 5.8% of the total variance. Improved muscle strength may lead to better QoL among adults at risk of osteoporotic fractures.

Keywords: Back extensor strength; hand grip strength; osteoporotic fracture; quality of life

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Received: August 2017
Accepted for publication: January 2018