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Use of Smartphone Technology to Promote Knowledge of Home Safety

by Bonnie L. Rogulj, PT, DPT

There exists a recent surge in the use of technology resulting from the COVID-19 global pandemic experience. Increased demand for delivery of tele-rehabilitation services has become a primary source of motivation for incorporation of technology by healthcare providers into patient/client management and higher education. Current and future healthcare providers are exercising adaptive thinking skills and implementing creative methods to utilize technology and overcome extraordinary challenges.

Dr. Deborah Ruediger, Assistant Professor for the Master of Occupational Therapy (MOT) and Doctor of Occupational Therapy (OTD) programs at the University of St. Augustine for Health Sciences (USAHS), recognizes the importance of integrating technology for creative rehabilitation interventions and professional development. Presently, Dr. Ruediger is pursuing a Doctor of Philosophy (PhD) degree in Education Technology and Design at Walden University. She is eager to share her passion and advanced knowledge of both technology and rehabilitation. Dr. Ruediger created an innovative activity to promote home safety education for community-dwelling older adults incorporating smartphone technology.

Smartphone technology is utilized to capture a 360-degree image of a home environment. The 360-degree content shot is then analyzed by an occupational or physical therapist and an older community-dwelling adult to examine the image for safety hazards commonly located in a home environment. Examples of home safety hazards identified in the smartphone 360-degree image of a home environment may include (but are not limited to) poor lighting, clutter (e.g., pet toys) scattered on pathways, and throw rugs. Healthcare providers can educate participants/clients regarding the fall risks revealed in the smartphone panorama image. The goal is to improve understanding of home safety with concrete examples relative to an elder's specific situation, further reduce the older adult's risk of falling, and promote overall health and wellness.

Dr. Ruediger enhanced the 360-degree smartphone image by using technology to position "hot spots" on identified home safety hazards. The "hot spot" to be identified reveals additional insight related to the targeted home hazard. The advanced "hot spot" image can be shared with an older adult using technology such as a personal smartphone, tablet, or computer to assess knowledge related to home safety.

Recently, an advanced "hot spot" smartphone 360-degree image was shared with Cindy Greene, a community-dwelling older adult residing in Virginia. Following review of the image, Greene reported "I thought of thresholds located in doorways that may cause a fall, low-set furniture that is difficult to get out of, and toys belonging to grandchildren requiring an older adult to bend low and forward to pick-up." Additionally, she was able to demonstrate an increased awareness of home safety by providing additional home safety recommendations, including "A non-skid mat in the kitchen, lighting for improved visibility, non-skid grip applied to slippery stairs, an organizer for toys, and a handrail that an older adult can actually fit their hand around and grip."

Jordan Lewis, a licensed physical therapist assistant located in northern Florida, was inspired by the possibility of using the 360-degree smartphone image. She created multiple images in the home environment of a community-dwelling older adult female who had fallen 3 times over the course of a month. Jordan stated, "The smartphone images better enabled me to communicate with this person about specific safety measures found within her home. For example, we were able to address and reposition multiple dog beds that were revealed in common walkways and presented as a potential safety hazard. The 360-degree smartphone imaging and discussion led to the incorporation of LED lighting in her kitchen to provide improved visibility for medication management".

This specialized smartphone image of a home environment has been utilized for professional development and student programs. Students enrolled in the Flex Doctor of Physical Therapy program at the University of St. Augustine for Health Sciences (USAHS) were instructed to create a 360-degree smartphone image of a home environment and identify the safety hazards. The future healthcare providers were then encouraged to exercise adaptive thinking skills by considering how smartphone technology can further become an educational tool for future ageing patients through the delivery of telerehabilitation services.

The global pandemic has prompted a recent surge in tele-rehabilitation. Current and future healthcare professionals must continue to overcome extraordinary challenges, seek creative methods for delivery of services, and utilize technology for healthcare advancement by exercising adaptive thinking skills.

Bonnie L Rogulj completed her Doctor of physical therapy degree at Old Dominion University and completed a geriatric residency at Brooks Institute of Higher Learning. She is a board-certified geriatric clinical specialist (GCS), Stepping On Instructor, and mental health first aid instructor. She is a licensed physical therapist and assistant professor at the University of St. Augustine for Health Sciences in the Flex Doctor of Physical Therapy program. Dr. Rogulj is pursuing the Doctor of philosophy (PhD) degree in higher education administration at Liberty University.