

Social presence in embodied virtual agents among lonely older adults

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Purpose The number of older adults who report being socially isolated or express feelings of loneliness has been increasing in recent decades (Holt-Lunstad et al., 2017; Wilson & Moulton, 2010). This increased prevalence is of paramount concern as loneliness has been implicated in decreases of quality of life (Holt-Lunstad et al., 2017), overall well-being (Hawkley & Cacioppo, 2007), and life expectancy (Shiovitz-Ezra & Ayalon, 2010). The increased prevalence of loneliness in older adults suggests that current therapies and interventions may not be fully adequate. Technology has advanced to the point that long-term social interactions with robotic devices may be possible (Leite et al., 2013), with various companies attempting to develop social robots catered toward older adult populations (Hasbro, 2017; Jibo, 2015; Shiovitz-Ezra & Ayalon, 2010). Given these advances it is important to explore whether older adults would welcome these technologies, the ability of virtual agents (e.g. intelligent personal assistants or robotic assistants) at providing a sense of social copresence, and the effectiveness at alleviating the symptoms of loneliness in vulnerable populations. The present study explores these questions, as well as aims to inform the science of social robotics as to the features that increase social presence for older adults and which features can help alleviate loneliness or social isolation. **Method** The present study sought to identify which physical characteristics improve social presence among older adults, as well examine usability of available devices. Participants undertook a series of social and non-social interactions with a virtual social agent (Alexa by Amazon), a physical, but non-humanoid social agent (a visible Amazon Echo), or an embodied social robot (Jibo robot). Participants were randomly assigned to only one device. Participants then rated the interactions on various scales measuring social presence, usability, and user preference. **Results and Discussion** The results from our study indicated older adults ascribe similar social presence to the virtual social agent and the non-humanoid social agent; however, the social robot to have higher social presence over the two other agents.

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Figure 1. Alexa



Figure 2. Jibo