

Review article:

A critical review of Psychological aspects of osteoporosis in elderly women

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Abstract:

Introduction: Despite the substantial psychosocial impact of osteoporosis, little research has been evolved in this area. Our objectives were to observe the psychological implications of osteoporosis in the postmenopausal years of elderly women.

Search strategy: Authors searched the Google Scholar, PUBMED, MEDLINE, EMBASE and selected necessary documents to analyze the results.

Results & Discussions: After diagnosis with osteoporosis or an osteoporotic fracture, many women suffer anxiety for fear of fracture and possible physical effects. Feelings of sadness, anger, stress and denial are also common. Many people lose self-esteem because they cannot perform their normal role at work or at home. The pain and disability due to fractures can affect a person's mental wellbeing, as can the loss of independence through needing assistance for everyday tasks.

Conclusions: Participating in regular weight-bearing exercise such as walking, running, lifting weights, and dancing reduces the psychological complications such as stress, anxiety, depression etc. and fear of fractures by improving self confidence, mood, as well as strength, balance, mobility etc.

Keywords: Osteoporosis, psychological implications

Introduction:

Osteoporosis is a progressive, systemic metabolic disease characterized by a decline in bone density and strength that increases the risk of fracture. In addition to the economic cost, minimal trauma fractures have devastating physical, psychological and social consequences. Pain, deformity, reduced mobility and increasing dependence all have an impact on activities of daily living and can have a profound impact on health-related quality of life. An accurate assessment of the impact of fractures on quality of life is essential to the development of effective and efficient interventions.

Despite the substantial psychosocial impact of osteoporosis, little research has evolved in this area. During the past three decades, knowledge about osteoporosis has increased exponentially. Bone density scores are interpreted for diagnosis, anti-resorptive medicines are prescribed for treatment, weight-bearing and strength-training exercise programs are established, and dietary calcium is increased to fight this disease. Osteoporosis can have a psychological as well as a physical impact: 42% of women with osteoporosis experience depression, 58% a reduced sense of well-being and 41% a reduced quality of life.²⁸ 39% of women feel that osteoporosis has affected their outlook on life.⁴

Research on the psychosocial consequences of osteoporosis

The earliest studies focusing on the psychosocial consequences of osteoporosis appeared in the late 1980s, principally in the geriatric, social science, and nursing literatures. These studies reported findings from small, usually homogeneous, samples of older women with osteoporosis and vertebral or hip fractures. They also were cross-sectional and designed to identify the negative social and psychological impact of osteoporosis in late life.^{5,6} In these studies, stress,⁷ depression,^[5] and psychiatric symptoms^[8] were associated with age, osteoporosis, and vertebral fractures. Researchers in these studies also attempted to define and measure coping strategies used by these women,^{5,9} and the role of social support in the process of coping with osteoporosis.¹⁰ Although none of the studies were randomized clinical trials, they offered a unique look at some of the non-skeletal consequences of this disease. Others provided an overview of this topic for their specific professions, such as nursing.¹¹

Specific psychological outcomes: Depression

Depression and osteoporosis has been the object of increasing interest in the scientific world. Initial reports that suggested a relationship between osteoporosis and depression were again cross-sectional and used small samples.^{5,9} Since that time, however, a collection of studies has linked these two diseases. One of the first was by Schweiger and colleagues,¹² who measured trabecular bone density in the spine in 87 depressed inpatients and 57 healthy controls. They found that depressed patients had lower bone density than controls and that this difference could not be explained by other factors. Another study, by Halbreich and colleagues¹³ evaluated the bone density of 68 psychiatric

inpatients. Male and female inpatients had significantly lower bone mineral density when compared with age- and sex-matched normal data. Psychiatric inpatients, however, may lack access to regular and frequent exercise or calcium-rich diets that promote bone health. Therefore, this population may not have been optimal for testing the effects of depression and other mental illnesses on skeletal health. To overcome the inpatient bias, researchers needed to evaluate the relationship between depression and low bone mass in community residents. Michelson and colleagues¹⁴ initiated a study of the bone density of women with current or past depression. They recruited 24 premenopausal women with current or past major depression, then identified 24 non-depressed controls and matched them with the depressed women on age, body mass index, menopausal status, and race. After measuring spine and hip bone mineral density at five sites, the researchers found it was significantly lower in the depressed women than in the non-depressed women, even in controlled analyses. More recently, Coelho and colleagues¹⁵ evaluated 102 Portuguese community-dwelling women for depression. Forty-seven percent of them had osteoporosis and they had higher levels of depressive symptoms and greater prevalence of depression than did women without osteoporosis. Finally, Robbins and colleagues¹⁶ evaluated data from over 1500 Medicare enrollees (65 or more years old) in a longitudinal cardiac study. They found a significant association between depressive symptoms and bone mineral density even after controlling for osteoporosis risk factors. This longitudinal study unfortunately had only a single measurement of bone density; therefore, causation could not be addressed. These studies focused on the association between depression and bone miner- al

density and were cross-sectional. Whooley and colleagues¹⁷ conducted a prospective study with over 7000 women from the Study of Osteoporotic Fractures (SOF). Their goal was to determine whether or not depression leads to an increase in fractures. Overall, they found no difference between the bone mineral densities in depressed versus non-depressed women. They did find, however, that depressed women were more likely to fall than were non-depressed women. The depressed women had an increased risk of both non-vertebral and vertebral fractures than women without depression. A major limitation of this study is that all participants were Caucasian, thus findings cannot be generalized to the older population at large. Prospective cohort studies are essential for the next step in determining the relationship between depression and bone mineral density or fracture. Especially important is the ability to identify all incident fractures when they occur. This is a difficult task with vertebral fractures, often called “silent fractures,” because they are asymptomatic and difficult to diagnose.¹⁸⁻²⁰ It is essential to have longitudinal data on depression, bone mineral density, and fractures, however, to determine whether or not a causal relationship exists, and without carefully controlled longitudinal studies, investigators are not sure of the correction direction of such a causal relationship.

Social factors and osteoporosis

Compared with the research on depression since 1990, studies of the social impact of osteoporosis are nearly nonexistent. In part, this may be explained by the fact that depression is perceived as a medical problem that can be treated with medicine and psychotherapy, whereas social consequences do not fall within the purview of the physician. Several small pilot studies have examined

briefly the social impact of osteoporosis.^{5, 6, 21} Most studies about the social consequences of osteoporosis are reviews, however.^{11, 22, 23} Despite the fact that social isolation and limitations of social activities are believed to be consequences of vertebral osteoporosis, there have not been meaningful empirical trials of these hypotheses. Some studies that include the word “social” in the title or abstract are somewhat misleading. They really should use “societal” rather than “social,” because the text focuses on the costs of osteoporosis and their impact on society.²⁴ Despite the lack of strong research in this area, several small interventions have tried to improve the negative social outcomes of osteoporosis. For example, Gold and colleagues⁵ established an osteoporosis medical education program for women with vertebral osteoporosis and had patients put through the program in small groups. Although the small-group approach does not generate the greatest financial profit, it does allow within-group bonding that appears to alleviate some of the loneliness and social isolation felt by women with symptomatic vertebral compression fractures. Some medical professionals also believe that increased physical activity can lead to improved quality of life.

Finally, social functioning or participating in social activities is frequently measured as a part of the “quality of life” assessments discussed later. In clinical trials of such instruments, researchers have found that fracture patients experience greater social isolation than non-fracture patients.²⁵⁻²⁷ This substantive area also needs additional research that can identify some of the specific social problems that people with osteoporosis experience.

Psychosocial impact

Minimal trauma fractures are consistently associated with decreased self-esteem, which impairs

the quality of life and contributes to depression.² Fear and anxiety have been reported and body image may be altered as a result of changes in physical appearance from vertebral fractures. Women who believe that osteoporosis and fractures are an inevitable consequence of ageing may be more prone to anxiety because fracture incidence affirms their mortality.²² Fears of falling and sustaining further fracture may be substantial, together with fears of being dependent and institutionalized.³

Loss of social roles and social isolation can eventuate as people limit their activities to preserve their physical state.²² In general, the psychosocial impact of osteoporotic fracture requires further research; there is a need for longitudinal data and results that can be generalized to the broader community.

Impact on Emotional State

In addition to functional impairments, fractures from bone disease can have a negative impact on self-esteem, body image, and mood,¹⁹ which may lead to psychological consequences. Individuals who suffer fractures may be immobilized by a fear of falling and suffering additional fractures. Not surprisingly, they may begin to feel isolated and helpless. In a survey conducted by the National Osteoporosis Foundation, 89 percent of women who had already had an

osteoporotic fracture said they feared breaking another bone; 80 percent were afraid that they would be less able to perform their daily activities; 80 percent feared losing their independence; 73 percent were concerned that they would have to reduce activities with family and friends; and 68 percent worried that another fracture would result in their having to enter a nursing home. If not addressed, fear about the future and a sense of helplessness can produce significant anxiety and depression. These problems may be compounded by an inability to fulfill occupational, domestic, or social duties, thus leading to further social isolation.

Conclusions:

Modification of certain lifestyle factors is recommended for people who have been diagnosed with osteoporosis or who are at risk of developing it. Stopping smoking, avoiding excessive alcohol intake and being in the healthy weight range will reduce the risk. Participating in regular weight-bearing exercise such as walking, running, lifting weights, and dancing should also reduce the risk of falls and future fractures by improving bone and muscle strength, balance and mobility. Postural retraining, exercise, dietary counseling, energy conservation, safety, and psychological counseling are identified as important aspects of treatment.

References:

1. Gureje O, Von Korff M, Simon GE et al. Persistent pain and well-being: a World Health Organization Study in primary care. *Journal of American Medical Association*. 1998; 280:147–51.
2. Reginster JY & Khaltsev NG. Introduction and WHO perspective on the global burden of musculoskeletal conditions. *Rheumatology* 2002; 41(Supplement 1):1–2.
3. Salkeld G, Cameron ID, Cumming RG, Easter S, Seymour J, Kurrle SE, Quine S. Quality of life related to fear of falling and hip fracture in older women: A time trade off study. *BMJ*. 2000 Feb 5;320(7231):341-6.
4. Online market research conducted by Opinion Health between November 20– December 9 2009 among 500 women aged 55 plus with postmenopausal osteoporosis.

5. Gold DT, Bales CW, Lyles KW, et al. Treatment of osteoporosis: the psychological impact of a medical education program on older patients. *J Am Geriatr Soc* 1989;37:417–22.
6. Roberto KA. Women with osteoporosis: the role of the family and service community. *Gerontologist* 1988;28:224–8.
7. Roberto KA. Stress and adaptation patterns of older osteoporotic women. *Women Health* 1988; 14:105–19.
8. Gold DT, Smith SD, Bales CW, et al. Osteoporosis in late life: does health locus of control affect psychosocial adaptation? *J Am Geriatr Soc* 1991;39:670–5.
9. Gold DT, Stegmaier K, Bales CW, et al. Psychosocial functioning and osteoporosis in late life: results of a multidisciplinary intervention. *J Womens Health* 1993;2:149–55.
10. Roberto KA. The role of social supports in older women's recovery from hip fractures. *J Appl Gerontol* 1992;11:314–25.
11. Hallal JC. Osteoporotic fractures exact a toll. *J Gerontol Nurs* 1985;11:13–8.
12. Schweiger U, Deuschle M, Korner A, et al. Low lumbar bone mineral density in patients with major depression. *Am J Psychiatry* 1994;151:1691–3.
13. Halbreich U, Rojansky N, Palter S, et al. Decreased bone mineral density in medicated psychiatric patients. *Psychosom Med* 1995;57:485–91.
14. Michelson D, Stratakis C, Hill L, et al. Bone mineral density in women with depression. *N Engl J Med* 1996;335:1176–81.
15. Coelho R, Silva C, Maia A, et al. Bone mineral density and depression: a community study in women. *J Psychosom Res* 1999;46:29–35.
16. Robbins J, Hirsch C, Whitmer R, et al. The association of bone mineral density and depression in an older population. *J Am Geriatr Soc* 2001;49:732–6.
17. Whooley MA, Kip KE, Cauley JA, et al. Depression, falls, and risk of fracture in older women. Study of Osteoporotic Fractures Research Group. *Arch Intern Med* 1999; 159:484–90.
18. Gold DT. The clinical impact of vertebral fractures: quality of life in women with osteoporosis. *Bone* 1996; 18:185S–90S.
19. Ross PD. Clinical consequences of vertebral fractures. *Am J Med* 1997; 103:30S–43S.
20. Silverman SL. The clinical consequences of vertebral compression fracture. *Bone* 1992; 13: S27–31.
21. Roberto KA, Bartmann J. Factors related to older women's recovery from hip fractures: physical ability, locus of control, and social support. *Health Care Women Int* 1993;14:457–68.
22. Gold DT. The nonskeletal consequences of osteoporotic fractures. Psychologic and social outcomes. *Rheum Dis Clin North Am* 2001;27:255–62.
23. Gold DT, Shipp KM, Lyles KW. Managing patients with complications of osteoporosis. *Endocrinol Metab Clin North Am* 1998;27:485–96.
24. Joel ME, Le Gales C. Social and economic aspects of osteoporosis. *Curr Opin Rheumatol* 1998; 10:362–7.

25. Cook DJ, Guyatt GH, Adachi JD, et al. Quality of life issues in women with vertebral fractures due to osteoporosis. *Arthritis Rheum* 1993;36:750–6.
26. Lips P, Cooper C, Agnusdei D, et al. Quality of life in patients with vertebral fractures: validation of the Quality of Life Questionnaire of the European Foundation for Osteoporosis (QUALEFFO). Working Party for Quality of Life of the European Foundation for Osteoporosis. *Osteoporos Int* 1999;10:150–60.
27. Randell AG, Bhalerao N, Nguyen TV, et al. Quality of life in osteoporosis: reliability, consistency, and validity of the Osteoporosis Assessment Questionnaire. *J Rheumatol* 1998;25:1171–9.

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