

The impact of control conditions on the interpretation of multi-sensory technology interventions

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Abstract

Background: Multi-sensory interventions utilizing technological elements (e.g. projectors, robotics) create opportunities for increased engagement and well-being among nursing home residents with dementia. When evaluating multi-sensory technology, researchers often employ a control condition to measure differences in positive and negative affect. A study's quality may be compromised when researchers fail to provide sufficient details about control conditions, or when inappropriate control activities are chosen.

Method: University research databases were searched for peer-reviewed studies that utilized multi-sensory technology aimed at reducing problem behaviors among nursing home residents with moderate-to-severe dementia. Articles were limited to experimental or quasi-experimental designs published since 2007. A descriptive analysis of the methodologies used in the relevant articles was conducted.

Result: Eleven articles met the selection criteria. A review of the reported design and data collection procedures for the studies revealed three common practices that may impact interpretation of the data. Usual care: Five of the eleven studies (45%) included observation of participants' routine activities for comparison; however, only two provided more than a sentence to describe the control activities, while the other three simply stated that participants spent an equivalent amount of time engaged in "usual care." Recall of behaviors: Three studies (27%) relied on nursing staff recall of behaviors reported pre- and post-intervention. Direct observations were not recorded, and the residents' normal routines were not described. No control: Three studies (27%) introduced novel non-technological activities such as personalized gardening for comparison to the intervention. No control activity was included in the study design.

Conclusion: A review of eleven studies conducted to evaluate innovative multi-sensory technology revealed a lack of consistent design and reporting practices. Publications providing scant details regarding normal routines or a definition of "usual care" create difficulties for researchers who may wish to evaluate, replicate, or improve upon the intervention. Additionally, using a novel non-technological activity for comparison may also affect engagement and the ability to draw accurate conclusions about the intervention's efficacy. Researchers who wish to determine the effectiveness of multi-sensory technology interventions with nursing home residents should carefully select and fully justify the choice of control conditions.