

## Documents

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**Spirituality and nature connectedness as mediators between exposure to nature and psychological well-being of school students**

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**Abstract**

Spiritual meditations practiced within green environments develop a perceived interconnection between the self and nature that influences physiological well-being. This study investigates spirituality and natural connectivity as mediators between exposure to nature and psychological well-being in Malaysian school students. This study involved 293 students (178 female and 115 male) from four secondary schools in the Johor Bahru district with survey findings on the Exposure to Nature Scale, Connectedness to Nature Scale, Spiritual Values Scale, and Psychological Well-being Scale. The students in the study fell within the age range of 13 to 16 years, and the average age of the sample was  $11.86 \pm 2.32$  years. Structural equation modeling indicated that high spirituality and nature connectedness mediated the relationship between exposure to nature and psychological well-being. Spirituality significantly influenced the relationship between exposure to nature and psychological well-being more than nature connectedness. These findings indicate that practitioners appreciate the value of certain aspects, like exposure to nature, nature connectedness, and spirituality, as a possible path for enhancing school students' psychological well-being. © 2024 by author(s).

**Author Keywords**

nature; nature connectedness; spirituality; students; well-being

**References**

- Khan, A, Burton, NW.  
**Electronic games, television, and psychological wellbeing of adolescents: mediating role of sleep and physical activity**  
(2021) *International Journal of Environmental Research and Public Health*, 18, p. 8877.
- McCormick, R.  
**Does Access to Green Space Impact the Mental Well-being of Children: A Systematic Review**  
(2017) *Journal of Pediatric Nursing*, 37, pp. 3-7.
- Liu, J, Green, RJ.  
**The effect of exposure to nature on children's psychological well-being: A systematic review of the literature**  
(2023) *Urban Forestry & Urban Greening*, 81, p. 127846.
- Mason, L, Ronconi, A, Scrimin, S, Pazzaglia, F.  
**Short-term exposure to nature and benefits for students' cognitive performance: A review**  
(2021) *Educational Psychology Review*, 34 (2), pp. 609-647.
- Ulset, VS, Borge, AI, Vitaro, F, Brendgen, M, Bekkhus, M.  
**Link of outdoor exposure in daycare with attentional control and academic achievement in adolescence: Examining cognitive and social pathways**  
(2023) *Journal of Environmental Psychology*, 85, p. 101942.

- Arbuthnott, KD, Sutter, GC.  
**Songwriting for nature: increasing nature connection and well-being through musical creativity**  
(2019) *Environmental Education Research*, 25 (9), pp. 1300-1318.
- Berto, R.  
**The role of nature in coping with psycho-physiological stress: A literature review on restorativeness**  
(2014) *Behavioral sciences*, 4 (4), pp. 394-409.
- Morrison, K.  
(2022) *Nature-Based Education for Elementary Students with Attention Deficit-Hyperactivity Disorder*,
- Yang, Y, Cai, H, Yang, Z  
**Why does nature enhance psychological Well-being? A self-determination account**  
(2022) *Journal of Environmental Psychology*, 83, p. 101872.
- Naess, A.  
(2016) *Ecology of Wisdom*,  
Drengson A, editor. UK: Penguin Books
- Hu, Y, Zhou, X.  
**Wilderness Spirit and Ecological Self in the Vision of Ecopsychology**  
(2020) *Environmental Ethics*, 42 (3), pp. 279-288.
- Feng, X, Astell-Burt, T.  
**Residential green space quantity and quality and child well-being: a longitudinal study**  
(2017) *American journal of preventive medicine*, 53 (5), pp. 616-624.
- Chawla, L.  
**Childhood nature connection and constructive hope: A review of research on connecting with nature and coping with environmental loss**  
(2020) *People and Nature*, 2 (3), pp. 619-642.
- Ruf, BM, Wang, DC, Williams, JK.  
**Investigating the many facets of spirituality that mediate the relationship between exposure to nature and psychological well-being**  
(2018) *Research in the Social Scientific Study of Religion*, 29, pp. 75-95.  
Village A, Hood RH, (editors). Brill
- Holt, EW, Lombard, QK, Best, N, Smiley-Smith, S, Quinn, JE.  
**Active and passive use of green space, health, and well-being amongst university students**  
(2019) *International Journal of Environmental Research and Public Health*, 16 (3), p. 424.
- Fretwell, K, Greig, A.  
**Towards a better understanding of the relationship between individual's self-reported connection to nature, personal well-being and environmental awareness**  
(2019) *Sustainability*, 11 (5), p. 1386.
- Bragg, EA.  
**Towards ecological self: Deep ecology meets constructionist self-theory**  
(1996) *Journal of environmental psychology*, 16 (2), pp. 93-108.
- Muslim, HFM.  
(2017) *Childhood nature experience and public affective attitudes towards tropical urban biodiversity conservation*,  
PhD Thesis, Tokyo Metropolitan University

- Huynh, T, Torquati, JC.  
**Examining connection to nature and mindfulness at promoting psychological well-being**  
(2019) *Journal of Environmental Psychology*, 66, p. 101370.
- Kuo, FE, Sullivan, WC.  
**Environment and crime in the inner city: Does vegetation reduce crime?**  
(2001) *Environment and behavior*, 33 (3), pp. 343-367.
- Basu, M, Hashimoto, S, Dasgupta, R.  
**The mediating role of place attachment between nature connectedness and human well-being: Perspectives from Japan**  
(2019) *Sustainability Science*, 15 (3), pp. 849-862.
- Mayer, FS, Frantz, CM, Bruehlman-Senecal, E, Dolliver, K.  
**Why is nature beneficial? The role of connectedness to nature**  
(2008) *Environment and Behavior*, 41 (5), pp. 607-643.
- Swami, V, Barron, D, Weis, L, Furnham, A.  
**Bodies in nature: Associations between exposure to nature, connectedness to nature, and body image in US adults**  
(2016) *Body Image*, 18, pp. 153-161.
- Trigwell, JL, Francis, AJ, Bagot, KL.  
**Nature connectedness and eudaimonic well-being: Spirituality as a potential mediator**  
(2014) *Ecopsychology*, 6 (4), pp. 241-251.
- Leong, LYC, Fischer, R, McClure, J.  
**Are nature lovers more innovative? The relationship between connectedness with nature and cognitive styles**  
(2014) *Journal of Environmental Psychology*, 40, pp. 57-63.
- Roming, S, Howard, K.  
**Coping with stress in college: an examination of spirituality, social support, and quality of life**  
(2019) *Mental Health, Religion & Culture*, 22 (8), pp. 832-843.
- Hurly, J, Walker, GJ.  
**Nature in our lives: Examining the human need for nature relatedness as a basic psychological need**  
(2019) *Journal of Leisure Research*, 50 (4), pp. 290-310.
- Steinhart, E.  
**Spiritual naturalism**  
(2018) *The Philosophy of Spirituality*, pp. 312-338.  
Salazar H, Nicholls R, (editors). Brill
- Mayer, FS, Frantz, CM.  
**The connectedness to nature scale: A measure of individuals' feeling in community with nature**  
(2004) *Journal of environmental psychology*, 24 (4), pp. 503-515.
- Hood, RW.  
**The construction and preliminary validation of a measure of reported mystical experience**  
(1975) *Journal for the scientific study of religion*, 14 (1), p. 29.
- Kamitsis, I, Francis, AJ.  
**Spirituality mediates the relationship between engagement with nature and**

- psychological wellbeing**  
(2013) *Journal of Environmental Psychology*, 36, pp. 136-143.
- Pritchard, A, Richardson, M, Sheffield, D, McEwan, K.  
**The relationship between nature connectedness and eudaimonic well-being: A meta-analysis**  
(2019) *Journal of Happiness Studies*, 21 (3), pp. 1145-1167.
  - van den Bogerd, N, Dijkstra, SC, Tanja-Dijkstra, K  
**Greening the classroom: Three field experiments on the effects of indoor nature on students' attention, well-being, and perceived environmental quality**  
(2020) *Building and Environment*, 171, p. 106675.
  - Martin, L, White, MP, Hunt, A  
**Nature contact, nature connectedness and associations with health, wellbeing and pro-environmental behaviours**  
(2020) *Journal of Environmental Psychology*, 68, p. 101389.
  - Mohamed, TFT, Roslan, S, Zaremohzzabieh, Z, Ahrari, S.  
**Relationship between Spirituality, Nature Connectedness, and Burnout of Schoolteachers during Online Classes amid Covid-19 Pandemic: The Moderating Role of Gender**  
(2022) *International Journal of Learning, Teaching and Educational Research*, 21 (3), pp. 301-318.
  - Muslim, HFM, Hosaka, T, Numata, S, Yahya, NA.  
**Nature-related experience during childhood in urban and rural areas: the case of Peninsular Malaysians**  
(2017) *Urban Studies Research*, 2017, pp. 1-9.
  - Li, H, Zhang, X, You, C  
**Can Viewing Nature Through Windows Improve Isolated Living? A Pathway Analysis on Chinese Male Prisoners During the COVID-19 Epidemic**  
(2021) *Frontiers in Psychiatry*, 12.
  - Baron, RM, Kenny, DA.  
**The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations**  
(1986) *Journal of personality and social psychology*, 51 (6), pp. 1173-1182.
  - Fricke, H, Frölich, M, Huber, M, Lechner, M.  
**Endogeneity and non-response bias in treatment evaluation– nonparametric identification of causal effects by instruments**  
(2020) *Journal of Applied Econometrics*, 35 (5), pp. 481-504.
  - (2021) *Social Statistics Bulletin Malaysia 2018*, Putrajaya, Malaysia: DOSM
  - Francis, AJP.  
(2011) *Nature Exposure Scale*, Unpublished
  - Ryff, CD.  
**Well-being with soul: Science in pursuit of human potential**  
(2018) *Perspectives on Psychological Science*, 13 (2), pp. 242-248.
  - Hatch, RL, Burg, MA, Naberhaus, DS, Hellmich, LK.  
**The spiritual involvement and beliefs scale**  
(1998) *Journal of Family Practice*, 46, pp. 476-486.

- Kamidin, T.  
(2011) *The effect of the application of ecopsychological elements in environmental education on trainee teachers of the Institute of Teacher Education in Malaysia (Indonesian)*,  
[PhD thesis]. Universiti Putra Malaysia
- MacKinnon, DP, Coxé, S, Baraldi, AN.  
**Guidelines for the investigation of mediating variables in business research**  
(2011) *Journal of Business and Psychology*, 27 (1), pp. 1-14.
- Krause, MR, Serlin, RC, Ward, SE, Rony, RYZ, Ezenwa, MO, Naab, F.  
**Testing mediation in nursing research: Beyond Baron and Kenny**  
(2010) *Nursing research*, 59 (4), pp. 288-294.
- Hayes, AF.  
(2017) *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*,  
2nd ed. New York, NY: Guilford publications
- Preacher, KJ, Hayes, AF.  
**Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models**  
(2008) *Behavior research methods*, 40 (3), pp. 879-891.
- Arbuckle, JL.  
(2019) *IBM® SPSS® Amos™ 26 User's Guide*,  
Crawfordville, FL: Amos Development Corporation
- Meyers, LS, Gamst, G, Guarino, AJ.  
**Multiple regression**  
(2006) *Applied multivariate research: Design and interpretation*, pp. 147-196.  
Thousand Oaks, CA: SAGE Publications
- Bentler, PM.  
**Comparative fit indexes in structural models**  
(1990) *Psychological bulletin*, 107 (2), pp. 238-246.
- Chau, PY.  
**Reexamining a model for evaluating information center success using a structural equation modeling approach**  
(1997) *Decision Sciences*, 28 (2), pp. 309-334.
- Bentler, PM, Bonett, DG.  
**Significance tests and goodness of fit in the analysis of covariance structures**  
(1980) *Psychological bulletin*, 88 (3), pp. 588-606.
- Byrne, BM.  
(2016) *Structural equation modeling with AMOS: basic concepts, applications, and programming*,  
New York, NY: Routledge
- Albrecht, NJ.  
**Nature-based mindfulness and the development of the ecological self when teaching in higher education**  
(2020) *Exploring self toward expanding teaching, teacher education and practitioner research*, pp. 157-177.  
Ergas O, Ritter JK, editors. Bingley: Emerald Publishing Limited
- Ibes, DC, Forestell, CA.  
**The role of campus greenspace and meditation on college students' mood**

**disturbance**

(2020) *Journal of American College Health*, 70 (1), pp. 99-106.

- Huynh, TN.  
(2017) *Understanding the roles of connection to nature, mindfulness, and distress on psychological well-being*,  
Master Thesis, University of Nebraska
- Kassymova, K, Kosherbayeva, N, Sangilbayev, S, Schachl, H.  
**Stress management techniques for students**  
(2018) *International Conference on the Theory and Practice of Personality Formation in Modern Society (ICTPPFMS 2018)*,  
Yurga, Russia: Atlantis Press
- Musa, A.  
**Spiritual beliefs and practices, religiosity, and spiritual well-being among Jordanian Arab Muslim university students in Jordan**  
(2015) *Journal of Spirituality in Mental Health*, 17 (1), pp. 34-49.

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