

Osteoporosis: Preventable silent killer



Rose-Marie Boylan*

Health Economics & Outcomes, Independent Researcher, Canada

Submission: November 02, 2021; **Published:** November 24, 2021

***Corresponding author:** Rose-Marie Boylan, Health Economics & Outcomes, Independent Researcher, Canada

Facts & Figures Burden of Illness

- a. 54 million Americans- have low bone density or osteoporosis [1].
- b. 1.5 up to 2 million Canadians are diagnosed with osteoporosis [2].
- c. 1 in 3 women will suffer from osteoporosis & 1 in 5 men will get osteoporosis [2].
- d. 20% of women will die within the first year following a hip fracture & up to 37-40% of men will die in the first year following a hip fracture. (<http://www.osteoporosis.ca/osteoporosis-and-you/osteoporosis-facts-and-statistics/>)
- e. Hip fractures from osteoporosis take up more hospital bed days than stroke, diabetes, or heart attack [2].
- f. In the United States there are 2 million broken bones due to osteoporosis a year. This equals 5,500 bone breaks per day. Only 2 in 10 of these patients will get a follow-up test or treatment [1].
- g. Every 3 seconds worldwide someone breaks a bone due to osteoporosis (International Osteoporosis Foundation).
- h. Less than 20% of the patients fractured in Canada undergo diagnosis or appropriate treatment for osteoporosis [2].
- i. By 2050, the worldwide incidence of hip fracture in men is projected to increase by 310% & 240% in women.

A Silent Killer, a Silent Disease

“Most excess deaths occur in the first 6 months after a hip fracture [3-5] Like a robber who creeps into our home at night silently stealing from us, osteoporosis does just that. Only this thief robs us of the basic framework that upholds our entire physical structure; our bones. Osteoporosis demineralizes our skeletal structure & the framework that holds us up and protects our internal organs. This is the fundamental structure which allows us to walk, move, perform life’s daily activities & even feel grounded on the earth against gravity & other accelerations. In a pandemic where social distancing is controlled & patients are alienated: Osteoporosis can be a death sentence for persons

living alone in a pandemic. The cost of public health measures is a humanistic, social & ethical cost as it reduces women or men with hip fractures access to family or social support, nutrition & protection. About one in two women & up to one in four men over the age of 50 will break a bone due to osteoporosis [2]. In the United States alone this represents an estimated two million broken bones every year [1].

What is Osteoporosis?

27% of patients enter a nursing home for the 1st time after a hip fracture [5].

Osteoporosis thins out our bones making them weak & reduce their strength. Osteoporosis means “porous bone”. It is a disease where the quality and the actual density of the bones become reduced. “Os” means bone, “porosis” means “poris”; whilst creating holes in our bones and weakening them. The most common sites where we will break a bone with a minor injury will be the wrist, spine, shoulder or hip according to specialists who treat the disease. A man aged 50 or older is more likely to break a bone due to osteoporosis than he is of getting prostate cancer [1]. When we look at an experimental bone biopsy according to Dr. Paul Sidani who led previously the Clinic of Menopause, Osteoporosis & Prevention of Fractures at the Santa Cabrini Hospital in Montreal, Canada, he states “these bones look almost like Swiss cheese when viewing the vertebrae bones because they have become so porous with holes”. Dr. Sidani who has been practicing for several decades, recently stated that some patients even with something as innocuous as a sneeze, may fracture their ribs due to fragility. This is what we call a fragility fracture not caused by a traumatic accident.

Normal Bones vs. Weak Bones

One year after a hip fracture, 40% of patients are unable to walk independently, 80% are restricted in other daily activities such as driving & even grocery shopping [5].

If you take a normal vertebrae or bone and apply pressure to it, it will resist. If you take a bone with a low bone density that is weak or at risk and porous with holes; it will collapse,

smash and fracture. When someone loses their height, this is an indication that a vertebrae has smashed. When someone fractures a wrist and has risk factors for osteoporosis it is time to consult a specialist for a bone density test. In these instances, the bone density has become weak & the person is at risk of a fragility fracture. This is osteoporosis. This is what happens to us after the age of 50. After the age of 40, all fractures should be considered suspicious, especially in women.

Myth # 1: Osteoporosis is a women's health issue

A man aged 50 or older is more likely to break a bone due to osteoporosis than he is of getting prostate cancer. A woman's risk of breaking a hip due to osteoporosis is equal to her risk of breast, ovarian and uterine cancer combined [1] Women and men alike begin to lose bone in their mid-30s. Women as they approach menopause, lose bone at a greater rate, about 2-3 per cent per year [2]. Despite being more frequently diagnosed in females, osteoporosis occurs in men too. Osteoporosis is both under diagnosed & underreported in males [6-7]. 2/3 of vertebral fractures remain undiagnosed [5].

Myth # 2: Osteoporosis is not a costly disease

The annual cost of osteoporosis & fractures was estimated at \$22 billion dollars in the United States in 2008. [8] In Canada, it was estimated at \$2.3 billion dollars in 2010

People in Canada & the United States are living much longer than ever. The World Health Organization (WHO) data from 2010 predicts the average life expectancy of males to be 75.9 years and that of females to be 81.2 years of age. For 2008, the annual cost of osteoporosis & fractures was estimated at \$22 billion dollars in the United States [8]. These figures on the burden of illness in the United States correlate with other figures based on different methodologies which were projected from the costs of \$16 billion dollars in 2002 which reviewed a U.S. based population sample of the elderly [7]. Other experts in the field then projected the cumulative costs for osteoporosis over the next 2 decades to exceed \$474 billion dollars in the United States alone [7-15 and 17-19]. Comparatively in Canada, "the overall yearly costs of osteoporosis were estimated to be \$2.3 billion dollars in 2010. These costs only include acute care costs, outpatient care costs, prescription drug costs & indirect costs." These costs allegedly rise anywhere from \$3.9 up to \$4.1 billion if a proportion of Canadians were assumed to be living in long-term care facilities because of osteoporosis [7].

With hip fractures from osteoporosis taking up more hospital bed days than stroke, diabetes, or heart attack [2]. It would be important to do a burden of illness study to evaluate the combined bed days for osteoporosis fractures associated with 27% of the elderly being institutionalized following a hip fracture & compare these bed days to the costs of other chronic illnesses to get a true depiction of the societal impact of this silent disease which goes under reported. This way our governments could monitor the economic impact this disease has on our aging population,

institutionalization & develop programs for intervention, prevention in adolescents to reduce healthcare expenditures for sustainability for nations & economic productivity. "A study recently reported that only 44% of people discharged from hospital for a hip fracture return home; of the rest, 10% go to another hospital, 27% go to rehabilitation care, and 17% go to long-term care facilities [2]. After the first fracture, patients are likely to experience a subsequent fracture because patients are both under diagnosed and under treated despite the availability of effective medicines and pharmaceutical innovation in bringing new medicines to market [20-30]. Sadly, osteoporosis is an avoidable & preventable disease if we increase our care of those at risk. Risk factors include age, sex, vertebral compression fractures, a fragility fracture after the age of 40 [31-37]. Other risk factors include, if & when either parent has had a hip fracture, if a patient has been taking glucocorticoid drugs for more than 3 months, if a patient has a medical condition that inhibits the absorption of nutrients, when patients have a low calcium intake from foods and other medical conditions or medications that contribute to bone loss [1,2].

There is good news: Together we can make a difference

It is important to speak with your physician, because our general practitioners can refer people who are vulnerable to a specialist like a gynecologist, an endocrinologist, a rheumatologist and even orthopedic/orthopaedic surgeons who specialize in the disease. See a dietitian to protect your bones and learn how to eat properly to increase your bioavailability of calcium.

Risk Factors

There are a variety of factors - both those we can control & those which are harder to control; what we call uncontrollable risk factors.

Uncontrollable Risk Factors

Try to monitor these uncontrollable risk factors in yourself & your loved ones by seeing a physician:

- Being over the age of 50.
- Being a female, but also being a male poses some risks as we saw earlier.
- Family history of osteoporosis.
- Low body weight/being small and thin.
- Broken bones or height loss.

Controllable Risk Factors

Try to make these lifestyle medicine changes: "Controllable risk factors."

Taking Appropriate Medication for your condition

After a fracture make sure you seek medical attention to discuss what intervention is best for you including the appropriate

use of a medication & ensuring you get the proper diagnostic tests to assess your risks & whether you have had a fragility fracture.

Nutrition

- a) Eat more calcium rich foods & foods rich in Vitamin D.
- b) Eat more fruits & vegetables.
- c) Reduce your over consumption of protein, sodium & caffeine.
- d) Live an active life.
- e) Stop smoking.
- f) Reduce your alcohol consumption.

Osteoporosis has been called a pediatric disease with geriatric consequences [2]. Osteoporosis is a financial devastating emotional burden on our society for both caregivers and those who suffer from the disease. The burden of disability & pain results in loss of autonomy, loss of self-esteem & time off work for patients & caregivers alike. This can also result in unemployment. Unemployment for persons at risk & caregivers further exacerbates the social & financial burden on our society.

References

1. (2015) National Osteoporosis Foundation. (<http://nof.org>) retrieved November 20th-25th.
2. (2015) Osteoporosis Canada. <http://www.osteoporosis.ca/osteoporosis-and-you/osteoporosis-facts-and-statistics/>
3. (2009) Public Health Agency of Canada.
4. (2004) World Health Organization Scientific Group on the Assessment of Osteoporosis at primary healthcare level. Summary Meeting Report, Brussels, Belgium, May 5th-7th. World Health Organization.
5. Cooper C (1997) The crippling consequences of fractures and their impact on quality of life. *Am J Med* 103(2A): 12S-17S.
6. Solomon DH, Morris C, Cheng H, Cabral D, Katz J, et al. (2005) Medication use patterns for osteoporosis: An assessment of guidelines, treatment rates, and quality improvement interventions. *Mayo Clinic Proceed* 80(2): 194-202.
7. Tarride JE, Hopkins RB, Leslie WD, Morin S, Adachi JD, et al. (2012) The burden of illness of osteoporosis in Canada. *Osteoporosis International* 23(11): 2591-2600.
8. Blume SW, Curtis JR (2011) Medical costs of osteoporosis in the elderly medicare population. *Osteoporosis International* 22 (6): 1835-1844.
9. Osteoporosis: The Orthopaedic Health Policy Perspective.
10. Rousculp MD, Long SR, Wang S, Schoenfeld MJ, Meadows ES (2007) Economic burden of osteoporosis-related fractures in Medicaid. *Value Health* 10(2):144-52.
11. Elixhauser A, Steiner C, Harris DR, Coffey RM (1998) Comorbidity measures for use with administrative data. *Med Care* 36(1):8-27.
12. (2008) World Health Organization. World health statistics.
13. (2008) American Academy of Orthopaedic Surgeons, Burden of musculoskeletal disease in the United States: prevalence, societal and economic cost.
14. Gehrig L (2014) The importance of Sexual Dimorphism Research. *AAOS Now*.
15. (2015) American Academy of Orthopaedic Surgeons retrieved November 25th.
16. (2009) American Academy of Orthopaedic Surgeons, Osteoporosis/ Bone health in adults as a national public health priority. Position Statement 1113.
17. Roche JJ, Wenn RT, Sahota O, Moran CG (2005) Effect of comorbidities and postoperative complications on mortality after hip fracture in elderly people: prospective observational cohort study. *BMJ*. 331(7529): 1374.
18. <http://www.iofbonehealth.org/whos-risk>
19. (2015) National Osteoporosis Foundation <http://nof.org/OPmyths>.
20. (2009) Public Health Agency of Canada. What is the impact of osteoporosis in Canada and what are Canadians doing to maintain bone health? Fast Facts from the 2009 Canadian Community Health Survey-Osteoporosis Rapid Response. 2015).
21. (1994) World Health Organisation. Assessment of fracture risk and its implication to screening for postmenopausal osteoporosis: Technical report series 843. Geneva.
22. Kamel HK, Hussain MS, Tariq S, Perry HM, Morley JE (2000) Failure to diagnose and treat osteoporosis in elderly patients hospitalized with hip fracture. *Amer J Med* 109(4): 326-328.
23. Andrade SE, Majumdar SR, Chan KA, Buist DS, Go AS, et al. (2003) Low frequency of treatment of osteoporosis among postmenopausal women following a fracture. *Arch Int Med* 163(17): 2052-2057.
24. Torgerson DJ, Dolan P (1998) Prescribing by general practitioners after an osteoporotic fracture. *Annals Rheum Dis* 57(6): 378-379.
25. Chrischilles EA, Butler CD, Davis CS, Wallace RB (1991) A model of lifetime osteoporosis impact. *Arch Intern Med* 151(10): 2026-2032.
26. Morris CA, Cabral D, Cheng H, Katz JN, Finkelstein JS, Avorn J, et al. (2004) Patterns of bone mineral density testing: current guidelines, testing rates, and interventions. *J Gen Int Med* 19(7): 783-790.
27. Harrington JT, Broy SB, Derosa AM, Licata AA, Shewmon DA (2002) Hip fracture patients are not treated for osteoporosis: a call to action. *Arth & Rheum* 47(6): 651-654.
28. Eisman J, Clapham S, Kehoe L, Australian BoneCare S (2004) Osteoporosis prevalence and levels of treatment in primary care: the Australian BoneCare Study. *J Bone Min Research* 19(12): 1969-1975.
29. Follin SL, Black JN, McDermott MT (2003) Lack of diagnosis and treatment of osteoporosis in men and women after hip fracture. *Pharmacotherapy* 23(2): 190-198.
30. Majumdar SR, Rowe BH, Folk D, Johnson JA, Holroyd BH, et al. (2004) A controlled trial to increase detection and treatment of osteoporosis in older patients with a wrist fracture. *Annals Int Med* 141(5):366-373.
31. Kanis JA, Johansson H, Odén A, Johnell O, De Laet C, et al. (2004) A family history of fracture and fracture risk: a meta-analysis. *Bone* 35(5): 1029-1037.
32. Kanis JA, De Laet C, Delmas P, Garnero P, Johansson H, et al. (2004) A meta-analysis of previous fracture and fracture risk. *Bone* 35(2): 375-382.
33. Kanis J A, Johansson H, Odén A, Johnell O, De Laet C, et al. (2004) A meta-analysis of prior corticosteroid use and fracture risk. *J Bone and Miner Res* 19(6): 893-899.
34. Kanis JA, Johansson H, Johnell O, Odén A, De Laet C (2005) Alcohol intake as a risk factor for fracture. *Osteoporosis Int* 16(7): 737-742.

35. Kanis JA, Johnell O, Odén A, Johansson H, De Laet C, Eisman JA (2005) Smoking and fracture risk: a meta-analysis. *Osteoporosis Int*16(2): 155-162.
36. Gulberg B, Johnell O, Kanis JA (1997) World-wide projections for hip fracture. *Osteoporosis Int* 7:407.
37. <https://www.bones.nih.gov/health-info/bone/osteoporosis/fracture>



This work is licensed under Creative Commons Attribution 4.0 License
DOI: [10.19080/JOJOOS.2021.03.555606](https://doi.org/10.19080/JOJOOS.2021.03.555606)

**Your next submission with Juniper Publishers
will reach you the below assets**

- Quality Editorial service
- Swift Peer Review
- Reprints availability
- E-prints Service
- Manuscript Podcast for convenient understanding
- Global attainment for your research
- Manuscript accessibility in different formats
(Pdf, E-pub, Full Text, Audio)
- Unceasing customer service

Track the below URL for one-step submission

<https://juniperpublishers.com/online-submission.php>