

2024

## Routines and Attitudes of Smartphone and Tablet Use for Social Connection Among Rural Older Adults

Amanda U. Davis  
*Middle Georgia State University*

Chelsea Conrad  
*Pfeiffer University*

Maya Dupree  
*Pfeiffer University*

Deja Myers  
*Pfeiffer University*

Monica Le  
*Pfeiffer University*

Tell us how you used this information in this [short survey](#).

Follow this and additional works at: <https://digitalcommons.unmc.edu/tso>



Part of the [Community Health Commons](#), [Occupational Therapy Commons](#), and the [Public Health Commons](#)

---

### Recommended Citation

Davis, A. U., Conrad, C., Dupree, M., Myers, D., & Le, M. (2024). Routines and Attitudes of Smartphone and Tablet Use for Social Connection Among Rural Older Adults. *Translational Science in Occupation*, 1(2). <https://doi.org/https://doi.org/10.32873/unmc.dc.tso.1.2.03>

This Original Research is brought to you for free and open access by DigitalCommons@UNMC. It has been accepted for inclusion in Translational Science in Occupation by an authorized editor of DigitalCommons@UNMC. For more information, please contact [digitalcommons@unmc.edu](mailto:digitalcommons@unmc.edu).

---

# Routines and Attitudes of Smartphone and Tablet Use for Social Connection Among Rural Older Adults

## Abstract

**Background:** Loneliness is associated with negative health outcomes for older adults. Social connection may occur using information and communication technologies (ICTs), such as smartphones and tablets and interventions to increase ICT use have shown positive results. **Purpose:** This study aims to investigate the routines and attitudes of smartphone and tablet use for social connection and secondarily, determine if there is an association between the routines and attitudes and connection. **Methods:** Participants completed a survey with questions that included demographics, 3-item UCLA Loneliness Scale, Brief Sense of Community Scale, and open-ended questions. **Results:** Participants (N=21, median age of 76-80) report mostly living alone (76%), community center attendance of 2-5 days weekly (M=3.4), feelings of loneliness (48%), performance skill difficulty (90%), and median ICT use of 5-10 years. Over half report a daily routine of voice calls (90%), text messages (86%), social media (62%), email (57%), and others report never playing virtual games (71%), video calls (43%), listening to media (43%), or sending a question to a provider (38%). Participants agree smartphones and tablets help connect with family and friends (95%), peers (90%), and the community (81%). Voice call frequency is negatively associated with loneliness, while social media frequency is positively associated. Qualitative data reveals insight into valued tablet and smartphone skills, skill acquisition, and barriers. **Conclusion:** Older adults report positive attitudes of tablets and smartphones for social connection, routines of select social activities on devices, unmet social needs, and limitations with performance skills and patterns of device use.

**Plain Language Summary.** Loneliness can result in poor health for older adults and many people connect through smartphones and tablets. This study surveyed older adults use and feelings of using mobile devices for social connection. Older adults shared positive attitudes of their smartphone or tablet for social connection and using their device for certain social activities. However, older adults also shared limited skills and routines of using their device for social activities, and feelings of loneliness. More use of social media was linked to higher levels of loneliness, while more use of voice calls was linked to lower levels. This study demonstrates the value of occupational therapy evaluation of attitudes, performance skills, and performance patterns.

## Keywords

Loneliness, Social Participation, Older Adults, Information and Communication Technology

## Creative Commons License



This work is licensed under a [Creative Commons Attribution-Noncommercial-Share Alike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/).

# TSO

## Translational Science in Occupation

Volume 1, Issue 2

---

### Routines and Attitudes of Smartphone and Tablet Use for Social Connection Among Rural Older Adults

---

Amanda U. Davis<sup>1</sup>; Chelsea Conrad<sup>2</sup>; Maya Dupree<sup>2</sup>; Deja Myers<sup>2</sup>; Monica Le<sup>2</sup>;

Middle Georgia State University<sup>1</sup>

Pfeiffer University<sup>2</sup>

United States

---

#### ABSTRACT

*Background:* Loneliness is associated with negative health outcomes for older adults. Social connection may occur using information and communication technologies (ICTs), such as smartphones and tablets and interventions to increase ICT use have shown positive results.

*Purpose:* This study aims to investigate the routines and attitudes of smartphone and tablet use for social connection and secondarily, determine if there is an association between the routines and attitudes and connection.

*Method:* Participants completed a survey with questions that included demographics, 3-item UCLA Loneliness Scale, Brief Sense of Community Scale, and open-ended questions.

*Results:* Participants (N=21, median age of 76-80) report mostly living alone (76%), community center attendance of 2-5 days weekly (M=3.4), feelings of loneliness (48%), performance skill difficulty (90%), and median ICT use of 5-10 years. Over half report a daily routine of voice calls (90%), text messages (86%), social media (62%), email (57%), and others report never playing virtual games (71%), video calls (43%), listening to media (43%), or sending a question to a provider (38%). Participants agree smartphones and tablets help connect with family and friends (95%), peers (90%), and the community (81%). Voice call frequency is negatively associated with loneliness, while social media frequency is positively associated. Qualitative data reveals insight into valued tablet and smartphone skills, skill acquisition, and barriers.

---

*Conclusion:* Older adults report positive attitudes of tablets and smartphones for social connection, routines of select social activities on devices, unmet social needs, and limitations with performance skills and patterns of device use.

---

### **Plain Language Summary**

Loneliness can result in poor health for older adults and many people connect through smartphones and tablets. This study surveyed older adults use and feelings of using mobile devices for social connection. Older adults shared positive attitudes of their smartphone or tablet for social connection and using their device for certain social activities. However, older adults also shared limited skills and routines of using their device for social activities, and feelings of loneliness. More use of social media was linked to higher levels of loneliness, while more use of voice calls was linked to lower levels. This study demonstrates the value of occupational therapy evaluation of attitudes, performance skills, and performance patterns.

---

## **Routines and Attitudes of Smartphone and Tablet Use for Social Connection Among Rural Older Adults**

Loneliness is a personal experience of unmet social needs that is associated with several troubling health outcomes, including high blood pressure, decreased mobility, frailty, depression, and anxiety for older adults (Crewdson, 2016; Ge et al., 2022). Risk factors that may contribute to loneliness are older age, education level, living in a non-urban area, living alone, partner loss, depression, low level of social activity, and having functional impairments (Cohen-Mansfield et al., 2016; Dahlberg et al., 2022). Due to these significant health implications and risks, older adults' experiences of loneliness need to be further explored for wellbeing and health promotion.

Common strategies shared by older adults to promote social connection or decrease loneliness involve engaging in purposeful activities, participating in social activities, and maintaining social contact, especially with familiar relationships (O'Rourke et al, 2018). Community-based interventions to address loneliness aim to facilitate one-on-one personal contact or group activity participation, although the most effective method is not known (O'Rourke et al, 2018). Relatedly, occupational therapy practitioners have designed community-based groups and gaming interventions to address social participation with promising, but so far, mixed results (Smallfield & Molitor, 2018). These strategies and interventions often aim to increase social contacts and decrease isolation, which are key risk factors for loneliness, however, notably separate concepts (O'Rourke et al, 2018).

Several methods of social connection and participation occur over virtual environments through Information and Communication Technologies (ICTs), which allow people to connect with others (Fingerman et al., 2020). Technology-mediated social activities performed may include email, playing games, making phone calls, sharing information, sending messages, social networking, reading, and uploading content (Marston et al, 2019). Social activities to connect with family and friends is a main reason cited for older adults adopting the use of ICTs (Fingerman et al., 2020). Other facilitating factors include access to technology, learning opportunities, and a sense of security (Marston et al., 2019). Interventions geared towards increasing ICT use for older adults show positive results in increasing methods of social interactions, decreasing social isolation, and decreasing loneliness (Ibarra et al., 2020; Thangavel et al., 2022). However, many barriers to ICT use exist for older adults, including limited interest, uncertainty, and reported challenges with learning how to use devices (Marston et al., 2019). Researchers have identified specific recommendations to further develop ICT interventions to address loneliness, which include ensuring ICT use is personally motivating, promoting specific relevant methods of ICT use instead of broad use, analyzing types and impacts of different social connections, facilitating a sense of belonging, and being valued for participants (Ibarra et al., 2020; Thangavel et al., 2022).

Occupational therapy practitioners are skilled at analyzing client factors, performance skills, performance patterns, the context, and the valued activity to design interventions to maximize engagement and participation. The Model of Human Occupation (MOHO) can inform an evaluation approach that includes motivation (volition), patterns (habituation), and abilities (performance capacity) of older adults' ICT use for social connection and to decrease loneliness (Kielhofner & Burke, 1980). MOHO emphasizes that the subsystems of volition, habituation, and performance capacity play an integral role in influencing a person's performance in an occupation, such as ICT use and need to be considered for successful intervention design.

Little is known about older adults' specific routines and attitudes of ICT use, such as smartphones and tablets, for social connection activities. Therefore, the purpose of this study is to investigate the older adults' perceived routines and attitudes of smart phone and tablet use for social

connection. Additionally, researchers will examine relationships between identified routines and attitudes of ICT use with perceived unmet social needs.

## Methods

### Study Design

This survey study used a mixed methods approach to investigate older adults' routines and attitudes of smartphone and tablet use for social connection. After the institutional review board approval, researchers recruited participants who were 65 years or older through paper and electronic advertisements at two rural community centers for older adults. Data was collected through structured interviews at the community centers, with one participant completing the survey by hand.

### Instruments and Tools

#### *Attitudes and Routines of Smart Phone and Tablet use*

The 19-question survey was designed to identify demographics, perceived personal abilities, tablet and smartphone access, routines of use for social connection activities, and attitudes towards use for social activities. Participants were asked to select responses for age range, gender, education level, living environment, frequency of weekly senior center attendance, and history of smartphone and tablet training and use. Additionally, participants were asked to select a level of difficulty with different skills related to ICT use, how often they used a smartphone or tablet for different activities, and how useful or helpful they found their devices for social connection activities. The survey was informed by the literature review and the MOHO model, which led to questions to investigate each participant's perceived interest, motivation, abilities, and current and desired habits or routines of ICT use for social connection. Open-ended questions allowed for additional exploration and asked what ways participants use their devices to connect with others, what methods are they interested in learning to use a device for social connection, how they typically learn new ways to use their devices, and what challenges exist.

#### *Perceived Unmet Social Needs*

The 3-Item UCLA Loneliness Scale and Brief Sense of Community Scale were used in this study. The 3-Item UCLA Loneliness Scale is a valid and reliable scale to measure feelings of social isolation or lack of companionship (Hughes et al., 2004). Total scores range from 3-9, with 9 indicating higher levels of loneliness. The Brief Sense of Community Scale is an 8-item validated scale, with 2 items each representing the separate concepts of needs fulfillment, group membership, influence, and emotional connection within one's community (Peterson et al., 2008). Total scores range from 8-40, with 40 indicating a higher sense of community. Using both measures allowed perceived unmet social needs of relationships and the community to be considered.

### Data Analysis

Quantitative data was analyzed using descriptive statistics and correlational testing (Spearman's rho) through SPSS Statistics software, Version 29. A qualitative descriptive approach was used to analyze the open-ended survey responses, supporting a focus on the participant's words (Doyle et al., 2020). Researchers explored and reflected on bias during data analysis and documentation of the coding process was maintained. An iterative process was used to reach consensus on refining codes, and themes.

## Results

### *Participant Characteristics*

Twenty-one older adults participated in the study. Table 1 shares participant characteristics collected through the survey.

**Table 1***Participant Characteristics*

Characteristic	n (%)
Gender	
Male	2 (10)
Female	19 (90)
Age	
65-70	4 (19)
71-75	5 (24)
76-80	6 (29)
81-85	5 (24)
86+	1 (5)
Education Level	
Graduate degree	2 (10)
Bachelor's degree	2 (10)
Some college	6 (29)
Associate degree	4 (19)
Trade school	1 (5)
Highschool	6 (21)

***Routines of Smart Phone and Tablet Use for Social Connection***

Participants revealed a median duration of smartphone or tablet use of 5-10 years. Engagement in social activities through ICTs varied, with reported routines listed from most to least frequently in Table 2. Participants engaged in a mean of 8.4 social activities, ranging from 3 to 11. Voice calls, text messages, and social media use were the most common activities, while virtual gaming, video calls, and listening to media were reported less frequently.

**Table 2***Reported Routine Frequency of Social Connection Activities (N=21)*

Social Connection Activity	Reported Frequency			
	Never n (%)	Monthly n (%)	Weekly n (%)	Daily n (%)
Voice calls	1 (5)	0 (0)	1 (5)	19 (90)
Text messages	3 (14)	0 (0)	0 (0)	18 (86)
Social media	6 (29)	2 (10)	0 (0)	13 (61)
Email	2 (10)	1 (5)	6 (29)	12 (57)
Sharing photos	3 (14)	2 (10)	5 (24)	11 (52)
Sharing links or articles	5 (24)	2 (10)	6 (29)	8 (38)
Listening to media	9 (43)	4 (19)	3 (14)	5 (24)
Attending virtual events	6 (29)	5 (24)	6 (29)	4 (19)
Discovering in-person events	8 (38)	3 (14)	7 (33)	3 (14)
Playing a virtual game with others	15 (71)	2 (10)	1 (5)	3 (14)
Sending question to provider	8 (38)	10 (48)	2 (10)	1 (5)
Video calls	9 (43)	9 (43)	2 (10)	1 (5)

### ***Perceived Abilities and Attitudes***

Participants shared their perceived performance skills and attitudes toward smartphone and tablet use during the survey. Participants reported performance challenges when remembering tasks (52%), learning new skills (24%), using hands repetitively (24%), moving (14%), visually discriminating (14%), and communicating (5%).

The survey also explored attitudes regarding the ease of use and benefits of smartphone and tablet use, as well as their role in facilitating social connection across different types of relationships. Three people (14%) disagreed that tablets or smartphones are easy to use, and one person (5%) disagreed that training would be helpful. Four people (19%) somewhat or strongly disagreed that tablets or smartphones are helpful for connecting with others, most specifically with their community (10%) and health care providers (14%). None of the participants disagreed that smartphones or tablets helped with connecting with peers, family, or friends. Table 6 provides a summary of participants' attitudes towards the presented statements.

**Table 3**

*Reported Attitudes Towards Smart Phone and Tablet Use (N=21)*

Abbreviated Attitude Statements	Participant Selection				
	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
	n (%)	n (%)	n (%)	n (%)	n (%)
Easy to use	1 (5)	2 (10)	3 (14)	9 (43)	6 (29)
Training would help me	0 (0)	1 (5)	3 (14)	6 (29)	11 (52)
Helpful for me to connect with my peers	0 (0)	0 (0)	2 (10)	3 (14)	16 (76)
Helpful for me to connect with my family	0 (0)	0 (0)	1 (5)	1 (5)	19 (90)
Helpful for me to connect with my friends	0 (0)	0 (0)	1 (5)	1 (5)	19 (90)
Helpful for me to connect with my community	1 (5)	1 (5)	2 (10)	7 (33)	10 (48)
Helpful for me to connect with my healthcare providers	2 (10)	1 (5)	2 (10)	4 (19)	12 (57)

### ***Perceived Unmet Social Needs***

The participants reported mostly living alone (76%) and attending the community center 2-5 days weekly (M=3.4 days weekly). Participants scored a mean of 4.7 ( $\pm$  2.2) on the UCLA 3-Item Loneliness scale. Ten participants (48%) reported feelings of loneliness either some of the time or often, specifically reporting feeling a lack of companionship (48%), feeling left out (38%), or feeling isolated from others (43%). Participants scored a mean of 34.4 ( $\pm$  5.1) on the Brief Sense of Community Scale. Three participants (14%) somewhat disagreed or strongly disagreed with sense of community statements specifically on items related to feeling as if a person's needs will be met by their community (10%), a person belongs within the community (5%), and a person has influence within their community (14%). None of the participants disagreed or strongly disagreed with items related to emotional connection to the community.

### ***Correlation Between Perceived Unmet Social Needs and Routines and Attitudes of Use***

Three statistically significant correlations were found between the outcome measures and perceived routines and attitudes towards device use. A negative correlation was noted between the UCLA 3-item Loneliness scale and frequency of voice calls ( $r=-0.68$ ,  $p<0.01$ ). A positive correlation was



noted between the UCLA 3-item loneliness scale and frequency of social media use ( $r=0.47$ ,  $p=0.03$ ). Lastly, a positive correlation existed between the Brief Sense of Community scale score and attitudes towards smartphone and tablets use for connection with peers ( $r=0.66$ ,  $p<0.01$ ).

### ***Exploring Attitudes Towards Increasing Tablet and Smartphone Use for Social Connection***

Researchers identified three themes from open-ended responses: valued tablet and smartphone skills, methods of skill acquisition, and barriers to skill acquisition. Valued skills to acquire included learning a new application (video calls was identified by four participants), learning efficiency with current applications (“how to navigate my phone more”), and customizing one’s device (“trouble deleting unnecessary things”). Previous methods of skill acquisition have included a class or course (“take a course through community college”), other people (“I learn from my kids or sometimes a friend”), Internet (“Google, YouTube”), and trial and error (“just experiment with it and hoping that it will work”). Three participants shared a preference for one-on-one or small group training.

Barriers for building skills in tablet and smartphone use for social connection included apprehension, fear, and anxiety. One participant shared “fear of not knowing what you are going to erase or screw up.” Limited training is another barrier identified. Participants shared that it is “hard to learn from doing without instruction,” and trainings attended had limitations such as having many participants, being unable to see or hear, and not allowing opportunities to practice. Another barrier described was managing the technology. Participants shared frustrations with freezing screens, losing internet connection, pushing the correct buttons, and locating items. One participant shared that they feel the “device has a mind of its own.”

### **Discussion**

This study investigated older adults’ perceived routines and attitudes of smart phone and tablet use for social connection and examined relationships between the identified routines and attitudes and perceived connection of participants. Tablets and smartphones are frequently used by the participants for social connection activities, with the most common being voice calls, text messages, social media, and email. However, virtual games, video calls, and sending questions to providers are less frequently used. Most participants reported valuing smartphone and tablets use for social connection with family, friends, peers, community, and healthcare providers. However, some participants did not agree that smartphone and tablet use was useful for connecting with the community and healthcare providers. Most participants felt smartphones and tablets are easy to use, but over half strongly agreed that training would be helpful. Older adults also report various performance challenges, training limitations, apprehension, and technology difficulties.

Based on the MOHO model, adapting to new ways of doing requires the desire to change, reworking routines, and matching abilities to the demands of the task and environment (Kielhofner et al., 1980). Our study revealed discrepancies between older adults’ desired use of mobile devices for social activities, and their reported satisfaction, routines, and abilities. Participants highly valued mobile device use for social activities, however, reported unmet social needs, limited device use for social activities, and limited performance skills and patterns. Three relationships of reported attitudes or routines and unmet social needs were identified. A positive attitude toward using mobile devices to connect with the community was linked with a higher sense of community. Additionally, a higher frequency of voice calls was linked to lower levels of loneliness. However, high frequency of social media use was linked to elevated levels of loneliness. Notably, four participants specifically shared an interest in increasing video call skills when asked about what social activities they value. These findings support and add to prior literature which recommend promoting specific meaningful methods of use and

analyzing the impact of different social activities when designing ICT interventions to decrease loneliness (Ibarra et al., 2020; Thangavel et al., 2022).

Occupational therapy practitioners can consider the findings that older adults are motivated and value the use of mobile devices for social connection activities but may face challenges with performance patterns and skills. Technology skills are one performance challenge to consider and have been strongly correlated to a person's ability to perform occupations in a virtual environment (Fischl et al., 2021). Additionally, our study demonstrates the use of an occupation-based evaluation to provide guidance to practitioners, organizations, and older adults to identify opportunities for intervention that includes performance patterns. This study supports addressing routines to address unmet social needs, such as promoting voice calls and positive perceptions of device use to connect with the community, while evaluating if there is a negative impact of social media use.

Opportunities exist to evaluate and address the desired and actual occupational performance with mobile devices across various service delivery models, whether an older adult is receiving direct occupational therapy services, or in partnership with community organizations. Reimbursement may be available depending on the complexity and practitioner skill required for mobile device interventions, and the specific daily activity being addressed. Recent articles have provided practice examples of the evaluation and intervention of occupational performance with everyday technologies to promote skill development, well-being, and occupational performance for older adults who are post-stroke, who have low vision, or who attend community centers (Benham, 2019; Kaldenberg & Smallfield, 2020; Walsh et al, 2019).

Limitations of the study included the use of self-report measures, as differences may exist between the participant's recollection or perception and actual routines. This study also measured the routines and attitudes with a small number of older adults in one geographic region, which limits the generalizability of the results. Participants may perform social activities on other ICTs not captured as part of this study, such as computers or laptops. Further research should consider the impact of an occupational therapy theory-based evaluation and intervention for mobile device use for meaningful, social activities.

### **Conclusion**

Older adults who experience a lack of social connection are at greater risk for occupational dysfunction, physical, and mental health challenges. Older adults have frequent use and positive attitudes towards tablets and smartphones for social connection, however, also reveal reported barriers, limited methods of use, as well as routine use of social media that may be linked to higher levels of loneliness. Occupational therapy practitioners working with community-dwelling older adults are strongly encouraged to evaluate and provide client-centered interventions that address and maximize specific and meaningful use of smartphone and tablets to promote social connection.

### **Implications and Knowledge Translation Takeaways**

- Interventions to increase ICT use for older adults have shown positive results in prior research to increase methods of social interactions, decrease social isolation, and decrease loneliness
- Use of an occupational therapy model informed evaluation outlines the mismatch between participants desired use of mobile devices for meaningful social connection, and their reported routines, and abilities
- Older adults valued and used tablets and smartphones for social connection, however, several methods of social connection available were not used

- Attitudes towards using mobile devices for social connection with the community and healthcare providers were less positive than connecting with peers, friends, and family.
- Increased reported voice calls linked to decreased reports of loneliness, while increased reported social media use linked to increased reports of loneliness
- Evaluation of attitudes, performance skills and patterns of smartphone and tablet use should be considered to provide interventions to promote meaningful use and impact loneliness
- We plan to share these results with the community center where the study occurred and with OT practitioners to assist in developing community interventions

## References

- Benham, S. (2019). Using technology to promote occupational performance in older adults. *SIS Quarterly Practice Connections*, 4(2), 23–25. <https://www.aota.org/publications/sis-quarterly/productive-aging-sis/pasis-5-19>
- Cohen-Mansfield, J., Hazan, H., Lerman, Y., & Shalom, V. (2016). Correlates and predictors of loneliness in older adults: A review of quantitative results informed by qualitative insights. *International Psychogeriatrics*, 28(4), 557–576. <https://doi.org/10.1017/s1041610215001532>
- Crewdson, J. A. (2016). Effect of loneliness in the Elderly Population: A review. *Healthy Aging & Clinical Care in the Elderly*, 8. <https://doi.org/10.4137/hacce.s35890>
- Dahlberg, L., McKee, K. J., Frank, A., & Naseer, M. (2022) A systematic review of longitudinal risk factors for loneliness in older adults. *Aging & Mental Health*, 26(2), 225-249. <https://doi.org/10.1080/13607863.2021.1876638>
- Doyle, L., McCabe, C., Keogh, B., Brady, A., & McCann, M. (2020). An overview of the qualitative descriptive design within nursing research. *Journal of Research in Nursing* 25(5), 443–455. <https://doi.org/10.1177/1744987119880234>
- Fingerman, K. L., Birditt, K. S., & Umberson, D. J. (2020). Use of technologies for social connectedness and well-being and as a tool for research data collection in older adults. *National Library of Medicine*. <https://www.ncbi.nlm.nih.gov/books/NBK563112/>
- Fischl, C., Malinowsky, C., & Nilsson, I. (2021). Measurement of older adults' performance in digital technology-mediated occupations and management of digital technology. *British Journal of Occupational Therapy*, 84(6), 376–387. <https://doi.org/10.1177/0308022620937971>
- Ge, L., Yap, C. W., & Heng, B. H. (2022). Associations of social isolation, social participation, and loneliness with frailty in older adults in Singapore: A panel data analysis. *BMC Geriatrics*, 22(1). <https://doi.org/10.1186/s12877-021-02745-2>
- Hughes, M. E., Waite, L. J., Hawkey, L. C., & Cacioppo, J. T. (2004). A short scale for measuring loneliness in large surveys: Results from two population-based studies. *Research On Aging*, 26(6), 655–672. <https://doi.org/10.1177/0164027504268574>
- Ibarra, F., Baez, M., Cernuzzi, L., & Casati, F. (2020). A Systematic review on technology-supported interventions to improve old-age social wellbeing: Loneliness, social isolation, and connectedness. *Journal of Healthcare Engineering*, 2020. <https://doi.org/10.1155/2020/2036842>
- Kaldenberg, J., & Smallfield, S. (2020). Occupational therapy practice guidelines for older adults with low vision. *American Journal of Occupational Therapy*, 74(2), <https://doi.org/10.5014/ajot.2020.742003>
- Kielhofner, G., & Burke, J.P. (1980) A model of human occupation, part 1: Conceptual framework and Content. *American Journal of Occupational Therapy*, 34(9), 572–581. <https://doi.org/10.5014/ajot.34.9.572>
- Marston, H. R., Genoe, R., Freeman, S., Kulczycki, C., & Musselwhite, C. (2019). Older adults' perceptions of ICT: Main findings from the technology in later life (TILL) study. *Healthcare*, 7(3), 86. <https://www.mdpi.com/2227-9032/7/3/86>
- O'Rourke, H. M., Collins, L. & Sidani, S. (2018). Interventions to address social connectedness and loneliness for older adults: A scoping review. *BMC Geriatrics*, 18, 214. <https://doi.org/10.1186/s12877-018-0897-x>
- Peterson, N. A., Speer, P. W., & McMillan, D. W. (2008), Validation of a brief sense of community scale: Confirmation of the principal theory of sense of community. *Journal of Community Psychology*., 36, 61-73. <https://doi.org/10.1002/jcop.20217>

- Smallfield, S., & Molitor, W. L. (2018). Occupational therapy interventions supporting social participation and leisure engagement for community-dwelling older adults: A systematic review. *American Journal of Occupational Therapy*, 72(4). <https://doi.org/10.5014/ajot.2018.030627>
- Thangavel, G., Memedi, M., & Hedström, K. (2022). Customized information and communication technology for reducing social isolation and loneliness among older adults: Scoping review. *JMIR Mental Health*, 9(3). <https://doi.org/10.2196/34221>
- Walsh, R., Leggett, C., & Lee, J. (2019, May 20). Everyday technology use, occupation-based assessment, and functional cognition in older adults post-stroke. *OT Practice*. <https://www.aota.org/publications/ot-practice/ot-practice-issues/2019/everyday-stroke-tech>