

Document details

[Back to results](#) | 1 of 1
[Export](#) [Download](#) [Print](#) [E-mail](#) [Save to PDF](#) [Add to List](#) [More... >](#)
[Full Text](#) [View at Publisher](#)

Journal of Pharmacy and Bioallied Sciences [Open Access](#)
 Volume 9, Issue 3, July-September 2017, Pages 178-184

Increased risk of osteoporosis in depressive patients with erectile dysfunction: A cross-sectional study from Malaysia (Article)

Fata Nahas, A.R.^{ab} , Syed Sulaiman, S.A.^a 

^aDiscipline of Clinical Pharmacy, School of Pharmaceutical Sciences, Universiti Sains Malaysia, Minden Heights, Gelugor, Penang, Malaysia

^bDepartment of Pharmacy Practice, Kulliyah of Pharmacy, International Islamic University Malaysia, Pahang, Malaysia

Abstract

 [View references \(54\)](#)

Background: Depression imposes numerous changes on depressive men, promoting low bone mineral density (BMD) and erectile dysfunction (ED), yet no published data on exploring the possible association between these two disorders among depressive men. We therefore investigated whether low BMD is associated with ED among depressive men and highlighted the possible mutual underlying factors that might give rise to these two disorders in this specific group of patients. **Materials and Methods:** In this cross-sectional study, 119 depressive men were recruited and their sociodemographic and clinical characteristics were obtained. Erectile function was evaluated using the 5-item International Index of Erectile Function. All patients received a calcaneal BMD scanning. Chi-square test was conducted to determine if a significant association exists between ED and low BMD. **Results:** Of the study participants, ninety patients reported ED, while 29 patients reported no ED. Within the ED group, there was a significantly higher proportion of patients with low BMD compared to the non-ED group (85.6% vs. 62.1%, $P = 0.006$). In addition, among younger participants (i.e., aged < 50 years old), the difference in T-score between ED patients ($Md = -2.2$, $n = 41$) and non-ED patients ($Md = -1.3$, $n = 20$) was significant ($P = 0.001$); but held no significance among older participants. **Conclusions:** While our findings are considered prefatory, we reported that low BMD was significantly associated with ED in depressive men and that only among young depressive patients, BMD was significantly lower in ED patients compared to non-ED patients. More research investigating these findings and the possible underlying mechanisms for such association are warranted.

Reaxys Database Information

 [View Compounds](#)

Author keywords

Bone mineral density depression erectile dysfunction men osteoporosis

Indexed keywords

EMTREE medical terms:	adult	Article	bone density	clinical evaluation	clinical feature	controlled study
			cross-sectional study	demography	depression	disease association erectile dysfunction
	human	International Index of Erectile Function		major clinical study	Malaysia	male
	osteoporosis	priority journal	risk assessment	social status		

Metrics

0 Citations in Scopus

0 Field-Weighted Citation Impact



PlumX Metrics

Usage, Captures, Mentions, Social Media and Citations beyond Scopus.

Cited by 0 documents

Inform me when this document is cited in Scopus:

[Set citation alert >](#)

[Set citation feed >](#)

Related documents

Association between Depressive Symptoms and Bone Stiffness Index in Young Adults: The Kangwha Study

Oh, S.M. , Kim, H.C. , Kim, K.M. (2013) *PLoS ONE*

Serotonin rising [5]

Anderson, G.M. , Cook Jr., E.H. , Blakely, R.D. (2009) *New England Journal of Medicine*

Diagnosing erectile dysfunction: Flow-chart

Forestà, C. , Caretta, N. , Palego, P.

(2005) *International Journal of Andrology, Supplement*

View all related documents based on references

Find more related documents in Scopus based on:

[Authors >](#) [Keywords >](#)

References (54)

[View in search results format >](#)

All [Export](#) [Print](#) [E-mail](#) [Save to PDF](#) [Create bibliography](#)

- 1 Consensus development conference: Diagnosis, prophylaxis, and treatment of osteoporosis

(1993) *The American Journal of Medicine*, 94 (6), pp. 646-650. Cited 1716 times.

[View at Publisher](#)

-
- 2 Reginster, J.-Y., Burlet, N.

Osteoporosis: A still increasing prevalence

(2006) *Bone*, 38 (2 SUPPL. 1), pp. S4-S9. Cited 384 times.
doi: 10.1016/j.bone.2005.11.024

[View at Publisher](#)

-
- 3 Rao, S.S., Budhwar, N., Ashfaque, A.

Osteoporosis in men

(2010) *American Family Physician*, 82 (5), pp. 503-508. Cited 26 times.
<http://www.aafp.org/afp/2010/0901/p503.pdf>

[View at Publisher](#)

-
- 4 NIH Consensus Conference. Impotence. NIH Consensus Development Panel on Impotence.

(1993) *Journal of the American Medical Association*, 270 (1), pp. 83-90. Cited 944 times.
doi: 10.1001/jama.270.1.83

[View at Publisher](#)

-
- 5 Akkus, E., Kadioglu, A., Esen, A., Doran, S., Ergen, A., Anafarta, K., Hattat, H.

Prevalence and correlates of erectile dysfunction in Turkey: A population-based study

(2002) *European Urology*, 41 (3), pp. 298-304. Cited 158 times.
doi: 10.1016/S0302-2838(02)00027-1

[View at Publisher](#)

-
- 6 Dursun, M., Özbek, E., Otunctemur, A., Cakir, S.S.

Possible association between erectile dysfunction and osteoporosis in men

(2015) *Prague medical report*, 116 (1), pp. 24-30. Cited 3 times.
doi: 10.14712/23362936.2015.42

[View at Publisher](#)

-
- 7 Panza, F., Frisardi, V., Capurso, C., D'Introno, A., Colacicco, A.M., Imbimbo, B.P., Santamato, A., (...), Solfrizzi, V.

Late-Life depression, mild cognitive impairment, and dementia: Possible continuum?

(2010) *American Journal of Geriatric Psychiatry*, 18 (2), pp. 98-116. Cited 288 times.
<http://www.sciencedirect.com/science/journal/10647481>
doi: 10.1097/JGP.0b013e3181b0fa13

[View at Publisher](#)

-
- 8 World Health Organization. Depression. WHO Media Centre [Last updated on 2017 Feb 01; Last cited on 2017 Mar 19]

<http://www.who.int/mediacentre/factsheets/fs369/en/index.html>

- 9 Murray, C.J.L., Vos, T., Lozano, R., Naghavi, M., Flaxman, A.D., Michaud, C., Ezzati, M., (...), Lopez, A.D.
Disability-adjusted life years (DALYs) for 291 diseases and injuries in 21 regions, 1990-2010:
A systematic analysis for the Global Burden of Disease Study 2010
- (2012) *The Lancet*, 380 (9859), pp. 2197-2223. Cited 3560 times.
<http://www.journals.elsevier.com/the-lancet/>
doi: 10.1016/S0140-6736(12)61689-4

[View at Publisher](#)

- 10 Brown, E.S., Varghese, F.P., McEwen, B.S.
Association of depression with medical illness: Does cortisol play a role?
- (2004) *Biological Psychiatry*, 55 (1), pp. 1-9. Cited 356 times.
www.elsevier.com/locate/biopsychiat
doi: 10.1016/S0006-3223(03)00473-6

[View at Publisher](#)

- 11 Ilias, I., Alesci, S., Gold, P.W., Chrousos, G.P.
Depression and osteoporosis in men: association or causal link?
- (2006) *Hormones (Athens, Greece)*, 5 (1), pp. 9-16. Cited 18 times.
doi: 10.14310/horm.2002.11164

[View at Publisher](#)

- 12 Yadav, V.K., Ryu, J.-H., Suda, N., Tanaka, K.F., Gingrich, J.A., Schütz, G., Glorieux, F.H., (...), Karsenty, G.
Lrp5 Controls Bone Formation by Inhibiting Serotonin Synthesis in the Duodenum
- (2008) *Cell*, 135 (5), pp. 825-837. Cited 507 times.
doi: 10.1016/j.cell.2008.09.059

[View at Publisher](#)

- 13 Dinan, T.G., Dinan, T.
Inflammatory markers in depression
- (2009) *Current Opinion in Psychiatry*, 22 (1), pp. 32-36. Cited 127 times.
doi: 10.1097/YCO.0b013e328315a561

[View at Publisher](#)

- 14 Rizzoli, R., Cooper, C., Reginster, J.-Y., Abrahamsen, B., Adachi, J.D., Brandi, M.L., Bruyère, O., (...), Vestergaard, P.
Antidepressant medications and osteoporosis
- (2012) *Bone*, 51 (3), pp. 606-613. Cited 65 times.
doi: 10.1016/j.bone.2012.05.018

[View at Publisher](#)

- 15 Mussolini, M.E., Jonas, B.S., Looker, A.C.
Depression and bone mineral density in young adults: Results from NHANES III
- (2004) *Psychosomatic Medicine*, 66 (4), pp. 533-537. Cited 58 times.
<http://www.psychosomaticmedicine.org/>
doi: 10.1097/01.psy.0000132873.50734.7d

[View at Publisher](#)

- 16 Atlantis, E., Sullivan, T.
Bidirectional association between depression and sexual dysfunction: A systematic review and meta-analysis
(2012) *Journal of Sexual Medicine*, 9 (6), pp. 1497-1507. Cited 101 times.
<http://www.journals.elsevier.com/the-journal-of-sexual-medicine>
doi: 10.1111/j.1743-6109.2012.02709.x
[View at Publisher](#)
-
- 17 Wu, C.-H., Lu, Y.-Y., Chai, C.-Y., Su, Y.-F., Tsai, T.-H., Tsai, F.-J., Lin, C.-L.
Increased risk of osteoporosis in patients with erectile dysfunction
(2016) *Medicine (United States)*, 95 (26), art. no. e4024. Cited 2 times.
<http://journals.lww.com/md-journal>
doi: 10.1097/MD.00000000000004024
[View at Publisher](#)
-
- 18 Altindag, O., Altindag, A., Asoglu, M., Gunes, M., Soran, N., Deveci, Z.
Relation of cortisol levels and bone mineral density among premenopausal women with major depression
(2007) *International Journal of Clinical Practice*, 61 (3), pp. 416-420. Cited 57 times.
doi: 10.1111/j.1742-1241.2006.01276.x
[View at Publisher](#)
-
- 19 Audran, M.J.Y.
Epidemiology, etiology, and diagnosis of osteoporosis
(1992) *Current Opinion in Rheumatology*, 4 (3), pp. 394-401. Cited 9 times.
doi: 10.1097/00002281-199206000-00019
[View at Publisher](#)
-
- 20 Moayyeri, A., Adams, J.E., Adler, R.A., Krieg, M.-A., Hans, D., Compston, J., Lewiecki, E.M.
Quantitative ultrasound of the heel and fracture risk assessment: An updated meta-analysis
(2012) *Osteoporosis International*, 23 (1), pp. 143-153. Cited 103 times.
doi: 10.1007/s00198-011-1817-5
[View at Publisher](#)
-
- 21 Chin, K.-Y., Soelaiman, I.-N., Mohamed, I.N., Mohamed, N., Shuid, A.N., Muhammad, N., Wan Ngah, W.Z.
Discrepancy between the quantitative ultrasound value of malaysian men and the manufacturer's reference and the impact on classification of bone health status
(2013) *Journal of Clinical Densitometry*, 16 (2), pp. 189-195. Cited 14 times.
doi: 10.1016/j.jocd.2012.03.004
[View at Publisher](#)
-
- 22 Baroncelli, G.I.
Quantitative ultrasound methods to assess bone mineral status in children: Technical characteristics, performance, and clinical application
(2008) *Pediatric Research*, 63 (3), pp. 220-228. Cited 122 times.
doi: 10.1203/PDR.0b013e318163a286
[View at Publisher](#)
-
- 23 (2003) *Prevention and Management of Osteoporosis: Report of a WHO Scientific Group*. Cited 376 times.
WHO Technical Report Series Geneva: World Health Organization [Last cited on 2017 Jan 24]
<http://wwwapps.who.int/iris/bitstream/10665/42841/1/WHOTRS921.pdf>

- 24 Rosen, R.C., Cappelleri, J.C., Smith, M.D., Lipsky, J., Peñ, B.M.
Development and evaluation of an abridged, 5-item version of the International Index of Erectile Function (IIEF-5) as a diagnostic tool for erectile dysfunction
(1999) *International Journal of Impotence Research*, 11 (6), pp. 319-326. Cited 1459 times.
[View at Publisher](#)
-
- 25 Lim, T.O., Das, A., Rampal, S., Zaki, M., Sahabudin, R.M., Rohan, M.J., Isaacs, S.
Cross-cultural adaptation and validation of the English version of the International Index of Erectile Function (IIEF) for use in Malaysia
(2003) *International Journal of Impotence Research*, 15 (5), pp. 329-336. Cited 35 times.
doi: 10.1038/sj.ijir.3901009
[View at Publisher](#)
-
- 26 (2002) *Proposed Working Definition of An Older Person in Africa for the MDS Project*. Cited 5 times.
World Health Organization WHO Health Statistics and Information Systems; [Last cited on 2016 Jul 11]
<http://www.who.int/healthinfo/survey/ageingdefolder/en/>
-
- 27 Caplan, L., Saag, K.G.
Glucocorticoids and the risk of osteoporosis
(2009) *Expert Opinion on Drug Safety*, 8 (1), pp. 33-47. Cited 23 times.
<http://www.informapharmascience.com/doi/pdf/10.1517/14740330802648194>
doi: 10.1517/14740330802648194
[View at Publisher](#)
-
- 28 McVary, K.T., McKenna, K.E.
The relationship between erectile dysfunction and lower urinary tract symptoms: epidemiological, clinical, and basic science evidence.
(2004) *Current urology reports*, 5 (4), pp. 251-257. Cited 60 times.
[View at Publisher](#)
-
- 29 Bivalacqua, T.J., Usta, M.F., Champion, H.C., Kadowitz, P.J., Hellstrom, W.J.G.
Endothelial Dysfunction in Erectile Dysfunction: Role of the Endothelium in Erectile Physiology and Disease
(2003) *Journal of Andrology*, 24 (6 SUPPL.), pp. S17-S37. Cited 171 times.
[View at Publisher](#)
-
- 30 Brownlee, K.K., Moore, A.W., Hackney, A.C.
Relationship between circulating cortisol and testosterone: Influence of physical exercise
(2005) *Journal of Sports Science and Medicine*, 4 (1), pp. 76-83. Cited 54 times.
<http://www.jssm.org/vol4/n1/10/y4n1-10pdf.pdf>
[View at Publisher](#)
-
- 31 Clarke, B.L., Khosla, S.
Androgens and bone
(2009) *Steroids*, 74 (3), pp. 296-305. Cited 83 times.
doi: 10.1016/j.steroids.2008.10.003
[View at Publisher](#)
-

- 32 Araujo, A.B., Johannes, C.B., Feldman, H.A., Derby, C.A., McKinlay, J.B.
Relation between psychosocial risk factors and incident erectile dysfunction: Prospective results from the Massachusetts male aging study
(2000) *American Journal of Epidemiology*, 152 (6), pp. 533-541. Cited 96 times.
doi: 10.1093/aje/152.6.533
[View at Publisher](#)
-
- 33 Mezuk, B., Eaton, W.W., Golden, S.H.
Depression and osteoporosis: Epidemiology and potential mediating pathways
(2008) *Osteoporosis International*, 19 (1), pp. 1-12. Cited 78 times.
doi: 10.1007/s00198-007-0449-2
[View at Publisher](#)
-
- 34 Vlachopoulos, C., Rokkas, K., Ioakeimidis, N., Stefanadis, C.
Inflammation, Metabolic Syndrome, Erectile Dysfunction, and Coronary Artery Disease: Common Links{A figure is presented}
(2007) *European Urology*, 52 (6), pp. 1590-1600. Cited 127 times.
doi: 10.1016/j.eururo.2007.08.004
[View at Publisher](#)
-
- 35 Olney, R.C.
Regulation of bone mass by growth hormone
(2003) *Medical and Pediatric Oncology*, 41 (3), pp. 228-234. Cited 67 times.
doi: 10.1002/mpo.10342
[View at Publisher](#)
-
- 36 Hull, K.L., Harvey, S.
Growth Hormone and Reproduction: A Review of Endocrine and Autocrine/Paracrine Interactions
(2014) *International Journal of Endocrinology*, 2014, art. no. 234014. Cited 19 times.
<http://www.hindawi.com/journals/ije/>
doi: 10.1155/2014/234014
[View at Publisher](#)
-
- 37 Cocchi, M., Tonello, L., Gabrielli, F., Pagnolato, M.
Depression, osteoporosis, serotonin and cell membrane viscosity between biology and philosophical anthropology
(2011) *Annals of General Psychiatry*, 10, art. no. 9. Cited 10 times.
<http://www.annals-general-psychiatry.com/content/10/1/9>
doi: 10.1186/1744-859X-10-9
[View at Publisher](#)
-
- 38 Rosen, C.J.
Serotonin rising - the bone, brain, bowel connection
(2009) *New England Journal of Medicine*, 360 (10), pp. 957-959. Cited 40 times.
<http://content.nejm.org/cgi/reprint/360/10/957.pdf>
doi: 10.1056/NEJMmp0810058
[View at Publisher](#)
-
- 39 Shankar, G.S.
Serotonin and sexual dysfunction
(2015) *J Autacoids Horm*, 2015, p. 1000e129.

40 Kennedy, S.H., Rizvi, S.

Sexual dysfunction, depression, and the impact of antidepressants

(2009) *Journal of Clinical Psychopharmacology*, 29 (2), pp. 157-164. Cited 171 times.
doi: 10.1097/JCP.0b013e31819c76e9

[View at Publisher](#)

41 MacIntyre, I., Zaidi, M., Towhidul Alam, A.S.M., Datta, H.K., Moonga, B.S., Lidbury, P.S., Hecker, M., (...), Vane, J.R. Osteoclastic inhibition: An action of nitric oxide not mediated by cyclic GMP

(1991) *Proceedings of the National Academy of Sciences of the United States of America*, 88 (7), pp. 2936-2940. Cited 275 times.
doi: 10.1073/pnas.88.7.2936

[View at Publisher](#)

42 Burnett, A.L., Lowenstein, C.J., Bredt, D.S., Chang, T.S.K., Snyder, S.H. Nitric oxide: A physiologic mediator of penile erection

(1992) *Science*, 257 (5068), pp. 401-403. Cited 982 times.

[View at Publisher](#)

43 Andreazza, A.C., Kauer-Sant'Anna, M., Frey, B.N., Bond, D.J., Kapczinski, F., Young, L.T., Yatham, L.N. Oxidative stress markers in bipolar disorder: A meta-analysis

(2008) *Journal of Affective Disorders*, 111 (2-3), pp. 135-144. Cited 269 times.
doi: 10.1016/j.jad.2008.04.013

[View at Publisher](#)

44 Lu, Y.-R., Fu, X.-Y., Shi, L.-G., Jiang, Y., Wu, J.-L., Weng, X.-J., Wang, Z.-P., (...), Bao, A.-M. Decreased plasma neuroactive amino acids and increased nitric oxide levels in melancholic major depressive disorder

(2014) *BMC Psychiatry*, 14 (1), art. no. 123. Cited 10 times.
<http://www.biomedcentral.com/1471-244X/14/123>
doi: 10.1186/1471-244X-14-123

[View at Publisher](#)

45 Herken, H., Gurel, A., Selek, S., Armutcu, F., Ozen, M.E., Bulut, M., Kap, O., (...), Akyol, O.

Adenosine Deaminase, Nitric Oxide, Superoxide Dismutase, and Xanthine Oxidase in Patients with Major Depression: Impact of Antidepressant Treatment

(2007) *Archives of Medical Research*, 38 (2), pp. 247-252. Cited 172 times.
doi: 10.1016/j.arcmed.2006.10.005

[View at Publisher](#)

46 Eardley, I. Pathophysiology of erectile dysfunction

(2002) *Br J Diabetes Vasc Dis*, 2, pp. 272-276. Cited 17 times.

47 La Vignera, S., Condorelli, R., Vicari, E., D'Agata, R., Calogero, A.E.

Physical activity and erectile dysfunction in middle-aged men

(2012) *Journal of Andrology*, 33 (2), pp. 154-161. Cited 14 times.
<http://www.andrologyjournal.org/cgi/reprint/33/2/154.pdf>
doi: 10.2164/jandrol.111.013649

[View at Publisher](#)

48 Chau, D.L., Edelman, S.V., Chandran, M.

Osteoporosis and diabetes

(2003) *Current Diabetes Reports*, 3 (1), pp. 37-42. Cited 34 times.

www.springer.com

doi: 10.1007/s11892-003-0051-8

[View at Publisher](#)

49 Farhat, G.N., Cauley, J.A.

The link between osteoporosis and cardiovascular disease

(2008) *Clinical Cases in Mineral and Bone Metabolism*, 5 (1), pp. 19-34. Cited 37 times.

50 Ilić, K., Obradović, N., Vujsinović-Stupar, N.

The relationship among hypertension, antihypertensive medications, and osteoporosis: A narrative review

(2013) *Calcified Tissue International*, 92 (3), pp. 217-227. Cited 29 times.

doi: 10.1007/s00223-012-9671-9

[View at Publisher](#)

51 Brown, S.A., Sharpless, J.L.

Osteoporosis: An under-appreciated complication of diabetes

(2004) *Clin Diabetes*, 22, pp. 10-20. Cited 51 times.

52 Oh, S.M., Kim, H.C., Kim, K.M., Ahn, S.V., Choi, D.P., Suh, I.

Association between Depressive Symptoms and Bone Stiffness Index in Young Adults: The Kangwha Study

(2013) *PLoS ONE*, 8 (7), art. no. e69929. Cited 4 times.

<http://www.plosone.org/article/fetchObjectAttachment.action?jsessionid=DFA8DC717C194F025C5709F30C8A5C092&uri=info%3Adoi%2F10.1371%2Fjournal.pone.0069929&representation=PDF>

doi: 10.1371/journal.pone.0069929

[View at Publisher](#)

53 Feldman, H.A., Goldstein, I., Hatzichristou, D.G., Krane, R.J., McKinlay, J.B.

Impotence and its medical and psychosocial correlates: Results of the Massachusetts Male Aging Study

(1994) *Journal of Urology*, 151 (1), pp. 54-61. Cited 3424 times.

[View at Publisher](#)

54 Miller, P.D., Zapalowski, C., Kulak, C.A.M., Bilezikian, J.P.

Bone densitometry: The best way to detect osteoporosis and to monitor therapy

(1999) *Journal of Clinical Endocrinology and Metabolism*, 84 (6), pp. 1867-1871. Cited 108 times.

✉ Fata Nahas, A.R.; Discipline of Clinical Pharmacy, School of Pharmaceutical Sciences, Universiti Sains Malaysia,

Minden Heights, Gelugor, Penang, Malaysia; email:abd_mfn@hotmail.com

© Copyright 2017 Elsevier B.V., All rights reserved.

[⟨ Back to results](#) | 1 of 1

[^ Top of page](#)

ELSEVIER

[Terms and conditions](#) [Privacy policy](#)

Copyright © 2018 Elsevier B.V. All rights reserved. Scopus® is a registered trademark of Elsevier B.V.

Cookies are set by this site. To decline them or learn more, visit our Cookies page.

 RELX Group™