

PAPER

Social Robotics

E. HARRINGTON, H.M. DO, G. MCCALL, H. BOEVERS, A.J. BISHOP, W. SHENG. *Older adult interaction with social robots: implications for socio-emotional well-being. Gerontechnology 2018;17(Suppl):121s; <https://doi.org/10.4017/gt.2018.17.s.117.00>*

Purpose Recent interest in robotics and care implications for older adults has yielded tremendous advancements in gerontechnology directed towards assistance in late life. Much of the research in this area has been directed towards development of technology that serve a specific physical purpose¹, with fewer dedicated toward technology development for social robots. Some have investigated the potential for social robots from a conceptual standpoint¹; however, others argue that development of social robots that do not serve a physical purpose may be financially impractical². Additionally, there is still a question as to how older adults will respond to social interactions with robots^{1,3}. Considering that much of the literature in this area only discusses social implications from a conceptual standpoint², there is a clear need for development of an actual robot to measure possible socioemotional benefits with older adults. The aim of the current study was to assess the impact of a brief social interaction between a robot and older adult on subjective ratings related to physical and social wellbeing. **Method** Twenty-one older adults (9 male, 12 female; Mean age: 74.67±5.80) completed a 40-minute interactive testing session. Participants first filled out a baseline survey including demographic information and subjective ratings on fatigue (IFS), social relationships (SPS), mood (GDS), emotion (PANAS) and feelings towards robots before interacting with the social robot. Participants completed a series of social interactions with the robot (i.e., basic conversational behaviors: asking current time/weather, playing rock paper scissors, listening to quotes/music) for approximately 10 minutes. After their interaction with the robot, participants filled out a post-survey identical to the baseline survey. **Results & Discussion** IBM/SPSS 20.0 was used to conduct paired sample t-test to determine any evidence of change in statistical means scores between the baseline and follow-up survey scores. A significant mean difference in subjective ratings of fatigue decreased between baseline (M = 24.22, SD = 4.97) and follow-up survey (M = 21.94, SD = 5.67; $t = 2.39, p < .05$). This suggests that even brief interaction with social robots have the potential to improve older adults' physical wellbeing in terms of fatigue. A significant mean difference in subjective ratings of negative affect was detected ($t = 2.47, p < .05$; $t = 2.47, p < .05$), in that negative affect decreased from baseline (M = 17.0, SD = 6.28) to follow-up (M = 14.80, SD = 5.23). Similarly, a significant difference for subjective ratings on social relationships emerged ($t = 2.24, p < .05$); specifically, participants reported increased feelings of social support from baseline (M = 41.90, SD = 4.14) to follow-up (M = 43.05, SD = 4.59). Findings suggest that interactions with social robots can improve the socio-emotional wellbeing of older adults by reducing feelings of negative affect and increasing feelings of closeness with others. Finally, a significant difference in feelings towards social robots was detected, in that participants responded significantly more positive towards social robots from baseline (M = 16.86, SD = 3.73) to follow-up (M = 18.62, SD = 3.58; $p < .001$). Thus, it is possible to improve older adults' feelings on social robots through simple interactions. Taken together, the current study documents the positive impact interactions with social robots can have on older adults' physical and socioemotional wellbeing and feelings towards robots. This has significant implications for independent and assisted living and quality of life as we age.

References

1. Vandemeulebroucke T, Dierckx de Casterle B, Gastmans C. *Aging and Mental Health* 2018; 22 (2):149-167
2. Bedaf S, Jan Gelderblom G, de Witte L. *Assistive Technology* 2015; 27(2):88-100
3. Heerink, Kroese, Evers V, Wielinga B. *Journal of Physical Agents* 2008; 2(2):33-34

Keywords: social robot, older adults, well-being, social support, affect

Address: Oklahoma State University, Stillwater, OK USA;

E: erin.harrington@okstate.edu