



Strategies for building and maintaining social connection for long-term care home residents:

Considerations for COVID-19

Version date: November 23, 2020

Strategies for building and maintaining social connection for long-term care home residents: Considerations for COVID-19

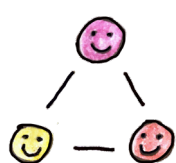
- Social connections are important for the health and wellbeing of people living in long-term care (LTC) homes. The purpose of this report is to provide strategies, identified from published research and illustrated with stakeholder input (including a provincial survey), that can help to build and maintain social connections in LTC residents. These strategies can be used by LTC home staff, families and residents anytime, but the examples are given to highlight ways they might be adapted in the current context of COVID-19 or to help plan for other infectious disease outbreaks.
- Please note three important considerations to the strategies we identified here. First, some represent fundamental aspects of resident care whereas others will not be relevant to some residents' needs, values, family situation and circumstances. Second, not all strategies will be applicable or feasible within the design, culture and context of every LTC home. Third, all strategies rely on a healthy, sustained LTC workforce.

Why are social connections an important consideration for long-term care homes during COVID-19 and other disease outbreaks?

Coronavirus (COVID-19) has taken a disproportionate toll on people living in LTC homes. Infection control measures put in place to protect residents – such as prohibiting visitors and limiting contact with others in the home – have also negatively impacted their health and quality of life. While there is limited research evidence on effective interventions to build and maintain social connection for LTC residents,⁽¹⁻³⁾ and the applicability in the context of disease outbreaks is unclear, strategies are needed to address social connection in LTC both during and beyond COVID-19.

What do we mean by social connections?

In this report, we consider aspects of social connections that have been highlighted specifically for LTC residents:⁽⁴⁾



Social Networks

The web of social relationships that surround an individual and the characteristics of those ties.



Social Support

Emotional, physical, and other help provided by and to others, typically in our social network.



Social Connectedness

Feelings of caring and belonging, the opposite of loneliness.



Social Engagement

Taking part in activities with others, typically in our social network.

How did we identify these strategies?

Knowledge exchange and community participation is fundamental for planning a collective response to COVID-19.^(5, 6) Research can help to identify strategies for building and maintaining social connections, but LTC communities are key to recognizing potential solutions. This report draws on research (a scoping review of published research focused on social connections for LTC residents)^(7, 8) supplemented with input generated from a Behavioural Supports Ontario (BSO) led survey to LTC homes in Ontario and input from LTC staff, families and residents.

What strategies might help build and maintain social connections in LTC residents?

The strategies reported here are approaches, identified from observational and intervention research, that may be helpful. They were highlighted as those that are low-risk, low-cost, familiar concepts in LTC homes that can be implemented or adapted by LTC staff, families and residents during COVID-19 and other infectious disease outbreaks.

1. Manage Pain



Eight observational studies tested the association between pain and social connection or loneliness.⁽⁹⁻¹⁶⁾ Two studies found that pain was associated with lower social connection.^(11, 14) One study suggested influence of pain on social engagement may depend on the level of cognitive impairment.⁽⁹⁾ Another study showed that, among residents with persistent pain, analgesic use was associated with improvements in social engagement.⁽¹⁶⁾ Of the five intervention studies addressing pain (e.g., with pain management programs or analgesic medication),⁽¹⁷⁻²¹⁾ four showed beneficial impact.⁽¹⁷⁻²⁰⁾ It is always important to ensure pain management procedures are followed and residents' pain is assessed, treated and monitored accordingly.

2. Sleep at Night, Not During the Day



Two observational studies tested the impact of sleep on social connection^(11,22) and one found that LTC residents with more sleep disturbances had lower levels of social engagement.⁽²²⁾ One intervention study tested the impact of a sleep intervention and reported increased social engagement.⁽²³⁾ The components of this intervention included:

- Ensure daily sunlight exposure.
- Increase physical activity during the day.
- Implement a structured bedtime routine.
- Decrease nighttime noise and light.

3. Address Vision and Hearing Loss



Seven observational studies showed an association between visual impairment and lower levels of social engagement.⁽²⁴⁻³⁰⁾ For residents with cataracts, cataract surgery was associated with improvements in social interaction.⁽³¹⁾ One randomized controlled trial, assessing the effect of treating uncorrected refractive error by getting glasses showed an improvement in social interaction.⁽³²⁾ Although fewer studies have linked hearing impairment to social engagement,^(29,30) given the apparent influence of dual sensory loss,⁽²⁷⁾ strategies to address hearing impairment would also be useful. Some ways LTC homes can work with families and residents to ensure residents' vision and hearing loss are addressed include:

- Ensure residents are screened for vision and hearing loss on admission and on a regular basis.
- Monitor residents' eye and ear health (e.g., ensuring that wax occlusion is not impairing hearing).
- Encourage and assist residents with wearing their glasses and using their hearing aids. Use cues and reminders that are visual, verbal and/or tactile, (e.g., label storage, establish a consistent routine for using and maintaining glasses and hearing aids, etc.)
- Encourage and assist residents in caring for and maintaining their devices (e.g., cleaning glasses, testing hearing aid batteries, etc.).
- When using videoconference or a telephone to communicate, make sure the volume is adequate and the screen is clean and on full-screen view; and consider using assistive listening/visual devices, adjusting screen size (e.g., tablet or television instead of phone screen) and, if the resident can tolerate headphones, using noise-cancelling headsets.



Left: Hearing Aid. Right: A Resident and Care Partner Watching a Video.

4. Find Opportunities for Creative Expression



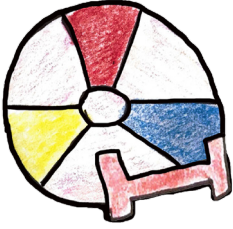
Five intervention studies tested the impact of creative expression programs, including art, music and storytelling, on social connection and all suggested some positive impacts.⁽³³⁻³⁷⁾ Some ways LTC homes can work with families and residents to find opportunities for creative expression during COVID-19 include:

- When isolation is necessary, develop [Isolation Care Plans](#) that include creative activities based on the residents' personhoods (i.e., hobbies, life experiences, etc.) and that might include drawing, painting, poetry, music and other forms of personalized one-on-one creative expression. Create individual 'Activity Kits' specifically for residents that contain a variety of products and resources to keep the resident meaningfully engaged. Invite families to drop off 'Activity Kits', or items to go into the activity kits, for residents.
- Encourage creative expression in group and individual formats, including holding hallway music hours with song requests, making art for windows as well as signs with messages for families and friends, creating books of inspirational quotes and using creativity apps on tablets.
- Use window visits from local musicians to provide concerts for residents.
- Create opportunities for singing and dancing, such as physically distant music groups; consider sharing videos with families and friends (with the appropriate consent).
- Involve community-based programs providing virtual music programming via video conference or telephone.
- Encourage family care partners to incorporate creative expression during in-person visits (e.g., singing, dancing, poetry, music, drumming).



Mississauga Halton Region Long-Term Care Home
Right: A Resident and Care Partner Playing Cards

5. Exercise



Two observational studies and six intervention studies tested the impact of exercise and exercise programs;^(36,38-44) three intervention studies reported improvement in social connection.⁽⁴⁰⁻⁴²⁾ Some ways LTC homes can work with families and residents to ensure residents are able to exercise during COVID-19 include:

- Use pre-recorded, freely available online videos to assist with instructing residents in one-on-one exercise or movement (with supervision).
- Involve community-based programs to develop videos to assist with instructing residents in one-on-one exercise or movement (with supervision).
- Build “activity circuits” inside residents’ rooms, incorporating multiple tasks (e.g., bean bag toss, light exercises, folding laundry, etc.).
- Encourage family care partners to include exercise or movement during in-person visits (e.g., stretches, strolls outside).

6. Maintain Religious and Cultural Practices



Three observational studies tested associations between social connection and religious activities, spirituality and faith;^(25, 26, 45) two reported religious activities and coping were associated with more social engagement.^(26, 45) Some ways LTC homes can work with families and residents to maintain religious and cultural practices during COVID-19 include:

- Use telephone or videoconference to connect residents with their religious communities.
- Offer residents online or pre-recorded videos of religious observances that align with their religious and cultural beliefs and practices.
- Incorporate traditional Indigenous wellness practices, such as residents making cedar tea as an individualized activity.
- Encourage family care partners to include meaningful religious and cultural practices into virtual or in-person visits with essential care partners.
- Facilitate shared religious and cultural observances or ceremonies (e.g., outdoor events where religious/cultural leaders and families can safely partake and residents can observe from indoors).



Wikwemikong Nursing Home
- Making Cedar Tea

7. Garden, either Indoors or Outside



Five studies tested the effect of horticulture and indoor gardening programs;⁽⁴⁶⁻⁵⁰⁾ three studies that compared the program to usual care found the gardening programs were associated with improvements in social connection.^(47, 49, 50) Some ways LTC homes can work with families and residents to help residents garden during COVID-19 include:

- Expand outdoor gardens to include fresh vegetables.
- Use window sills for flowers and other plants.
- Get outside on garden strolls whenever possible or bring the outdoors inside (e.g., hang colourful leaves on walls and windows).



*St. Joseph's Villa –
Windowsills*



*Santé Manitouwadge Health LTC Unit –
Extended Garden to Include Fresh Vegetables*

8. Visit with Pets



Twelve studies assessed the impact of pet interactions and animal assisted therapy on social connection⁽⁵¹⁻⁶²⁾ and two more studied robotic animals.^(63,64) Nine studies suggested pet interaction and animal assisted therapy improved social connection⁽⁵¹⁻⁵⁹⁾ and both studies assessing the impact of robotic animals also saw beneficial impacts on loneliness.^(63,64) Some ways LTC homes can work with families and residents to enable visits with pets during COVID-19 include:

- Encourage families to bring pets to window visits or to in-person visits with essential care partners.
- Continue community-based pet therapy programs through window visits; include visits from larger animals (e.g., goats, horses) wherever possible.
- Purchase robotic pets for individual use with residents.
- Search for and play online videos of animals.
- Print and laminate photos of beloved animals and pets.



*Santé Manitouwadge Health LTC Unit -
Robotic Pets*

9. Use Technology to Communicate



Four studies assessed the impact of communication technology, but two were small-scale pilot studies.^(65, 66) The two quasi-experimental studies that tested the effect of regular videoconferencing showed beneficial effects for social connection.^(67, 68) Some ways LTC homes can work with families and residents to use technology to communicate during COVID-19 include:

- Facilitate videocalls between residents and their families and friends. To facilitate these calls, some LTC homes may find it helpful to create weekly videoconference schedules, with allocated time (e.g., 30-minutes) for each resident.
- Create specific email addresses for families and friends to send emails, photos and videos to residents during times where they cannot visit. Email messages can be printed from inside the LTC Home and delivered to the resident and, in some cases, read aloud by LTC staff to the resident. Photos and videos can also be shared using portable devices, such as tablets.
- Initiate ways for residents to use tablets to respond to emails with short voice and/or video messages.
- Use social media (with appropriate consent), such as Facebook and Twitter, to communicate simple updates to families and friends. In one LTC home, residents shared messages of hope and tips for staying safe then tracked social media engagement (i.e., 'likes' and 'shares') on a world map.
- Involve community-based programs providing virtual programming via video conference or telephone, such as morning 'coffee time' discussions, reading groups, lectures on various topics, trivia and games.
- Use projectors and projection systems to engage in interactive virtual activities.
- Use online games to challenge residents at different homes.
- Continue Residents' and Family Councils with online
- Use videoconference platforms to engage both families and to participate in recreation programs and projects in a common area.
- Facilitate opportunities for resident to connect with one an co-resident peers across the province. OARC facilitates LTC Resident Forums for residents to connect virtually for peer support and sharing: [Ontario Association of Residents' Councils Resident Forum](#).



Golden Manor LTC Home
- Playing a Game Using a
Projection System



OARC Resident Forum
- Online Meeting

10. Laugh Together



Three intervention studies reported the impact of humour therapy⁽⁶⁹⁻⁷¹⁾ and one of the studies reported decreased loneliness.⁽⁶⁹⁾ Some ways LTC homes can work with families and residents to laugh together during COVID-19 include:

- Add joy and humour to window visits, such as with a 'kissing booth', games (e.g., tic tac toe with dry erase markers) and parades from local organisations.
- Tell a joke of the day and invite residents and others in the LTC home to contribute.
- Whenever possible, use the spaces and activities within LTC homes to create vibrant social environments with fun and enjoyment, such as makeshift ice cream trucks, hallway 'Happy Hours', decorated 'Tuck Shops on Wheels', cultural activities and celebration of events.



Algonquin Nursing Home
- Ice Cream Cart



St. Joseph's Villa, Sudbury
- Window Visit

11. Reminisce about Events, People and Places



Seven interventions studies tested reminiscence therapy or programs⁽⁷²⁻⁷⁸⁾ and six of the studies showed improvements in social connection.⁽⁷²⁻⁷⁷⁾ Some ways LTC homes can work with families and residents to encourage opportunities to reminisce during COVID-19 include:

- Involve community-based programs providing virtual programming via video conference or telephone, such as reminiscence programs on specific topics (e.g., travel, hobbies, etc.).
- Create personalized tools for residents. Consider developing a 'Talking Points Key Ring' for residents with laminated cards containing favourite photos, art, sayings and topics that could spark conversation.
- Encourage assigned staff to sit with residents, such as during meal times or one-on-one visits, and taking the time to reminisce about specific topics.



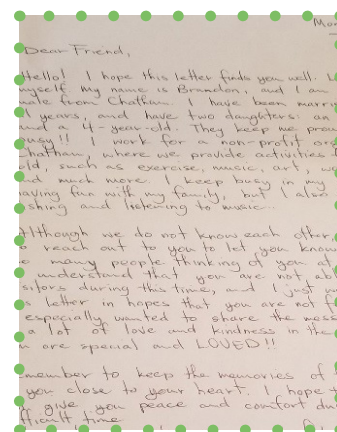
GAIN Team, Peterborough Regional
Health Centre - Laminated Cards

12. Address Communication Impairments and Communicate Non-verbally



Five observational studies showed that impaired communication was associated with reduced social connection.^(25, 29, 30, 79, 80) Some ways LTC homes can work with families and residents to support communication during COVID-19 include:

- Make sure you have the person's attention before you start to communicate. Minimize or eliminate background noise and distractions (TV, radio, other people).
- Keep your own voice at a normal level, unless the person has indicated otherwise.
- Keep communication simple. Shorten your sentences and talk at a reasonable rate. Emphasize key words without "talking down" to the person.
- Pause and give time to speak and respond. Resist the urge to finish sentences or offer words.
- Whenever possible, communicate with drawings, gestures, writing and facial expressions in addition to speech.
- Facilitate and encourage pen-pal programs whereby residents write to each other.
- Encourage letter mail exchange between residents, care partners and friends.
- Support 'Friendly Letter' programs whereby individuals outside of LTC home would write to/exchange letters with residents.
- Suggest collaborating with organizations such as the Alzheimer Society or other community groups.



One of 1400 letters sent to LTC and Retirement Homes in Chatham-Kent

Infographic

To summarize our research findings, we designed an infographic (available in English and French) which is available online and in-print. Please visit www.encoarteam.com to download or request a free copy by mail or email Ellen Snowball at ellen.snowball@uhn.ca

Contact Us

Contact us if you have feedback or ideas for this report, please email Jennifer Bethell, Affiliate Scientist, the KITE Research Institute (Toronto Rehabilitation Institute – University Health Network) at jennifer.bethell@uhn.ca

Acknowledgements

This work was funded by a grant from the Canadian Institutes of Health Research (CIHR) and involved collaborators from the KITE Research Institute (Toronto Rehabilitation Institute – University Health Network), Behavioural Supports Ontario Provincial Coordinating Office, Ontario Association of Residents' Councils and Family Councils Ontario. We also thank the individuals, teams and homes who shared their experiences with these strategies.

References

1. Quan NG, Lohman MC, Resciniti NV, et al. A systematic review of interventions for loneliness among older adults living in long-term care facilities. *Aging Ment Health* 2019;1-11.
2. Brimelow, RE, Wollin, JA. Loneliness in old age: Interventions to curb loneliness in long-term care facilities. *Act Adapt Aging* 2017;41(4):301-315.
3. Mikkelsen ASB, Petersen S, Dragsted AC, et al. Social Interventions Targeting Social Relations Among Older People at Nursing Homes: A Qualitative Synthesized Systematic Review. *Inquiry* 2019;56:46958018823929-46958018823929.
4. Leedahl SN, Sellon A, Chapin RK. Assessment of multiple constructs of social integration for older adults living in nursing homes. *J Gerontol Soc Work* 2018;61(5):526-548.
5. McMahon M, Nadigel J, Thompson E, et al. Informing Canada's Health System Response to COVID-19: Priorities for Health Services and Policy Research. *Healthc Policy* 2020;16(1):112-124.
6. Marston C, Renedo A, Miles, S. Community participation is crucial in a pandemic. *Lancet* 2020;395(10238):1676-1678.
7. Bethell J, Babineau J, Iaboni A, et al. Social integration and loneliness among long term care residents: protocol for a scoping review. *BMJ Open* 2019;9:e033240.
8. Bethell J, Aelick K, Babineau J, et al. Social connection in long-term care homes: A scoping review of published research on the mental health impacts and potential strategies during COVID-19. *J Am Med Dir Assoc* 2020; <https://doi.org/10.1016/j.jamda.2020.11.025>.
9. Almenkerk S, Depla MFIA, Smalbrugge M, et al. Pain among institutionalized stroke patients and its relation to emotional distress and social engagement. *Int J Geriatr Psychiatry* 2015;30(10):1023-1031.
10. Klapwijk, MS, Caljouw, MAA, Pieper, MJC, et al. Characteristics associated with quality of life in long-term care residents with dementia: A cross-sectional study. *Dement Geriatr Cogn Disord* 2016;42(3-4):186-197.
11. Lai CK, Leung DD, Kwong EW, et al. Factors associated with the quality of life of nursing home residents in Hong Kong. *Int Nurs Rev* 2015;62(1):120-129.
12. Lood Q, Björk S, Sköldunger A, et al. The relative impact of symptoms, resident characteristics and features of nursing homes on residents' participation in social occupations: Cross-sectional findings from U-Age Swenish. *J Occup Sci* 2017;24(3):327-337.
13. Tse MM, Wan VT, Vong SK. Health-related profile and quality of life among nursing home residents: Does pain matter? *Pain Manag Nurs* 2013;14(4):e173-e184.
14. Tse M, Leung R, Ho S. Pain and psychological well-being of older persons living in nursing homes: an exploratory study in planning patient-centred intervention. *J Adv Nurs* 2012;68(2):312-321.
15. van Kooten J, van der Wouden JC, Sikkes SAM, et al. Pain, Neuropsychiatric Symptoms, and Quality of Life of Nursing Home Residents With Advanced Dementia in The Netherlands: A Cross-sectional Study. *Alzheimer Dis Assoc Disord* 2017;31(4):315-321.
16. Won A, Lapane KL, Vallow S, et al. Long-term effects of analgesics in a population of elderly nursing home residents with persistent nonmalignant pain. *J Gerontol A Biol Sci Med Sci*. 2006;61(2):165-169.
17. Chibnall JT, Tait RC, Harman B, et al. Effect of acetaminophen on behavior, well-being, and psychotropic medication use in nursing home residents with moderate-to-severe dementia. *J Am Geriatr Soc* 2005;53(11):1921-1929.
18. Husebo, BS, Ballard, C, Aarsland, D, et al. The Effect of a Multicomponent Intervention on Quality of Life in Residents of Nursing Homes: A Randomized Controlled Trial (COSMOS). *J Am Med Dir Assoc* 2019;20(3):330-339.
19. Tse MM, Vong SK, Ho SS. The effectiveness of an integrated pain management program for older persons and staff in nursing homes. *Arch Gerontol Geriatr* 2012;54(2):e203-212.
20. Tse MM, Ho SS. Pain management for older persons living in nursing homes: a pilot study. *Pain Manag Nurs* 2013;14(2):e10-21.
21. Tse MMY, Yeung SSY, Lee PH, et al. Effects of a peer-led pain management program for nursing home residents with chronic pain: A pilot study. *Pain Med* 2016;17(9):1648-1657.
22. Garms-Homolová V, Flick U, Röhnsch G. Sleep disorders and activities in long term care facilities -- a vicious cycle? *J Health Psychol* 2010;15(5):744-754.
23. Alessi CA, Martin JL, Webber AP, et al. Randomized, controlled trial of a nonpharmacological intervention to improve abnormal sleep/wake patterns in nursing home residents. *J Am Geriatr Soc* 2005;53(5):803-810.
24. Achterberg W, Pot AM, Kerkstra A, et al. The effect of depression on social engagement in newly admitted Dutch nursing home residents. *Gerontologist* 2003;43(2):213-218.
25. Bliss D, Harms S, Eberly LE, et al. Social Engagement After Nursing Home Admission: Racial and Ethnic Disparities and Risk Factors. *J Appl Gerontol* 2017;36(11):1306-1326.
26. Branco KJ. Religious activities, strength from faith, and social functioning among African American and White nursing home residents. *J Relig Spiritual Aging* 2007;19(4):3-20.
27. Guthrie DM, Davidson, JG, Williams, N, et al. Combined impairments in vision, hearing and cognition are associated with greater levels of functional and communication difficulties than cognitive impairment alone: Analysis of interRAI data for home care and long-term care recipients in Ontario. *PLoS One* 2018;15;13(2):e0192971.
28. Kang H. Correlates of social engagement in nursing home residents with dementia. *Asian Nurs Res* 2012;6(2):75-81.
29. Li Y, Cai X. Racial and ethnic disparities in social engagement among US nursing home residents. *Med Care* 2014;52(4):314-321.

30. Resnick HE, Fries BE, Verbrugge LM. Windows to their world: The effect of sensory impairments on social engagement and activity time in nursing home residents. *J Gerontol B Psychol Sci Soc Sci* 1997;52(3):S135-S144.
31. Owsley C, McGwin G Jr., Scilley K, et al. Impact of cataract surgery on health-related quality of life in nursing home residents. *Br J Ophthalmol* 2007;91(10):1359-1363.
32. Owsley C, McGwin Jr G, Scilley K, et al. Effect of refractive error correction on health-related quality of life and depression in older nursing home residents. *Arch Ophthalmol* 2007;125(11):1471-1477.
33. Fritsch T, Jung K, Grant S, et al. Impact of TimeSlips, a Creative Expression Intervention Program, on Nursing Home Residents With Dementia and their Caregivers. *Gerontologist* 2009;49(1):117-127.
34. Boersma, P, van Weert, JCM, Lissenberg-Witte, BI, et al. Testing the Implementation of the Veder Contact Method: A Theatre-Based Communication method in Dementia Care. *Gerontologist* 2018;08:08.
35. Van Dijk AM, Van Weert JCM, Droes RM. Does theatre improve the quality of life of people with dementia? *Int Psychogeriatr* 2012;24(3):367-381.
36. Roswiyani R, Hiew CH, Witteman CLM, et al. Art activities and qigong exercise for the well-being of older adults in nursing homes in Indonesia: a randomized controlled trial. *Aging Ment Health* 2019:1-10.
37. Weiss W, Schafer DE, Berghom FJ. Art for institutionalized elderly. *Art Therapy* 1989;6(1):10-17.
38. Vitorino LM, Girardi Paskulin LM, Carneiro Vianna LA. Quality of life among older adults resident in long-stay care facilities. *Rev Lat Am Enfermagem* 2012;20(6):1186-1195.
39. Wójcik A, Nowak A, Polak M, et al. Physiotherapy and quality of life of patients in long-term care. *Rehabil Med* 2017;21(2):19-24.
40. Hsu CY, Moyle W, Cooke M, et al. Seated Tai Chi versus usual activities in older people using wheelchairs: A randomized controlled trial. *Complement Ther Med* 2016;24:1-6.
41. Tse MMY, Tang SK, Wan VTC, et al. The effectiveness of physical exercise training in pain, mobility, and psychological well-being of older persons living in nursing homes. *Pain Manag Nurs* 2014;15(4):778-788.
42. Barthalos I, Dorgo S, Kopkane Plachy J, et al. Randomized controlled resistance training based physical activity trial for central European nursing home residing older adults. *J Sports Med Phys Fitness* 2016;56(10):1249-1257.
43. Lee LYK, Lee DTF, Woo J. The psychosocial effect of Tai Chi on nursing home residents. *J Clin Nurs* 2010;19(7-8):927-938.
44. Castilho-Weinert LV, Sibebe Yoko Mattozo T, Bittencourt Guimãraes AT, et al. Functional Performance and Quality of Life in Institutionalized Elderly Individuals. *Top Geriatr Rehabil* 2014;30(4):270-275.
45. Koenig HG, Weiner DK, Peterson BL, et al. Religious coping in the nursing home: a biopsychosocial model. *Int J Psychiatry Med* 1997;27(4):365-376.
46. Brown VM, Allen AC, Dwozan M, et al. Indoor gardening older adults: effects on socialization, activities of daily living, and loneliness. *J Gerontol Nurs* 2004;30(10):34-42.
47. Chu HY, Chen MF, Tsai CC, et al. Efficacy of a horticultural activity program for reducing depression and loneliness in older residents of nursing homes in Taiwan. *Geriatr Nurs* 2019;18:18.
48. Lai CKY, Kwan RYC, Lo SKL, et al. Effects of Horticulture on Frail and Prefrail Nursing Home Residents: A Randomized Controlled Trial. *J Am Med Dir Assoc* 2018;19(8):696-702.
49. Tse MM. Therapeutic effects of an indoor gardening programme for older people living in nursing homes. *J Clin Nurs* 2010;19(7-8):949-958.
50. Chen YM, Ji JY. Effects of Horticultural Therapy on Psychosocial Health in Older Nursing Home Residents: A Preliminary Study. *J Nurs Res* 2015;23(3):167-171.
51. Calvert MM. Human-pet interaction and loneliness: a test of concepts from Roy's adaptation model. *Nurs Sci Q* 1989;2(4):194-202.
52. Banks MR, Banks WA. The effects of animal-assisted therapy on loneliness in an elderly population in long-term care facilities. *J Gerontol A Biol Sci Med Sci* 2002;57(7):M428-M432.
53. Sollami A, Gianferrari E, Alfieri M, et al. Pet therapy: an effective strategy to care for the elderly? An experimental study in a nursing home. *Acta Biomed* 2017;88(1S):25-31.
54. Vrbanac Z, Zecevic I, Ljubic M, et al. Animal assisted therapy and perception of loneliness in geriatric nursing home residents. *Coll Antropol* 2013;37(3):973-976.
55. Bernstein, PL, Friedmann, E, Malaspina, A. Animal-assisted therapy enhances resident social interaction and initiation in long-term care facilities. *Anthrozoos* 2000;13(4):213-224.
56. Martindale BP. Effect of animal-assisted therapy on engagement of rural nursing home residents. *Am J Recreat Ther* 2008;7(4):45-53.

57. Richeson NE. Effects of animal-assisted therapy on agitated behaviors and social interactions of older adults with dementia. *Am J Alzheimers Dis Other Demen* 2003;18(6):353-358.
58. Wesenberg S, Mueller C, Nestmann F, et al. Effects of an animal-assisted intervention on social behaviour, emotions, and behavioural and psychological symptoms in nursing home residents with dementia. *Psychogeriatrics* 2019;19(3):219-227.
59. Winkler A, Fairnie H, Gericevich F, et al. The impact of a resident dog on an institution for the elderly: effects on perceptions and social interactions. *Gerontologist* 1989;29(2):216-223.
60. Banks MR, Banks WA. The effects of group and individual animal-assisted therapy on loneliness in residents of long-term care facilities. *Anthrozoos* 2005;18(4):396-408.
61. Phelps KA, Miltenberger RG, Jens T, et al. An investigation of the effects of dog visits on depression, mood, and social interaction in elderly individuals living in a nursing home. *Behav Interv* 2008;23(3):181-200.
62. Wallace, JE, Nadermann, S. Effects of pet visitations on semiambulatory nursing home residents: problems in assessment. *J Appl Gerontol* 1987;6(2):183-188.
63. Banks MR, Willoughby LM, Banks WA. Animal-assisted therapy and loneliness in nursing homes: use of robotic versus living dogs. *J Am Med Dir Assoc* 2008;9(3):173-177.
64. Robinson H, Macdonald B, Kerse N, et al. The psychosocial effects of a companion robot: a randomized controlled trial. *J Am Med Dir Assoc* 2013;14(9):661-667.
65. Neves BB, Franz RL, Munteanu C, et al. Adoption and feasibility of a communication app to enhance social connectedness amongst frail institutionalized oldest old: an embedded case study. *Inf Commun Soc* 2018;21(11):1681-1699.
66. Siniscarco MT, Love-Williams C, Burnett-Wolle S. Video conferencing: An intervention for emotional loneliness in long-term care. *Act Adapt Aging* 2017;41(4):316-329.
67. Tsai H-H, Tsai Y-F. Changes in depressive symptoms, social support, and loneliness over 1 year after a minimum 3-month video conference program for older nursing home residents. *J Med Internet Res* 2011;13(4):e93-e93.
68. Tsai H-H, Tsai Y-F, Wang H-H, et al. Videoconference program enhances social support, loneliness, and depressive status of elderly nursing home residents. *Aging Ment Health* 2010;14(8):947-954.
69. Kuru Alici N, Zorba Bahceli P, Emiroglu ON. The preliminary effects of laughter therapy on loneliness and death anxiety among older adults living in nursing homes: A nonrandomised pilot study. *Int J Older People Nurs* 2018;13(4):e12206.
70. Tse MMY, Lo APK, Cheng TLY, et al. Humor therapy: Relieving chronic pain and enhancing happiness for older adults. *J Aging Res* 2010;2010 (no pagination)(343574).
71. Low LF, Brodaty H, Goodenough B, et al. The Sydney Multisite Intervention of LaughterBosses and ElderClowns (SMILE) study: cluster randomised trial of humour therapy in nursing homes. *BMJ Open* 2013;3(1):11.
72. Siverová J, Bužgová R. Influence Reminiscence Therapy on Quality of Life Patients in the Long-Term Hospital. *Cent Eur J Nurs Midwifery* 2014;5(1):21-28.
73. Siverova J, Buzgova R. The effect of reminiscence therapy on quality of life, attitudes to ageing, and depressive symptoms in institutionalized elderly adults with cognitive impairment: A quasi-experimental study. *Int J Ment Health Nurs* 2018;27(5):1430-1439.
74. Serrani Azcurra, DJL. A reminiscence program intervention to improve the quality of life of long-term care residents with Alzheimer's disease. A randomized controlled trial. *Braz J Psychiatry* 2012;34(4):422-433.
75. Schafer DE, Berghorn FJ, Holmes DS, et al. The effects of reminiscing on the perceived control and social relations of institutionalized elderly. *Act Adapt Aging* 1985;8(3-4):95-110.
76. Tabourne CES. The effects of a life review program on disorientation, social interaction and self-esteem of nursing home residents. *Int J Aging Hum Dev* 1995;41(3):251-266.
77. Chiang K-J, Chu H, Chang H-J, et al. The effects of reminiscence therapy on psychological well-being, depression, and loneliness among the institutionalized aged. *Int J Geriat Psychiatry* 2010;25(4):380-388.
78. Lai CKY, Kayser-Jones J. Randomized controlled trial of a specific reminiscence approach to promote the well-being of nursing home residents with dementia. *Int Psychogeriatr* 2004;16(1):33-49.
79. Ballard C, O'Brien, J James I, et al. Quality of life for people with dementia living in residential and nursing home care: The impact of performance on activities of daily living, behavioral and psychological symptoms, language skills, and psychotropic drugs. *Int Psychogeriatr* 2001;13(1):93-106.
80. Potkins D, Myint P, Bannister C, et al. Language impairment in dementia: impact on symptoms and care needs in residential homes. *Int J Geriat Psychiatry* 2003;18(11):1002-1006.