

Peer Review

Review of: "Neurobiology of Music and its Application in Dementia"

Harley Glassman¹

1. Toronto Metropolitan University, Toronto, Canada

Fascinating research area, especially the therapeutic benefits of music therapy on dementia. The introduction could be written a bit more clearly, providing a more specific description of the methods and findings in prior literature. Additionally, while all the work mentioned is seminal, I did not see the relevance of emotional and reward studies on dementia. The introduction could expand on more dementia studies that employ music-based interventions. A few suggested sources:

Sperling, R. A., Dickerson, B. C., Pihlajamäki, M., Vannini, P., LaViolette, P. S., Vitolo, O. V., Hedden, T., Becker, J. A., Rentz, D. M., Selkoe, D. J., & Johnson, K. A. (2010). Functional Alterations in Memory Networks in Early Alzheimer's Disease. *NeuroMolecular Medicine*, 12(1), 27–43. <https://doi.org/10.1007/s12017-009-8109-7>

Cuddy, L. L., & Duffin, J. (2005). Music, memory, and Alzheimer's disease: Is music recognition spared in dementia, and how can it be assessed? *Medical Hypotheses*, 64(2), 229–235. <https://doi.org/10.1016/j.mehy.2004.09.005>

King, J. B., Jones, K. G., Goldberg, E., Rollins, M., MacNamee, K., Moffit, C., Naidu, S. R., Ferguson, M. A., Garcia-Leavitt, E., Amaro, J., Breitenbach, K. R., Watson, J. M., Gurgel, R. K., Anderson, J. S., & Foster, N. L. (2019). Increased Functional Connectivity After Listening to Favored Music in Adults With Alzheimer Dementia. *The Journal of Prevention of Alzheimer's Disease*, 6(1), 56–62. <https://doi.org/10.14283/jpad.2018.19>

Jacobsen, J.-H., Stelzer, J., Fritz, T. H., Chételat, G., La Joie, R., & Turner, R. (2015). Why musical memory can be preserved in advanced Alzheimer's disease. *Brain*, 138(8), 2438–2450. <https://doi.org/10.1093/brain/awv135>

Slattery, C. F., Agustus, J. L., Paterson, R. W., McCallion, O., Foulkes, A. J. M., Macpherson, K., Carton, A. M., Harding, E., Golden, H. L., Jaisin, K., Mummery, C. J., Schott, J. M., & Warren, J. D. (2019). The functional neuroanatomy of musical memory in Alzheimer's disease. *Cortex*, 115, 357–370.
<https://doi.org/10.1016/j.cortex.2019.02.003>

The “Neuroanatomy of Music” section appears useful but lacks the specificity to really make firm conclusions about dementia. It is very basic information, which doesn't add much or have enough content to show its relevance. This section could be greatly enhanced by citing the role of neural substrates that appear to be preserved in dementia (e.g., motor regions and reward pathways). The above literature may help with that.

The “Effects of Music in Caring for Institutionalized Older Persons” is well-written and highlights the importance of music therapy as a complementary treatment to standard treatment practices. The section about newborns did not seem entirely relevant.

Overall, very interesting research, and I look forward to seeing how this work progresses!

Declarations

Potential competing interests: No potential competing interests to declare.