

Letter to the Editor

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Feasibility of a Randomized Controlled Trial to Test the Impact of African Dance on Cognitive Function and Risk of Dementia: the REACT! Study

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Today over 5 million people in the US have Alzheimer's disease (AD) and this number is estimated to rise to 16 million by 2050 if a way to cure, prevent or slow the progress of AD is not found. The costs of providing care are staggering and by 2050 may reach \$1.1 trillion¹. African Americans carry a disproportionate burden since they may be two to three times more likely to have AD compared to non-Hispanic Caucasians. Despite this increased burden, they are less likely to be included in clinical trials. Given the enormous health disparity for AD, there are many efforts underway to identify strategies to recruit more African Americans into research studies on AD and to keep them involved². REACT! was designed to address these issues.

The Rhythm Experience and Africana Culture Trial (REACT!) was a randomized, controlled study designed to assess whether African Dance, as an aerobic exercise, improves cognitive function in older African American adults. The methods for this study have previously been described³, but briefly this was a study in which African Americans age 65 and older were randomly assigned to either a moderate-intensity African Dance intervention or an education/discussion control group. Both groups met for one hour, three times per week over six months. All participants were assessed at baseline prior to randomization and again after the completion of the intervention. Included in the pre- and post-assessments were measures of cognitive function, physical fitness, depression and mood, as well as measures of health and quality of life.

Aerobic exercise is a promising approach for lowering the risk of cognitive impairment and dementia and increasing cognitive function^{4,5,6,7}. In fact, dancing may be a particularly effective method⁸. The REACT! study was designed, in part, to examine the premise that by offering African Americans an intervention that could potentially lower the risk of dementia and was also culturally salient and engaging, participants would be more willing to enroll in the study and also more likely to adhere for six months.

Below we describe lessons learned from our experience implementing this research study. These insights were informed by experiences, observations and comments from study staff and

participants. We feel it is imperative to enroll and retain more African Americans in research on interventions aimed at lowering the risk of dementia. Given this imperative, we felt an examination of what works and what does not work, even if based on anecdotal material, would be an important addition to the literature. We will of course briefly cover these points when we publish the final study results, following final data analysis, but this Letter to the Editor provides a more in-depth examination of these issues.

To make the study successful, we found that the education classes needed to be as compelling and exciting as the African Dance intervention. If not, members of the control group would have no reason to keep attending. Educational activities needed to be tailored for each control group since each cohort was unique and interested in different topics and learning approaches.

One of the most important factors leading to success was hiring an enthusiastic, race-concordant, research coordinator. Everything hinged upon the coordinator who initially contacted potential study participants, consented and pre-tested subjects, designed and executed the education group activities and hired African Dance instructors and then helped to design the specifics of what was covered in the African Dance classes. Given the barriers that exist to recruiting and enrolling African Americans into randomized trials, such as a distrust of being involved in research⁹, a race-concordant research coordinator was more readily trusted and accepted as presenting the study accurately and honestly. When leading the education classes, a race-concordant coordinator was better prepared to handle sensitive topics and issues that arose and was viewed as having a better understanding and knowledge about the material presented. It was essential that the study coordinator be fully versed in African and African American culture and history and also have expertise in designing and implementing educational activities. Having multiple staff who were cross-trained, able to teach dance and education classes, as well as administer pre- and post-tests, proved to be a useful strategy given that instructors and other staff inevitably needed to occasionally miss a day. Cancellation of classes was avoided whenever possible since this would likely impact participants' motivation and enthusiasm and ultimately attendance and retention.

Letting participants know they were valued and appreciated was essential. In addition to designing classes that were engaging and motivating, providing study-related items such as tote bags and t-shirts and ending

each six-month session with a closing ceremony for participants, their guests and REACT! study staff, complete with performances, exhibits, certificates and lunch were further opportunities to say thank you.

Based on our observations, the African Dance intervention and the education control group, as designed and executed, were appealing activities that kept study participants coming back three times a week for six months. A more detailed examination of study participant retention is forthcoming following final data analysis.

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References

1. 2017 Alzheimer's disease facts and figures. *Alzheimer's & Dementia*. 2017; 13(4): 325-73. doi: <http://dx.doi.org/10.1016/j.jalz.2017.02.001>.
2. Barnes LL, Bennett DA. Alzheimer's disease in African Americans: risk factors and challenges for the future. *Health affairs (Project Hope)*. 2014; 33(4): 580-6. Epub 2014/04/09. doi: 10.1377/hlthaff.2013.1353. PubMed PMID: 24711318; PMCID: PMC4084964.
3. Lukach AJ, Jedrziwski MK, Grove GA, et al. Rhythm experience and African culture trial (REACT!): A culturally salient intervention to promote neurocognitive health, mood, and well-being in older African Americans. *Contemporary Clinical Trials*. 2016; 48: 41-5. doi: <http://dx.doi.org/10.1016/j.cct.2016.03.010>.
4. Kramer AF, Hahn S, Cohen NJ, et al. Ageing, fitness and neurocognitive function. *Nature*. 1999; 400.
5. Colcombe SJ, Kramer AF, Erickson KI, et al. Cardiovascular fitness, cortical plasticity, and aging. *PNAS*. 2004; 101(9): 3316-21.
6. Yaffe K, Barnes D, Nevitt M, et al. A prospective study of physical activity and cognitive decline in elderly women. *Arch Intern Med*. 2001; 161: 1703-8.
7. Jedrziwski MK, Ewbank DC, Wang H, et al. The Impact of Exercise, Cognitive Activities, and Socialization on Cognitive Function: Results From the National Long-Term Care Survey. *American journal of Alzheimer's disease and other dementias*. 2014; 29(4): 372-8. Epub 2014/01/11. doi: 10.1177/1533317513518646. PubMed PMID: 24408752; PMCID: PMC4087091.
8. Verghese J, Lipton RB, Katz MJ, et al. Leisure activities and the risk of dementia in the elderly. *N Engl J Med*. 2003; 348(25): 2508-16.
9. Rivers D, August EM, Sehovic I, et al. A systematic review of the factors influencing African Americans' participation in cancer clinical trials. *Contemporary Clinical Trials*. 2013; 35(2): 13-32. doi: <http://dx.doi.org/10.1016/j.cct.2013.03.007>.