

Prevalence, Risk Factors and Quality of Life Health Scores of Back Pain Subjects in Singapore - A Population-based, Cross-sectional Study

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Objective: Back pain is a common and debilitating condition that affects many countries. Establishing its current prevalence and associated risk factors in the local community is necessary to determine its updated disease burden in our population and to allow structuring of management strategies. Quality-of-life (QoL) assessment in these subjects with and without back pain improves our understanding of its impact on health, and serves as a control for understanding specific spine pathologies.

Methods: A population-based, cross-sectional study was conducted on subjects who are Singaporean citizens or Permanent Residents above 21 years old, and conversant in the English, Chinese or Malay language. Participants were recruited via multistage random sampling of households and interviewed using questionnaires. Information gathered include 1) presence of back pain, 2) social demographics, 3) medical comorbidities, and 3) QoL assessed via the standard EuroQoL-5D (EQ-5D) questionnaire and Oswestry Disability Index (ODI). Chi-squared test was used to identify back pain and its associated risk factors while adjusting for confounders. ANOVA, t- and Spearman's correlation tests were used to assess EQ-5D and ODI scores against severity of back pain.

Results: Of the 626 subjects interviewed, 99 (15.8%) reported back pain. Significant risk factors for back pain include 1) BMI ≥ 27.5 (RR=1.57, 95%CI=1.02-2.43; P=0.04); 2) white collar occupation (RR=1.75 vs blue-collared occupation, 95%CI=1.16-2.63; P=0.04], and 3) tertiary education (OR=2.09 vs primary education holders, 95%CI=1.165-3.758; P=0.013).

For all the 626 subjects, the mean EQ-5D health state score was 72.7 (TTO 0.91). 527 subjects without back pain had a mean EQ-5D health state score was 73.5 (TTO 0.93). For the 99 subjects with back pain, the mean EQ-5D health state score was 68.5 (TTO 0.84) and the mean ODI score was 8.8 (SD=8.5). ODI scores were affected by pain severity (VAS ≤ 5 vs ≥ 6) [F (2, 79) =5.46; P=0.006] but not affected by duration or frequency of pain. Based on a change in ODI score of 5.224 (95%CI 0.087-1.348; P=0.022) between severe and mild pain subjects and 3.020 (95%CI 0.007-0.953; P=0.046] between moderate and mild pain subjects, a reference change of 3-5 in the ODI scores can be deemed clinically significant towards increasing severity of back pain.

Conclusion: The prevalence of back pain in Singapore exceeds previous global estimates. Identified risk factors for back pain are modifiable and include BMI, white-collared occupations and subjects with tertiary education. ODI and EQ-5D scores of this study serve as good references for future studies investigating specific spine conditions, and in determining clinically significant increase in back pain.