Obesity and falls in older individuals: estimating fall risk and identifying mediating factors

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Introduction: In high income countries, the older adult population (aged 65 years and older) is increasing. It is estimated that 27.3% of the population in the United Kingdom, 22.4% of the population in Australia, and 21.1% of the population in the United States will be aged 65 years and older by 2050 [1]. Fall-related injuries are the most common cause of injury-related hospitalisation for older people [2]. In many high income countries, the prevalence of obesity in older individuals is also increasing [3].

Obesity is increasingly being associated with an elevated risk of falling for older individuals [4, 5]. Factors commonly associated with falls such as sedentary behaviour, mood, medication use, could mediate the association between obesity and falls. The aims of this research were to examine whether obese individuals have a higher reported fall risk than individuals of healthy weight; to examine the influence of weight on fallers’ health-related quality of life; and to identify factors that may mediate the relationship between obesity and falls for older people.

Method: A representative sample of 5,681 community-living individuals aged 65 years and older in New South Wales (NSW), Australia were surveyed regarding their experience of falls, height, weight, lifestyle, doctor-diagnosed physical comorbidities, physical activity participation, prescription medication use and general health within a 12 month period. The response rate was 60.8%. Responses were weighted to reflect the NSW population. Regression analyses estimated relative risks and intervening variable effects were examined using Freedman & Schatzkin’s difference in coefficients tests.

Results: Obese individuals had a 31% higher risk of having fallen (RR 1.31; 95%CI 1.14-1.50) and a 32% higher risk of having multiple falls (RR 1.32; 95%CI 1.08-1.60), but no greater risk of a fall-related injury compared to healthy-weighted individuals. Obese fallers had a 31% higher risk of experiencing moderate/ extreme pain (RR 1.31; 95%CI: 1.17-1.46), 60% more likely to report poor coordination/body instability/ dizziness (RR 1.60; 95%CI: 1.21-2.12), were 26% less likely to walk for 2 or more hours in the last week (RR 0.74; 95%CI: 0.60-0.90) and were 37% less likely to think they were doing enough physical activity (RR 0.63; 95%CI: 0.53-0.75) than healthy-weighted fallers. The strongest mediators of the association between obesity and falls were sleeping tablets (t=-5.452; p<0.0001), sitting for >8 hours per day on weekdays (t=5.178; p<0.0001), heart disease/angina (t=3.526; p<0.0001), anti-depressant use (t=3.102; p=0.002), moderate/extreme anxiety or depression (t=3.038; p=0.002) and diabetes (t=3.032; p=0.002).

Discussion: Obese individuals have an increased risk of falls when compared to individuals of healthy weight. Sedentary behaviour, chronic health conditions and medication use appear to be mediators for the association between obesity and falls. Weight reduction and physical activity have a number of known health benefits and the results of this study suggest that they could extend to reducing risk of falls in older obese people.

Keywords: falls; obesity; older individuals

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