

468 - Can a Robotic Seal Called PARO Manage Chronic Pain in People with Dementia Living in Nursing Homes?

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Abstract

Objective: To evaluate the effect of interaction with a robotic seal (PARO) for pain management in nursing home residents living with dementia.

Methods: Registered with the Australian New Zealand Clinical Trials Registry (ACTRN 12618000082202), a pilot randomized controlled trial followed by semi-structured interviews were conducted between January 2018 and January 2019. Forty-three residents aged ≥ 65 years living with dementia and chronic pain were recruited from three nursing homes in Australia. Participants were randomized to either a PARO group (individual, non-facilitated, 30-minute sessions, five days per week for six weeks) or a usual care group using a computer-generated random number. Observational pain behaviors were rated by researchers using the Pain Assessment in Advanced Dementia (PAINAD) scale and staff-rated pain levels were measured by the numeric rating scale. Medications regularly prescribed and as needed were quantified by the Medication Quantification Scale-III (MQS-III). Generalized estimating equation model and thematic analysis were used to analyze the data.

Results: Participants in the PARO group had significantly lowered level of observed pain (-0.514 , 95% confidence interval [CI] -0.774 to -0.254 , $p < 0.001$) and used fewer PRN medications (-1.175 , 95% CI -2.205 to -0.145 , $p = 0.025$) than those in usual care after controlling for age, gender, cognitive function and medications at baseline. There were no significant differences in staff-rated pain levels and regularly scheduled medications between the two groups. Interviews also indicated that the PARO intervention may reduce the pain experience through distraction and reminiscence of previous positive memories. Limitations of weight, voice and characteristics of PARO were identified.

Conclusions and Implications: PARO shows promise in reducing pain and medications for nursing home residents living with dementia and chronic pain. This intervention might be incorporated into daily practice as an alternative to manage pain in people with dementia. Care staff need to balance the benefits and limitations of incorporating social robots into their clinical practice and residents' individualized preferences need to be considered. Larger randomized controlled trials with longer time frames are warranted to further test the use of PARO in long-term care settings.

Keywords: Social robot, Dementia, Chronic pain, Nursing home

Results from this study have been published as follows:

1. Pu, L., Moyle, W., Jones, C., & Todorovic, M. (2020). The effect of using PARO for people living with dementia and chronic pain: A pilot randomized controlled trial. *Journal of the American Medical Directors Association*. (in press). doi: <https://doi.org/10.1016/j.jamda.2020.01.014>
2. Pu, L., Moyle, W., & Jones, C. (2020). How people with dementia perceive a therapeutic robot called PARO in relation to their pain and mood: A qualitative study. *Journal of Clinical Nursing*, 29(3-4), 437-446. doi: <https://doi.org/10.1111/jocn.15104>