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Getting the Seal of Approval: A Critical Literature Review of the Evidence for the Use of the PARO Robotic Companion Seal with Older Adults with Cognitive Impairment in Long-Term Care

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ABSTRACT

Social isolation and disruptive dementia-related behaviors are common concerns among older adults with cognitive impairment and their caregivers within residential long-term care settings. However, many interventions aiming to improve the quality of life of residents through the reduction of dementia-related behaviors and isolation rely on human contact interventions that often require significant time and resources on behalf of care staff. Robotic companion interventions have recently emerged to meet the growing need for unique, easily implemented interventions for this population. The current literature review examined existing empirical evidence for the use of the PARO seal, one of the leading animal-based robotic interventions currently available, in improving outcomes among older adults in residential long-term care. Seventeen publications that examined the impact of PARO intervention on outcomes specifically related to dementia-related behaviors and social isolation among older adults in long-term care were included in the review. Overall, most studies demonstrated some efficacy of the PARO robot in reducing either dementia-related behaviors (e.g., improvements in irritability/agitation, aggressive behavior, sleep symptoms, and affect) or social isolation. However, findings varied widely, likely due to variations in the application of the intervention, sample characteristics (e.g., range of cognitive impairment, small sample sizes), and methodology (e.g., types of outcome measures used, control group). The current literature generally supports the efficacy of the PARO seal in long-term care. However, further studies are needed to fully parse the extent of its effectiveness while accounting for variability in intervention implementation.

KEYWORDS: Social Commitment Robot; Long-Term Care; Social Isolation; Dementia-Related Behaviors; Older Adults; Cognitive Impairment; Aging; Literature Review.

KEY PRACTITIONER MESSAGE

1. The PARO robotic companion seal is a feasible, non-human intervention option that may have benefits for use with older adults with cognitive impairment within long-term care.
2. The existing literature generally supports the PARO seal's effectiveness in reducing social isolation and some dementia-related behaviors among older adults in residential long-term care; however, results vary widely across studies.
3. The current literature examining PARO's effectiveness is limited by a lack of consistency across implementation and outcome measurement, and further study is needed.

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INTRODUCTION

Social isolation and disruptive dementia-related behaviors are two commonly identified problems that emerge among older adults living in long-term care (LTC) settings, especially among the most vulnerable of these adults: those with substantial physical frailty and/or cognitive decline (Boamah et al., 2021; Desai et al., 2012). Researchers and mental health professionals have made longstanding efforts to design and implement effective interventions to foster well-being for individuals living within LTC, with many advancements relying on the availability and quality of social contact, either via engagement with social supports or with professionals implementing a therapeutic program. However, as barriers to consistent social engagement have arisen for many older adults, such as short staffing in facilities, geographical distance from relatives, loss of loved ones, decreased communication ability or mobility, and situational barriers such as COVID-19 restrictions, alternatives to human contact interventions have become increasingly necessary. Various alternatives have emerged to meet this growing need. Some methods have existed for many decades, such as animal therapies, while others have only recently gained momentum, such as robotic companion interventions. This review examines the emerging evidence for the use of one such animal-based robotic companion intervention–the PARO seal–within LTC settings to address the issues of social isolation and dementia-related behaviors.

Long-Term Care Population

Roughly half of all individuals currently turning 65 in the U.S. will require LTC services at some point during their life, whether it be within the home (e.g., caregiving services, home care), outpatient settings (e.g., adult day care), or residential facilities (e.g., assisted living, skilled nursing; Nguyen, 2017). Of the nearly 800,000 residential care and 1.4 million nursing home residents in the U.S., 93.4% and 83.5% of residents are 65 years old and older, respectively (Harris-Kojetin et al., 2019). Residents in these facilities are often managing a variety of chronic physical, cognitive, and psychiatric conditions, with nearly half of nursing home and residential care residents diagnosed with a neurocognitive disorder (e.g., Alzheimer's disease or other forms of dementia) and other common conditions including arthritis, cardiovascular disease, osteoporosis, depression, and diabetes. Additionally, most residents require assistance with at least one basic activity of daily living (ADL), including bathing, eating, dressing, toileting, and ambulation (Harris-Kojetin et al., 2019). Thus, the population of older adults living in LTC represents a large and rapidly growing pool of individuals with unique risks and care needs.

Dementia-Related Behaviors and Social Isolation

Dementia-related behaviors (sometimes referred to as 'behavioral disturbance') are one of the most common manifestations of cognitive decline among LTC residents with moderate to severe dementia (Desai et al., 2012; Husebo et al., 2011). These behaviors typically present as a variety of symptoms across four broad categories: mood disorder, sleep disturbance, psychotic symptoms, and agitation, including specific behaviors such as verbal or physical aggression, wandering, repetitive behaviors, depression, apathy, insomnia, hallucinations, and delusions (Desai et al., 2012). Further, many older adults with cognitive impairment also experience increased social isolation and depression (Nikmat et al., 2015). Cognitive impairment in areas such as language ability, attention, memory, executive functioning, and processing speed can impact the quality and quantity of social interaction, leading to consequences such as withdrawal from social engagement and frustration within interactions. Those living in LTC settings may encounter additional risks related to the accessibility of social figures, limited activities, and lack of novel social interactions, especially recently, as the COVID-19 pandemic resulted in stricter visitation policies and limited activities within LTC. Research indicates that social isolation and perceived loneliness can result in poorer physical and mental health among older adults (Coyle & Dugan, 2012). Additionally, the presence of behavioral disturbance can be a major deterrent to social engagement by facility staff, peers, and family and friends, leading to compounding effects on well-being among older adults with severe cognitive impairment (Desai et al., 2012). Thus, behavioral disturbance and social isolation present two pressing concerns for older adults with cognitive impairment and their caregivers that require apt attention and intervention.

Intervention

Many interventions designed to reduce the frequency or intensity of dementia-related behaviors and/or social isolation within LTC require significant time and resources on behalf of LTC staff, caregivers, or other professionals, in addition to funding to maintain programming. Further, many human contact interventions require commitment and motivation from the residents to engage effectively with the intervention to achieve outcomes (e.g., attending groups regularly and following program protocols). In response to these issues, professionals have begun identifying non-human contact interventions for older adults in LTC settings. For example, Dr. Bill Thomas and The Eden Alternative project introduced a comprehensive group of techniques to improve the quality of care and outcomes in LTC, including the use of animal-assisted interventions (Hooker et al., 2002).

Distinct varieties of animal-based interventions have emerged, including visitation therapies (e.g., visits by live animals) and animal-assisted therapy, wherein the animal and handler work more intensively with care staff toward predetermined outcomes (Johnson et al., 2002). Animal-based interventions have shown promise for improving the quality of life among older adults in long-term care, and one literature review outlines a variety of cognitive, affective, and social benefits among residents with cognitive impairment, including increased social engagement and communication, positive attitudes, and opportunities to engage in cognitively stimulating activities (Eaton-Stull & Williams, 2019). However, even non-human contact interventions require access to trained animals (and their handlers) and engagement of the residents during particular times when the intervention is available, in addition to considerations such as pet allergies or risk of exposure to bacterial infection (Kanamori et al., 2002).

Robotic Interventions in Long-Term Care

One alternative to both human contact-based programs and animal-assisted therapies includes social robot interventions. In the last few decades, great strides have been made in advancing robotic technologies to meet the care needs of vulnerable populations such as children, individuals with developmental disabilities, and older adults with cognitive impairment. Research findings indicate that outcomes of robotic companion interventions are often comparable to those of live animals, including improvements in mood, behaviors, and quality of life in LTC settings (Aarskog et al., 2019; Thodberg et al., 2016). Of the many advancements made, several have been designed and implemented for use with older adults, particularly those with cognitive impairment. Designs of these devices range from human-like, such as the NAO robot, to animal-based, such as the PARO seal and the various Joy for All companion pets. Although a full review of these advancements and their features is beyond the scope of this paper, it is important to note that the market of robotic companions available for use with older adults has become highly saturated over the years, with various perks and features unique to each type (e.g., mobile capabilities, unique movements, and sound banks). Mordoch and colleagues (2013) present a discussion of social commitment robots more broadly, with a review of studies examining various companion robots across settings. In the current paper, the focus is instead placed on closely examining the impacts of one of the most widely researched and unique robotic companion animals-the PARO seal. Narrowing the scope of our critical literature review to specifically examine outcomes of the PARO seal, as opposed to cross-comparing with other robots, allows for a more in-depth analysis of the literature. Further, there are many different features inherent to

each robotic companion, and these variations may contribute to differences in research outcomes.

The PARO Seal

One of the most widely utilized robotic companions introduced to LTC settings across 30 countries is the robotic seal PARO, designed by Takanori Shibata. Designed in the 1990s and officially introduced to the public in 2003, it has gained clearance as a medical device by the U.S. Food and Drug Administration and is considered a biofeedback device and social commitment robot (Shibata, 2012). The PARO seal was named after the Japanese term for 'personal robot' and was designed based on a young Canadian harp seal to avoid preconceived ideas and expectations participants may have about more familiar animals (e.g., cats, dogs). The seal is designed to be attuned to various senses-touch (petting, patting), sight (responsive to light), hearing (recognizing the direction of a sound, detection of common words such as its name and greetings), temperature (detection of warmth), and posture (being held). The PARO seal utilizes surface tactile sensors to respond to user contact and engages in three forms of behaviors: proactive, reactive, and physiological (e.g., diurnal rhythm). It is capable of independent movement (e.g., of head, flippers, and tail) and sound production and is similar in size and weight to a human baby, allowing older adults to hold and move it as desired. The PARO seal is also able to memorize its name and uses reinforcement learning, responding differently to positive (e.g., petting) versus negative (e.g., hitting) contact. A full description of the functions and design of the PARO seal can be found in Wada and Shibata (2007) and Shibata and Coughlin (2014).

Throughout its career as a therapeutic robot, the PARO seal has been documented to have significant positive effects when introduced to LTC settings, including biological, psychological, and social benefits. The PARO seal's mechanism of action is thought to be similar to those found with live animal interventions, as the seal introduces a non-judgmental companion figure that can provide social and recreational support. The research question to be addressed by the current critical literature review is whether the PARO companion robot's efficacy as an intervention within LTC facilities for the improvement of social and dementia-related outcomes is supported by the recent literature. A recent systematic review by Wang and colleagues evaluated outcomes of the PARO seal within elder care facilities across nine studies, with a focus on randomized control trials. Results indicated some evidence for the use of the PARO seal; however, they noted caution due to variability in study design and quality (Wang et al., 2022). This review is intended as a preliminary exploration of the literature through a novel lens (e.g., focus on variability in intervention implementation) in LTC.

A variety of studies utilizing the PARO seal have been conducted over the past two decades, with key studies relevant to the research question highlighted in Table -1. Key studies were defined as contributing unique findings to the literature on the PARO seal's efficacy for use with older adults with cognitive impairment in residential LTC settings, specific to the outcomes of social engagement and dementia-related behaviors.

METHODS

Inclusion criteria included: a) use of the PARO seal as an intervention; b) sample(s) from a residential long-term care setting; c) specific outcomes related to dementia-related behavior and/or social engagement/isolation; d) older adult sample; and e) paper represents unique, published data. Papers were excluded if samples were strictly community-dwelling or outpatient (e.g., adult day care centers), other robotic companions were used without comparison to PARO, papers represented repeated findings from the same project (without unique outcomes), and/or outcomes were unrelated to the target variables. Following exclusion, 17 papers were retained in the final review (See Table 1).

Throughout our review, interventions broadly fell into one of two categories: free access (which means availability of the PARO seal within the facility to be interacted with at the resident's discretion across long periods) or scheduled intervention (wherein the seal was available only during specified intervention periods either in a group or individual format). Differentiation of results by free access versus scheduled intervention was selected due to the high likelihood of this variability in presentation impacting outcomes. For example, access to the PARO seal in free access conditions can impact the duration of exposure up to several hours per day compared to scheduled brief interventions (e.g., five to 60-minute sessions). Further, no reviews to date have discussed this difference that is salient throughout the literature or addressed its potential contributions to the variability in research findings.

RESULTS

Disruptive Dementia-related Behaviors Outcomes

As neurocognitive disorders are some of the most prevalent conditions among older adults in LTC, significant research has investigated outcomes of PARO intervention among residents with disruptive dementia-related behaviors, which can present as some of the most challenging symptoms within this population. Specific outcomes often assessed include affective and mood changes, caregiver/staff stress or burden, overt behaviors (e.g., wandering, aggression), and overall ratings of composite dementia-related behaviors. Use of the PARO seal has been adopted worldwide, and recent developments

have included protocols for use, including protocols from the United States Veterans Administration that recommend the use of the seal for residents with psychomotor agitation (or "busy hands"), resistance to care, emotional distress or depression, and social isolation (PARO Company, personal communication, September 14, 2021). The following sections will describe outcomes of dementia-related behaviors across various studies, distinguished by the type of intervention implemented.

Free Access

Although only a few studies have examined the impacts of a freely accessible PARO companion robot on dementia-related behaviors in residential care settings, the preliminary findings are promising. Shibata and Coughlin (2014) examined the impact of PARO introduction into two U.S. nursing home facilities by conducting clinical assessments pre- and post-introduction (with no control group). Findings demonstrated that the number of residents with clinical depression (based on MDS2.0 ratings) dropped from 13 to 6, and the number of residents displaying problematic dementia-related behaviors (e.g., verbal aggression) decreased from 20 to 10 following PARO introduction. Research on the effects of the PARO seal among older veterans living within Veterans Affairs (VA) long-term care facilities with free access to interact with the seal also indicated positive impacts on affect and behavior and decreased dementia-related behaviors over a period of 1.5 years, with particular effectiveness among relatively non-agitated residents (e.g., those that are not behaviorally agitated prior to PARO engagement; Lane et al., 2016). Another study conducted in Japan that followed three residents with cognitive impairment over seven months of freely accessible PARO intervention demonstrated decreased caregiver burden and less frequent dementia-related behaviors when PARO was present compared to when it was absent (Hori et al., 2021). This case study also found subjective reports from facility staff of positive emotions among staff members when viewing residents interacting with PARO. Interestingly, the impacts of free access to the PARO seal seem to differ depending on the residential setting. One randomized control trial (RCT) examining free access to PARO in two dementia day care centers and in homes of community-dwelling older adults with dementia demonstrated improvements in affective symptoms and communication but did not find changes in dementia-related behaviors, contrary to findings from within LTC settings, though this may be due to differences in sample characteristics (e.g., severity of cognitive impairment; Liang et al., 2017). Thus, based on the limited research currently available, it seems that the PARO seal may have some merit in reducing disruptive dementia-related behaviors and symptoms when

Table-1. Summary of Key PARO Studies

Study	Sample	Setting	Method	Measures	Outcomes
Wada et al. (2005)	N=14 (cognition varied)	Health service facility (Japan)	Individual interaction for 1 hour twice a week for one year	Face scales; Geriatric Depression Scale; Staff report	Improved mood (decreased depression) sustained throughout the year
Wada & Shibata (2007)	N=12	Care houses (Japan)	PARO is openly available for 9 hours per day in common areas over two months	Interviews; Video monitoring	Increased subjective (self-report) and objective (observation) social engagement and communication
Wada & Shibata (2009)	N=12	Care house (Japan)	PARO is openly available for 9 hours per day in common areas over one year	Interviews; Video Monitoring	Residents had denser social ties following a year of PARO activity
Roger et al. (2012)	Study 1: N=3 (moderate dementia) Study 3: N=4 (moderate dementia)	Long-term care and rehabilitation facility (Canada)	Study 1: 30 minutes per day for two weeks (individual) Study 3: Three 30-minute sessions with a care partner	Face scale; Video recordings; collateral interviews	Study 1: Collateral reports indicated improved mood and decreased loneliness Study 3: Facilitated communication with care partner and improved affect
Robinson et al. (2015)	N=21	Retirement home: rest home care and hospital units (New Zealand)	RCT; 12-week PARO intervention (10-minute interactions)	Blood pressure (before and after interaction)	Decreased blood pressure following exposure, indicating reduced stress
Shibata & Coughlin (2014)	Study 2: N=28 (dementia) Study 3: N=14 (dementia)	Study 2: Nursing homes (USA) Study 3: Dementia units (USA)	Study 2: Pre- and post-test of PARO introduction to units Study 3: Individual therapy sessions with PARO	Clinical assessments (before and after introduction)	Study 2: Decreased depression and problematic dementia behaviors Study 3: Improved affect and relaxation, decreased dementia-related behaviors (wandering, aggression, loneliness)
Takayanagi et al. (2014)	N=19 (mild/moderate dementia). 11 (severe dementia)	Nursing care facility (Japan)	Individual 15-minute sessions, compared to a plush toy	Behavior observation (video)	Greater engagement with PARO than control; positive changes in affect; Less demand for staff when PARO was present (in the mild/moderate group)
Valentí Soler et al. (2015)	Phase 1: N=101 (moderate to severe dementia) Phase 2: N=110 (moderate to severe dementia)	Nursing home (Spain)	Block RCT; 30–40-minute group sessions twice a week for three months (versus NAO robot, live dog, care as usual)	Blind ratings at baseline and post-intervention: GDS; MMSE; sMMSE; APADEM-NH; Quality of Life in Late-Stage Dementia	No improvements in quality of life or MMSE performance. Some improvements in apathy in both PARO and NAO in phase 1 only. Inconsistent changes in sleep, irritability, and inhibition
Jøranson et al. (2016a)	N=30 (dementia)	Nursing homes (Norway)	30-minute group sessions twice a week for 12 weeks	Video recording of behavior (ethogram)	PARO increased engagement and communication, but participants with severe dementia had difficulty engaging compared to those with mild/moderate

Table-1. Continued...

Study	Sample	Setting	Method	Measures	Outcomes
Jøranson et al. (2016b)	N=27 (dementia)	Nursing home units (Norway)	Cluster RCT; Group activity twice a week over 12 weeks (versus care as usual)	Quality of Life in Late-Stage Dementia scale; medication usage	Quality of life was stable in the PARO group compared to the decline in control. The PARO group used less psychotropic medication than the control post-intervention
Lane et al. (2016)	N=23 (82% had dementia diagnosis)	VA community living center (USA)	PARO was openly available in communal spaces	Staff observations of mood and behavior (before, during, and after interaction)	Decreased negative behavioral states; increased positive behavioral states
Thodberg et al. (2016)	N=100 (cognition varied)	Nursing home (Denmark)	RCT; individual 10-minute visits twice a week for six weeks with a facilitator (versus stuffed toy or live dog)	Behavior observation (live and video records)	Improvements in engagement and communication were comparable between PARO and live dogs; however, PARO interest decreased over time
Moyle et al. (2017)	N=415 (dementia)	Long-term care facilities (Australia)	Cluster RCT; individual 15-minute sessions, three times per week for ten weeks	Behavioral observation (video); Cohen-Mansfield Agitation Inventory-Short Form	Greater verbal and visual engagement compared to plush toys. Decreased neutral affect and agitation, and increased pleasure compared to usual care
Petersen et al. (2017)	N=61 (mild to moderate dementia)	Dementia care units (USA)	Randomized block design; 20-minute group sessions three days per week for three months	RAID; CSDD; GDS; pulse rate; pulse oximetry; GSV; medication utilization	Oxygen saturation, pulse rate, GSV, RAID, CSDD, and medication use were all positively impacted
Koh & Kang (2018)	N=33 (dementia)	Nursing home facility (Korea)	30-minute group sessions twice per week for six weeks using a manualized program	MMSE-K; Apparent Emotion Rating Instrument; Korean Cohen-Mansfield Agitation Inventory; Video observation	No change in cognition (MMSE); compared to controls, the PARO group showed greater positive emotion, fewer problem behaviors, and increased social engagement post-treatment
Pu et al. (2021)	N=43 (dementia or probable dementia and chronic pain)	Residential aged care facility (Australia)	RCT; daily 30-minute individual intervention for six weeks	Actigraphy (sleep, motor activity)	Sleep patterns improved in the PARO group
Hori et al. (2021)	N=3 (cognitive impairment)	Distributed layout elderly housing (Japan)	Free interaction in a common area during 9-hour blocks over seven months	Dementia Behavior Disturbance Scale short version; Staff interviews	Care staff burden and dementia symptoms were decreased when PARO was present

Note. RAID = Rating for Anxiety in Dementia. GSV = Galvanic skin response. GDS = Global Deterioration Scale. CSDD = Cornell Scale for Depression in Dementia. RCT = Randomized control trial; MMSE = Mini Mental Status Exam. sMMSE = Severe Mini Mental Status Exam; APADEM-NH = Neuropsychiatric Inventory and Apathy Scale for Institutionalized Patients with Dementia-Nursing Home Version.

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have included protocols for use, including protocols from the United States Veterans Administration that recommend the use of the seal for residents with psychomotor agitation (or "busy hands"), resistance to care, emotional distress or depression, and social isolation (PARO Company, personal communication, September 14, 2021). The following sections will describe outcomes of dementia-related behaviors across various studies, distinguished by the type of intervention implemented.

Free Access

Although only a few studies have examined the impacts of a freely accessible PARO companion robot on dementia-related behaviors in residential care settings, the preliminary findings are promising. Shibata and Coughlin (2014) examined the impact of PARO introduction into two U.S. nursing home facilities by conducting clinical assessments pre- and post-introduction (with no control group). Findings demonstrated that the number of residents with clinical depression (based on MDS2.0 ratings) dropped from 13 to 6, and the number of residents displaying problematic dementia-related behaviors (e.g., verbal aggression) decreased from 20 to 10 following PARO introduction. Research on the effects of the PARO seal among older veterans living within Veterans Affairs (VA) long-term care facilities with free access to interact with the seal also indicated positive impacts on affect and behavior and decreased dementia-related behaviors over a period of 1.5 years, with particular effectiveness among relatively non-agitated residents (e.g., those that are not behaviorally agitated prior to PARO engagement; Lane et al., 2016). Another study conducted in Japan that followed three residents with cognitive impairment over seven months of freely accessible PARO intervention demonstrated decreased caregiver burden and less frequent dementia-related behaviors when PARO was present compared to when it was absent (Hori et al., 2021). This case study also found subjective reports from facility staff of positive emotions among staff members when viewing residents interacting with PARO. Interestingly, the impacts of free access to the PARO seal seem to differ depending on the residential setting. One randomized control trial (RCT) examining free access to PARO in two dementia day care centers and in homes of community-dwelling older adults with dementia demonstrated improvements in affective symptoms and communication but did not find changes in dementia-related behaviors, contrary to findings from within LTC settings, though this may be due to differences in sample characteristics (e.g., severity of cognitive impairment; Liang et al., 2017). Thus, based on the limited research currently available, it seems that the PARO seal may have some merit in reducing disruptive dementia-related behaviors and symptoms when

readily available in residential units; however, further research is needed to confirm these findings and determine whether effects are maintained across time, as some evidence suggests that when PARO is removed from the facility, behaviors return to pre-intervention frequency (Hori et al., 2021). Further, as these benefits seem to have limited replicability among community-dwelling older adults, further investigation is needed to understand how PARO functions within the social context of residents.

Scheduled Intervention

More research has been conducted examining the impacts of scheduled interactions with the PARO seal on a variety of dementia-related behaviors and symptoms, including affective and sleep symptoms, behavioral presentations (e.g., aggression, wandering), and related factors such as stress and quality of life. One recent RCT (Moyle et al., 2017) compared the PARO seal to a similarly designed plush toy and the usual treatment and found that the PARO seal improved various outcomes compared to the usual treatment group and demonstrated mild improvements above that of the plush toy. Specifically, behavioral observation indicated decreased neutral affect and agitation and increased pleasure among the PARO group compared to usual care, as well as increased verbal and visual engagement with the stimuli compared to the plush toy control. Another study comparing the PARO seal's effectiveness with a stuffed toy indicated that among older adults with both mild to moderate dementia and severe dementia, nursing care residents demonstrated more verbal interaction, more frequent laughter, and more positive affect with the seal compared to the stuffed toy. Additionally, residents also demonstrated a decreased need for staff initiation when PARO was present (Takayanagi et al., 2014). Another study implementing a 12-session group PARO program that included 30 minutes of PARO interactions within a nursing home facility indicated reduced dementia-related behaviors and increased positive emotion among the PARO group compared to controls (Koh & Kang, 2018). Regarding sleep, one RCT conducted over six weeks with individual 30-minute PARO interactions found that PARO intervention improved sleep for residents with cognitive impairment compared to residents receiving treatment as usual. Specifically, they demonstrated greater sleep quantity at night during the first week of intervention in addition to greater daytime wakefulness at week six compared to controls (Pu et al., 2021). Further, an RCT of nursing home residents with severe dementia indicated that residents receiving group PARO seal intervention twice a week over 12 weeks demonstrated stable quality of life at 3-month follow-up compared to decreased quality of life among residents in the control group. Additionally, the PARO group required significantly less psychotropic

medication post-intervention compared to the control group (Jøranson et al., 2016b). Similar findings by Shibata and Coughlin (2014) indicated the decreased need for antipsychotic medication within dementia care units following the introduction of individual PARO therapy services to older adult men. Further, they also found increased relaxation and positive affect in addition to decreased dementia-related behaviors such as wandering, verbal and physical aggression, and loneliness. However, one study comparing PARO's effectiveness to the NAO robot, care as usual, and a live dog demonstrated no consistent impacts of PARO among older adults with moderate to severe dementia within a nursing home (Valentí Soler et al., 2015).

Though a few analyses indicated possible impacts on sleep, disinhibition, and irritability, the authors reported inconsistency and lack of strength of these findings, possibly alluding to a decreased efficacy of the PARO seal among those with severe dementia presentation. Supporting this idea, one systematic review of eight PARO intervention studies indicated that while the PARO seal shows moderate benefits in reducing dementia-related behaviors compared to care as usual in LTC, it may not be significantly more effective than a non-animatronic plush toy, particularly when working with residents with severe forms of dementia (Chan et al., 2022).

Finally, consistent with animal intervention studies, research indicates that the PARO seal can have impacts on physiological outcomes, which may be indicative of stress levels. Robinson and colleagues (2015) found that the PARO seal was effective at decreasing systolic and diastolic blood pressure in addition to heart rate following brief (i.e., 10-minute) interactions between PARO and LTC residents across 12 weeks (Robinson et al., 2015). These findings provide some evidence of the acute impacts of residents' experiences with PARO, which may impact the subsequent emergence of agitation and dementia-related behaviors, though it is unclear how long these effects are maintained. Though non-residential, additional research within adult day care centers supports these findings. One study indicated that the introduction of the seal robot might alleviate both resident and caregiver stress levels within adult day care centers by facilitating increased relaxation among residents, leading to less requirement of active supervision and reduced caregiver burden during time spent with PARO (Wada et al., 2004).

Social Outcomes

Free Access

Many studies have examined the social impacts of companion robots, including PARO, on outcomes among LTC populations. However, few of these studies have examined the long-term impacts of freely accessible PARO companions on social engagement and communication.

Initial studies examining the effects of less controlled interactions with the PARO seal (i.e., the presence of the seal for several hours a day within the residence, available to residents) demonstrate that introduction of the seal to an LTC residence for two months (available for nine hours per day) led to improvements in social activity among residents, both subjectively (via self-report) and objectively (via monitored social behavior), with continued positive outcomes and engagement with the robots over the following year of exposure (Wada & Shibata, 2007; Wada & Shibata, 2009). Specifically, residents in LTC residences in Japan demonstrated increased communication with others in the facility and greater social engagement when PARO was available. Further, residents with free access to the PARO seal in communal areas demonstrated denser social ties following a year of exposure, as noted through interviews and video monitoring of communal behavior (Wada & Shibata, 2009). Potentially, these results may demonstrate that the PARO seal may act as a facilitator of social activity among residents and encourage them to spend time within communal areas of the facility, as opposed to isolating themselves within their rooms with limited social contact.

Scheduled Intervention

Results of scheduled PARO intervention programs have demonstrated fairly consistent positive results of improved social outcomes among older adults in LTC. One study indicated that interaction with the PARO seal for one hour twice a week over a year-long period improved resident mood by decreasing depressive symptoms and facilitated increased communication between residents and caregivers (Wada et al., 2005). Another study indicated that group PARO sessions might facilitate increased social engagement among residents (Koh & Kang, 2018). Further, residents demonstrated a positive attachment to the seals, including naming each robot. This is consistent with studies examining other companion robots that indicate older adults with cognitive impairment often form attachments and project intrinsic motivations and personalities to companion robots (LaRose et al., 2021). Improvements in social engagement and communication following PARO intervention have also been compared to those demonstrated by live animal (i.e., trained dogs) therapies, though sustained interest in the PARO seal over extended periods of time varies (Thodberg et al., 2016). Further studies indicate that family members of LTC residents with moderate dementia reported improved mood and decreased loneliness among their loved ones following residents' daily PARO intervention (Roger et al., 2012). In another study wherein family members were present during an intervention, the PARO seal facilitated improved

communication between the resident and their care partner, including improved affect during interaction and broader verbal engagement with their partner (Roger et al., 2012). However, the sample sizes were significantly limited in these two studies. That said, one study outside of the LTC setting has also found preliminary support for PARO's role in improving interactions with caregivers, though results vary across individuals and families (Inoue et al., 2021). Shibata and Coughlin (2014) also found that older men with dementia residing in dementia care units expressed less loneliness during clinical assessment following the introduction of individual PARO therapy services. Results appear to be mixed in terms of sustained impact on communication and affect over time, with some research indicating that effects are maintained for up to a year (Wada et al., 2005) and others indicating decreased engagement over time (Thodberg et al., 2016). Some findings suggest that impact and engagement with the PARO seal vary by the cognitive status of residents, with individuals with severe cognitive impairment experiencing greater difficulty engaging and benefiting compared to those with mild to moderate decline (Jøranson et al., 2016a). Likely, engagement and sustained impact of intervention depend on a) sample (e.g., the severity of cognitive impairment, residential setting) and b) intervention variability (i.e., type of exposure, duration of interaction, accessibility).

CONCLUSION

Social isolation and disruptive dementia-related behaviors are two of the most common concerns raised by staff and older adult residents in LTC settings. Further, the presence of cognitive impairment, a highly prevalent concern among older adults in LTC, can compound the effects of social isolation, leading to poorer quality of life and well-being (Boamah et al., 2021; Desai et al., 2012). The PARO companion robot has been introduced as one potential intervention to improve the lives of LTC residents and their caregivers by decreasing social isolation and dementia-related behaviors, and researchers have spent the last two decades determining its efficacy within these settings. Based on the current literature, older adults with mild to moderate cognitive impairment appear to benefit the most from PARO intervention, and the frequency and quality of exposure likely impact the nature and extent of benefits for residents. Based on this critical literature review, it appears that structured PARO interventions with limited time of exposure may provide immediate benefits such as reduced stress, improved affect, and increased social engagement and communication; however, the lasting impacts of these sessions may be limited. Fewer studies have examined the impact of the PARO seal on residents when accessibility is longstanding, but current

findings suggest that long-term impacts of a highly accessible PARO seal may be retained for extended periods, up to a year or beyond, depending on length and type of exposure. Long-term impacts were found in the quality and quantity of social engagement and communication as well as mood and affect, both of which may impact the emergence of other dementia-related behaviors such as agitated behavior and aggression.

Further, the PARO seal seems to present benefits for care staff in addition to residents, possibly due to the availability of an alternative social figure (the seal) and recreational activity. Caregivers and staff seem to benefit from fewer care demands from residents when PARO is available, and two studies indicated reduced stress among staff, likely due to the positive impacts of PARO on residents' behavior and attitudes as well as these decreased demands. That being said, evidence to support PARO's use with individuals with severe dementia, as opposed to mild to moderate cognitive impairment, is less consistent. While some studies demonstrated potential benefits of the seal among those with severe cognitive impairment, others indicated little to no effect of the seal compared to other treatment options (e.g., plush toy, care as usual), and few studies clearly delineated results based on level of cognitive impairment. Additionally, some studies indicated that the level of agitation at the onset of interaction may impact engagement with PARO. Thus, it may be that PARO is most effective when readily accessible among those with mild to moderate cognitive impairment and among those who are not actively agitated.

Overall, the PARO seal's effectiveness in LTC populations of older adults with cognitive impairment has been reliably suggested across studies, settings, samples, and geographical locations, though findings continue to vary due to the inconsistent methodologies applied. Further, much of the current literature is limited based on sample size and methodological constraints. However, the PARO seal's suggested benefits seem to be comparable to other non-robotic interventions (e.g., animal-based interventions), with minimal risks associated with or requiring human resources. For example, the seal can be made readily accessible to residents, requiring minimal staff oversight or responsibility of residents to engage in specified ways with the intervention. The benefits provided by PARO are likely attributable to similar mechanisms as animal-based approaches, as residents are provided with a supportive, non-judgmental figure through which they can communicate freely and receive comfort.

Similar to a live animal companion, the seal is able to respond to interaction, providing support for residents that may cross boundaries that communication

limitations may present with other people (e.g., for residents with declining language ability and/or sensory disabilities). The intervention requires little mobility or demands on the residents, and when applied in a free-access manner, it can be readily available for use at the resident's discretion, which may aid in preventing dementia-related behaviors prior to the escalation of mood or behavioral disturbance. For example, residents can seek comfort from the seal when agitated or lonely, potentially alleviating symptoms. Further, the seal has additional benefits in facilitating communication and activity among residents, acting as a point of conversation and social activity that may promote more frequent use of communal areas within facilities. Thus, PARO seems to be a promising addition to existing care structures within LTC facilities and may improve resident quality of life when used to supplement care as usual and existing systems for social support.

Limitations and Future Directions

There are several important limitations of the current literature to be addressed. Of note, existing studies of robotic companion interventions like PARO are highly variable in the method and duration of intervention used, which may lend itself to inconsistent results and variability in findings. That being said, some research indicates that a one-size-fits-all approach to PARO intervention may not be ideal and that there is high variation in responses to PARO overall (Moyle et al., 2019). Furthermore, the lack of control groups in some of the studies limits conclusions made from the results (i.e., that the results are from the intervention itself rather than other variables), and few studies reported effect sizes in their results. Concerns have also been raised about the presence of bias and the quality of results and reporting seen throughout PARO study publications, indicating a need for stronger evidence of its effectiveness beyond what is currently available to draw solid conclusions (Wang et al., 2022). Along these lines, measurement of dementia-related behaviors and social outcomes among LTC residents can be challenging, and many studies rely on collateral reports, staff observations, or limited self-report data to evaluate social and behavioral outcomes. In instances of the staff report, blind reporting is typically impossible due to the nature of staff observation of behaviors, leading to possible biases in reporting, which may impact data fidelity. Finally, sample sizes among most studies utilizing the PARO seal are small, which may lead to issues such as a lack of generalizability of findings and insufficient statistical power. Thus, future research should investigate the replicability of existing findings and expand research methods to include large, diverse samples and multiple data collection forms. Additional research in the realm of social robotics has also begun to examine the ways in which caregivers utilize PARO and the role

through which the seal functions in the context of the care setting (Pfadenhauer & Dokat, 2015). With these limitations and new directives in mind, it is imperative that additional research is done to understand what components of the PARO seal (and other similar interventions) are truly responsible for intervention outcomes. Further clinical trials are needed to parse out the most effective forms of intervention when using the PARO seal (e.g., free access versus scheduled, individual versus group). Additionally, further investigation into the benefits of PARO in other treatment settings may also expand our understanding of the utility of the PARO seal. Existing studies have primarily focused on outpatient settings such as adult day cares (Wada et al., 2004) and acute care settings such as hospitals (Kelly et al., 2021), however as the use of the PARO seal in individual homes by caregivers is rising, especially in Japan (Pfadenhauer & Dokat, 2015), further information is necessary to understand the benefits of introducing PARO as a household item, especially for caregivers of older adults with cognitive impairment. This need for additional research among caregivers is further supported by existing research, as even within LTC settings, some studies provide evidence that family care partners may experience improvements in interactions with care recipients when utilizing PARO (Roger et al., 2012) and caregiving staff may experience less care burden (Hori et al., 2021). However, other research indicates that caregivers and staff may experience barriers to PARO implementation (e.g., unclear protocols, cost, and learning to use the technology) and that outcomes may vary based on the effectiveness of staff use (Share & Pender, 2021). Thus, future studies should further explore the impacts of PARO on caregiver outcomes and evaluate the ease of implementation for both formal and informal caregivers.

Further, the current critical literature review represents a preliminary investigation of the existing support for using the PARO seal with older adults in LTC. Based on the current findings, a full systematic review of this literature appears warranted and could add additional insights into its effectiveness across studies. Additionally, including other robotic companions as a comparison could be beneficial in a broader review of current intervention options for LTC. Future research should also investigate the precise mechanisms underlying the effectiveness of robotic companions such as the PARO seal.

Finally, recent advancements have begun to move beyond stationary robotics that require human intervention to initiate and/or control. These new advancements are making initiatives to create systems that can detect and respond automatically to behavioral disturbance through sensors and response mechanics that allow them to independently transport to an individual and soothe the behavior, with alarm

technologies installed to alert staff if the intervention is unsuccessful. These responsive robotics are programmed with auditory stimuli to soothe the resident, such as singing a song, asking questions, and reporting on news events. One instance of this new technology has been applied to the NAO robot, with enhancements made for quicker and smoother mobility, with results adding to the literature on effective ways to position and model this form of robotic intervention (Nauta et al., 2019). Thus, the future of social commitment robotics looks bright, and future directions should seek to compare these new advancements to existing interventions, such as the PARO seal, to determine the most effective and feasible treatment options for LTC residents.

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Validation of the Turkish Revised Algase Wandering Scale – Long Term Care Version (TR-RAWS-LTC) For People With Dementia in Türkiye

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ABSTRACT

The Revised Algase Wandering Scale-Long-Term Care Version (RAWS-LTC) is a tool used to measure the level of wandering in people with dementia who live in Long-Term Care (LTC) facilities. This study aims to adapt RAWS-LTC to Turkish (TR) and determine its psychometric suitability. The scale was translated from its original language, English, into Turkish and then translated back to English by bilingual translators. It was then reviewed and evaluated according to translation problems and equivalence degrees. In this study, TR-RAWS-LTC was administered to eighty-six wanderers and fifty-six non-wanderers with dementia by nurses. The triple conceptual structure of TR-RAWS-LTC, consisting of persistent walking, eloping behavior, and spatial disorientation sub-dimensions, was confirmed by factor analysis. TR-RAWS-LTC total and three sub-dimension score levels were significantly different in wanderers with dementia compared to non-wanderers. A valid and reliable wandering assessment tool that can be easily applied by caregivers of individuals with dementia in long-term care has been brought to the Turkish literature.

KEYWORDS: Dementia; Alzheimer's Disease; Wandering Behavior; Assessment; Long-Term Care; Cross-Cultural Adaptation.

KEY PRACTITIONER MESSAGE

1. Wandering is a clinical issue that is little known by caregivers of individuals with dementia receiving LTC in Türkiye.
2. Conventional methods, such as inhibition of wandering behavior using physical and pharmacological constraints, are widely used in LTC.
3. Determining the degree of wandering behavior of dementia patients using RAWS-LTC will ensure the effectiveness of an individualized care plan.

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INTRODUCTION

Dementia is an organic mental disorder characterized by impairment in memory, behavior, personality, reasoning, attention, spatial relationships, language, abstract thoughts, and other executive functions. The World Health Organization (2012) reported that dementia affects 36 million people worldwide, and this number is expected to increase to 66 million by 2030 and to 115 million by 2050. Intellectual decline in dementia initially manifests in consciousness and is usually progressive (MeSH., 2011). Dementia affects the brain, makes individuals vulnerable, and impairment in memory, communication, and orientation negatively affects daily life activities, causes difficulties in social functions, and reduces the quality of life (Ennis & Kazer, 2013). Today, models that support the physical, mental, social, or spiritual aspects of the care needs of individuals with dementia have gained significant momentum. Healthcare professionals have a caring approach that aims to maintain the patient's condition and manage symptoms during the variable course of dementia (Ødbehr et al., 2015).

Wandering in people with dementia is a common, challenging, and potentially dangerous behavior that can be distressing for both the person with dementia and their caregivers. It is a behavioral problem involving cognitive impairment related to abstract thinking, language, reasoning, and spatial skills, and its prevalence is estimated to be in the range of 11-24% in people with institutional dementia (Algase et al., 2001). In addition, the term wandering is used to describe agitated behaviors (Cohen-Mansfield & Libin, 2004). Two types of wandering are defined. In goal-directed wandering, the person may pretend to be searching for or doing something. In non-goal-directed wandering, the person usually has a short attention span and wanders aimlessly (Moore et al., 2009).

Wandering is one of the main reasons for early admission to institutional care. Numerous studies have shown that wanderers are likelier to fall, escape, get lost, and experience emotional distress. People with dementia with wandering behavior are at risk for eloping behavior, may enter unsafe or unsupervised areas unnoticed, and may get lost while carrying out a normal and permitted activity (Chung & Lai, 2011; Rowe et al., 2011). According to the Alzheimer's Disease International (2016), half of missing people with dementia who are not found within 24 hours experience severe injury or death. Approximately 60% of patients with Alzheimer's residing in the community have been reported missing at least once (Aud, 2004). It has been reported that 30% of dementia patients living in the community have wandering behavior, and the prevalence of wandering in depressed patients is 8.4 times higher than in

those without (Jeong et al., 2016).

Physical and pharmacological restraints have traditionally been employed to prevent wandering (Dewing, 2011). Nevertheless, it has been highlighted that these restrictions are ineffective and contribute to higher rates of pressure sores, anxiety, physical violence, falls, morbidity, and mortality (Raetz, 2013). A review study found that many high-tech (positioning systems, radio-frequency identification-RFID, global positioning system-GPS, radio frequency-RF, alarm and surveillance tools, navigation sensors, navigator tools, distraction/direction tools) and low-tech strategies (music therapy, doll therapy, exercise programs, mirror in front of the exit door, blind/fabric barriers, signage, door mural, gradual strengthening, distraction techniques, safe return programs, aromatherapy, reality orientation, lighting/noise/temperature level, pharmaceutical applications, and locked units/physical restraints) are available and effective for managing wandering-related negative outcomes in people with dementia (Neubauer et al., 2018). However, it was also stressed that the benefits of walking, such as circulation, oxygenation, and reduced risk of contractures, should not be lost to prevent residents from wandering (Lai & Arthur, 2003).

Adopting an individualized care plan that addresses the unique physical and psychosocial needs of wanderers represents a more compassionate and efficient approach. Nursing care plans for wandering should include environmental changes, technology, safety, physical interventions, psychosocial interventions, and training (Aud, 2004). A collaborative team approach involving healthcare providers, families, and other affected residents should be employed to effectively manage wandering behavior (Robinson et al., 2007). To design nursing interventions to help older adults with dementia with wandering behavior, it is first necessary to understand the nature/characteristics of their wandering behavior. This is because wandering has a pattern, frequency, and temporal aspect. Creating a positive care environment can help mitigate the risks associated with wandering (Gu, 2015). In addition to having sufficient staff to supervise wandering residents, it has been suggested that wandering individuals can be supported by incorporating the pathways of wandering into care. Designing corridors that go around in a circular loop and placing simple visual cues or objects along this route can facilitate therapeutic walking (Marquardt et al., 2014).

Wandering or aimless walking is common in Long-Term Care (LTC) homes for older adults with dementia. Healthcare providers often view wandering as a problem that disrupts their care routine, and they may try to control or prevent it (Dewing, 2005; Halek & Bartholomeyczik, 2012). However, little is known about how older adults with dementia

themselves view wandering (Tanner, 2012). A recent study by Adekoya and Guse (2019) found that older adults with mild to moderate dementia in LTC often conceptualized wandering as an enjoyable, beneficial, and purposeful activity. The study also found that wandering could be a way for older adults to express their emotions or to cope with stress.

It is important to estimate the degree of wandering behavior of people with dementia in LTC. For this purpose, two tools stand out in the literature. One of them is the Wandering Screening Tool-WST, a risk diagnostic tool Dewing (2005) developed for nurses to identify those at risk for wandering and develop appropriate care. The WST is a two-part tool that assesses the risk of wandering in people with dementia. Part A of the WST asks questions about the person's medical history, cognitive function, and behavior. If the person answers yes to any of the questions in Part A and they have a diagnosis of dementia (especially Alzheimer's), they are considered to be at risk of wandering. Part B of the WST asks questions about the person's environment and their access to safety measures. If the person answers yes to any of the questions in Part B, they are considered to be likely to engage in some form of wandering, and they may be at risk of engaging in a more risky type of wandering. It is important to note that the WST does not have any methodological implications.

The other is the Revised Algase Wandering Scale-Long Term Care version (RAWS-LTC) (Algase et al., 2004). The RAWS-LTC is a useful tool for healthcare providers to identify people who are at risk of wandering and to develop interventions to manage wandering behavior. Martin et al. (2015) adapted the RAWS-LTC into French and found it to be a valid instrument. However, in Türkiye, wandering has never been systematically studied in older adults with dementia in LTC, and no scale specific to wandering behavior was developed. Technological observational methods are becoming more common for measuring wandering, but they can be expensive and time-consuming. This study aims to address this by investigating the psychometric properties of the RAWS-LTC, a less expensive and time-consuming method, in older people with dementia in Türkiye.

METHOD

Design and Setting

This study adapted the RAWS-LTC for use in Türkiye with older adults with dementia living in long-term care. The study sample consisted of 416 participants from six centers in two provinces. Inclusion criteria were age 65 or older, a diagnosis of dementia, and no musculoskeletal problems that prevented walking. The sample size of 150 was sufficient for factor analysis, as this is within the recommended range of 5-10 times the number of items in the scale, which

was 15 in this study (Buyukozturk, 2002). Based on this information, the study sample was planned to include at least 95 older adults, five times the scale with 19 items. Of the residents in these institutions, 139 older adults with dementia who met the inclusion criteria were divided into two groups (86 wanderers and 56 non-wanderers). The answers given to the 20th item of the RAWS-LTC were decisive in assigning the participants into respective groups. If "yes and this is a problem" was given as a response to the item "the resident is a wanderer," the person was included in the "wanderer" group if "absolutely not," "sometimes," "yes but this is not a problem" was given as a response, then the person was included in the "non-wanderer" group.

Study Instruments

The data collection tools were prepared online using "Google Forms," and sent electronically to the nurse staff in the studied institutions. Nurses answered the Personal Information Form and Ascertain Dementia 8 (AD-8) in addition to the RAWS-LTC for the older adult. The data were obtained from 5 nurses working in shifts in the institution and observing the older adults at different times during the day. Nurses filled out the forms related to the older person they cared for the most. The data of the study were obtained between May and September 2022.

Personal Information Form

The form includes ten items about the age, gender, duration of institutional care received by the older adults, frequency of visits by relatives, phone contacts with relatives, and lifestyle characteristics of the older adults who participated in the research.

The Revised Algase Wandering Scale – Long-Term Care Version (RAWS-LTC)

The RAWS-LTC is a tool that assesses wandering behavior in people with dementia. This revised version is derived from a more comprehensive version of the Algase Wandering Scale (AWS) (Algase et al., 2001). The RAWS-LTC includes three sub-scales: persistent walking (e.g., ≠ 1. Resident has a reduced amount of spontaneous walking), eloping behavior (e.g., ≠ 10. Resident attempts to leave their authorized area), and spatial disorientation (e.g., ≠ 14. Resident gets lost). Each subscale has a total of 19 items, 9, 4, and 6 items, respectively. The items on the RAWS-LTC are rated on a scale of 1 to 4, with 1 indicating "not at all" and 4 indicating "very much." A higher score indicates more wandering behavior. To calculate a usable score, at least 14 of the 19 items must have a valid rating marked. The scale is completed by a nurse who has given care to the person with dementia at least several times. The nurse gives his/her answers in line with her observations about her patient during the previous week.

Ascertain Dementia 8 (AD-8)

The AD-8 was used to screen for cognitive function impairment. The AD-8 has been developed to

differentiate between normal cognitive decline and early-stage dementia. A short and straightforward test, the AD-8 can be easily applied by patients, caregivers, or other practitioners. The AD-8 contains eight questions that ask the participant to rate (Yes or No) changes in memory, problem-solving skills, orientation, and daily activities. The number of Yes responses is calculated to obtain the AD-8 score (Galvien et al., 2005; Galvin et al., 2006; Galvin et al., 2007a, 2007b). Bayram et al. (2021) showed the distinctiveness of AD-8 as .92, sensitivity as 75.8, and specificity as 96.6 in older adults receiving institutional care and reported that it could be used to diagnose dementia when the total score is ≥ 5.50.

Data Analysis

The data was analyzed using IBM SPSS 21.0 statistical software. Continuous variables were presented as means, and categorical variables were presented as numbers and percentages. Construct validity was assessed using exploratory factor analysis (EFA). The Kaiser-Meyer-Olkin (KMO) and Bartlett's Sphericity test results, the common factor variance values of the items, the eigenvalue scree plot, the principal components analysis results, and the "varimax" rotation technique were used to identify the factors to be interpreted. The item-total test score correlation and Cronbach's alpha reliability coefficient were calculated to determine the reliability of the scale. The time invariance of the scale was evaluated by correlating the scores obtained from a test-retest application with an interval of four weeks. The scores obtained from the scale according to specific characteristics of the sample were compared using Pearson's correlation coefficient, the independent samples t-test, and the Mann-Whitney U test. A p-value of $< .05$ was considered statistically significant.

Ethical Considerations

The study was approved by the Non-Interventional Health Research Ethics Committee of a state university (Protocol No: 2020/209, Date: September 21, 2020). Written permission was obtained from the Ministry of Family, Labor, and Social Services to conduct research in the institutions. Since the older adults included in the study were cognitively disabled, consent was obtained from their guardians for their participation in the research.

RESULTS

Findings Related to the Characteristics of the Groups

The average age of the wanderers and non-wanderers who participated in the research was 79 (7.9) and 76 (9.0), respectively. There were 51 (59%) males in the wanderer group and 36 (68%) males in the non-wanderer group. The mean duration of institutional care in both groups was 40 (36.6) and 30 (41.6) months. Wanderer and non-wanderer

individuals with dementia were similar in terms of gender, duration of institutional care, frequency of visits by relatives, room-sharing status, lifestyle (wake-up and bedtime), and participation in social interaction activities (indoors and outdoors) ($p > .05$), but different in terms of mean age and frequency of phone contacts with relatives ($p < .05$) (see Table-1).

Findings on the Validity and Reliability of the TR-RAWS-LTC

Semantic Equivalence

The translation-back translation method was used to translate the RAWS-LTC into Turkish. For the translation and inter-cultural adaptation of the scale, the translation of the scale from the English version into Turkish was carried out independently by two Turkish experts (a public health nursing faculty member and an English lecturer) who were fluent in both languages. Then, a version agreed upon by the researchers was created using these two translations. The translation was submitted to an expert committee for cultural equivalence and content validity.

The experts focused on the conceptual structure as well as the linguistic equivalence of the items. A 10-member expert committee was used to assess the content validity of a scale to measure wandering in older adults with dementia. The committee consisted of experts in sociology, internal medicine nursing, psychiatric nursing, public health nursing, neurology, and long-term care nursing. The committee used the Davis technique to rate the items on a 1-4 point scale, with 1 being "not appropriate" and 4 being "appropriate." The number of experts who rated each item as "appropriate" or "slightly revised" was divided by the total number of experts to obtain the Content Validity Index (CVI) value. The CVI value of the scale was found to be .89. The CVI values of the scale items were found to be in the range of .80 and 1.00. The Turkish version was revised after the expert opinion and translated back into English by a third bilingual translator. This version was then compared with the original English RAWS-LTC, and semantic equivalence was evaluated between back-translated and translated items.

Pilot Application

The TR-RAWS-LTC was administered to nine nurses in the pilot application phase to assess the acceptability and comprehension of the tool. On average, it took approximately 15 minutes for the nurses to fill out the questionnaire. In this step, there were no items that were not understood, unanswered, or considered non-applicable.

Application

The online form of TR-RAWS-LTC was created and sent electronically to the nurses in the institution where the study was conducted.

Internal Consistency

The Cronbach's alpha coefficient of The TR-RAWS-LTC was .90. The item-total score correlations ranged from .375 to .704, which indicates that all of the items are contributing to the overall score of the scale. Since there were no items with an item-total score correlation below .30, all of the items were included in the exploratory factor analysis (EFA).

Inter-Rater Reliability

To assess the inter-rater reliability of the TR-RAWS-LTC, two nurses independently assessed 19 residents with dementia using the scale. The Intraclass Correlation Coefficient (ICC) was .95, which indicates excellent agreement between the two nurses. The 95% confidence interval (CI) for the ICC was [.93, .97], which means that there is a 95% probability that the true ICC lies within this range.

Test-Retest Reliability

The test-retest reliability of the TR-RAWS-LTC was assessed by having the same staff conduct the measurements and fill out the questionnaire on 19 residents one month after the initial assessment. The test-retest correlation coefficient was found to be .96, which indicates excellent stability over time.

Construct Validity

Exploratory factor analysis (EFA) was conducted to assess the construct validity of the TR-RAWS-LTC. The principal component analysis method was used with varimax rotation. The data was found to be suitable for EFA, with a Cronbach's alpha coefficient of .899, a KMO value of .810, and a Bartlett's value of 2012.794. The EFA results showed that the TR-RAWS-LTC items could be grouped into three factors: (1) Persistent walking (items 1-9): This factor explained 40% of the variance, with factor loadings ranging from .56 to .85. (2) Eloping behavior (items 10-13): This factor explained 10% of the variance, with factor loadings ranging from .66 to .87. (3) Spatial disorientation (items 14-19): This factor explained 12% of the variance, with factor loadings ranging from .72 to .89. The results of the EFA suggest that the TR-RAWS-LTC has good construct validity. The three factors identified by the EFA are consistent with the theoretical constructs of persistent walking, eloping behavior, and spatial disorientation (see Table-2).

Each sub-scale of the TR-RAWS-LTC was highly significantly correlated with the total score ($r = .72$ to $r = .80$, $p < .001$). At the same time, moderate and significant correlations were found between spatial disorientation and persistent walking ($r = .27$, $p < .01$), and moderate and highly significant correlations were found between eloping behavior and persistent walking ($r = .36$, $p < .001$) (see Table-3).

The AD-8 ($t = 2.778$, $p < .01$), TR-RAWS-LTC total ($Z = -6.223$, $p < .001$), and persistent walking ($t = 5.205$, $p < .001$), eloping behavior ($t = 4.429$, $p < .001$) and spatial disorientation ($t = 4.970$, $p < .001$) sub-scale scores were found to be significantly different from those with non-wandering dementia (see Table-4).

Table-1. Distribution of socio-demographic characteristics of the groups.

Characteristics	W+ (n=86)		W– (n=53)		p
	n	%	n	%	
Gender					
Male	51	59.3	36	67.9	1.041*
Female	35	40.7	17	32.1	.308
Age (Mean±SD)	79.41±7.93		76.11±8.97		-2.244** .025
Duration of institutional care, months (Mean±SD)	40.08±35.6		36.08±41.56		.604*** .547
Frequency of visits by relatives					
Monthly	14	16.3	6	11.3	1.671*
Less than once a month	61	70.9	37	69.8	.644
Weekly	2	2.3	1	1.9	
Once in two to three weeks	9	10.5	9	17.0	
Frequency of phone contacts with relatives					
Monthly	13	15.1	5	9.4	19.049*
Less than once a month	49	57.0	16	30.2	.001
Weekly	5	5.8	15	28.3	
Everyday	14	16.3	14	26.4	
Once in two to three weeks	5	5.8	3	5.7	
Residing person in the same room					
Spouse	3	3.5	-	0.0	2.191*
Roommate	43	50.0	30	56.6	.334
Alone	40	46.5	23	43.4	
Lifestyle model: Wake-up time:					
Before 7 A.M.	63	73.3	36	67.9	.455*
After 7 A.M.	23	26.7	17	32.1	.500
Lifestyle model: Bed-time:					
Before 9 P.M.	27	31.4	13	24.5	.754*
After 9 P.M.	59	68.6	40	75.5	.385
Participation in outdoor activities[1]					
Yes	45	36.3	30	56.6	.242*
No	41	63.7	23	43.4	.623
Participation in indoor activities[2]					
Yes	73	84.9	48	90.6	.939*
No	13	15.1	5	9.4	.332

Notes. * Pearson Chi-Square, ** Mann-Whitney-U test, *** Independent Samples t-test, 1 Sightseeing/walking, strolling in parks, going to coffee houses, going to mosques, etc., 2 Chatting, doing manual work, playing games such as backgammon, Rummikub, watching television, listening to the radio, performing religious worship, W+ : Wanderer group, W- : Non-wanderer.

Table-2. TR-RAWS-LTC rotated factor analysis.

Factor 1	Factor 2	Factor 3
≠ 1 .751	≠ 10 .663	≠ 14 .779
≠ 2 .561	≠ 11 .842	≠ 15 .816
≠ 3 .772	≠ 12 .821	≠ 16 .889
≠ 4 .697	≠ 13 .872	≠ 17 .827
≠ 5 .598		≠ 18 .715
≠ 6 .733		≠ 19 .865
≠ 7 .772		
≠ 8 .790		
≠ 9 .853		
	Eigenvalue	
7.027	1.938	3.443
	Variance explained (%)	
36.983	10.202	18.123
	Cronbach's Alpha	
.898	.907	.862

DISCUSSION

General Characteristics of the Studied Population

This study presents methodological results on the validity and reliability of the RAWS-LTC, a measurement tool that can identify older adults with dementia with wandering behavior in institutional care in Türkiye.

The 86 wanderers and 53 non-wanderers who participated in the study were homogeneous regarding other characteristics except for mean age and frequency of phone contacts with their relatives. In this study, wanderers were predominantly male (59%). In their study, Martin et al. (2015) found a higher proportion of wandering in females (77%) than males. In a research conducted by Klein et al. (1999), it was shown that the propensity for wandering behavior was nearly twice as high in males compared to women. The wandering behavior, which is predominant in males, can also be explained by the predominance of male patients in the institutional care centers where the study was conducted.

Table-3. Correlations of overall score of AD-8 and TR-RAWS-LCT and three sub-scales.

	Persistent Walking	Eloping Behavior	Spatial Disorientation
Overall TR-RAWS-LTC	.73*	.80*	.72*
Spatial disorientation	.27*	.44*	
Eloping behavior	.40*		

Notes. * p < .001, ** p < .01.

This study found that wandering patients were older than non-wandering patients. This finding is consistent with previous research, which has shown that age is negatively correlated with wandering (Algase & Song, 2008; Martin et al., 2015). The study also found that the cognitive level scores determined by AD-8 were higher in wanderers than non-wanderers. The cutoff value of ≥ 5.50 for AD-8 was used in this study, as determined by Bayram et al. (2021). This finding is also consistent with previous research, which has

shown that people with dementia who wander tend to have lower cognitive levels (Martin et al., 2015; Son et al., 2006; Song & Algase, 2008).

Table-4. Group differences of the AD-8 and TR-RAWS-LTC and sub-scales between non-wanderers and wanderers.

	W+(n=86)	W–(n=53)	p
AD-8 (Mean±SD)	6.94±.99	6.42±1.23	2.778*** .006
Persistent Walking (Mean±SD)	2.36±.60	1.80±.63	5.205*** .000
Eloping Behavior (Mean±SD)	1.98±.62	1.51±.61	4.429*** .000
Spatial Disorientation (Mean±SD)	1.86±.72	1.33±.52	4.970*** .000
Total (Mean±SD)	2.07±.44	1.54±.44	-6.223** .000

Notes. ** Mann-Whitney U-Test, ***Independent Samples t-test, W+: Wanderer group, W-:Non-wanderer.

In the wanderer group, persistent walking was more important than eloping behavior and spatial disorientation, with scores of 2.36, 1.98, and 1.86, respectively. This finding is consistent with Martin et al. (2015), who found that eloping behavior was less important than persistent walking and spatial disorientation, with scores of 1.62, 2.50, and 2.32, respectively. Algase et al. (2007) reported mean scale scores for wanderers; the mean scale scores were 2.72 for the overall scale, 3.28 for persistent walking, 2.19 for eloping behavior, and 2.69 for spatial disorientation.

Psychometric Properties of TR- RAWS-LTC

The content validity of the TR-RAWS-LTC was high, with a CVI of .89. The Cronbach's alpha coefficient for internal consistency was also high, with values between .80 and 1.00 for both the total scale and the factor sub-scales (Polit & Beck, 2006). Martin et al. (2015) found that Cronbach's alpha coefficient of the French RAWS-LTC was .92. For the AWS, Cronbach's alpha coefficients were .93 for the overall scale, .94 for persistent walking, .87 for eloping behavior, and .88 for spatial disorientation (Algase et al., 2001). These results suggest that the TR-RAWS-LTC is a reliable and valid measure of wandering behavior in older adults with dementia.

The item-total score correlations of the TR-RAWS-LTC were in the range of .375-.704, which is considered to be a sufficient level of correlation (> .30) (Buyukozturk, 2008). The test-retest correlation coefficient was .96, which is also considered to be a high level of correlation (> .70) (Karakoc & Donmez 2014). These results suggest that the TR-RAWS-LTC is a reliable measure of wandering behavior.

The majority of the nurses who participated in this study (62%) stated that they had worked with the older adult they evaluated many times. This suggests that the caregivers who completed the TR-RAWS-LTC had the opportunity to observe the wandering behavior of the older adults in their care. The factor analysis of the TR-RAWS-LTC confirmed the three-factor structure of the original scale,

which includes persistent walking, eloping behavior, and spatial disorientation. The factor loadings of the items on the three factors were all at least .30, and the difference between the factor loadings of an item on more than one factor was at least .10 (Karaman et al., 2017). The total variance explained by the three-factor structure is 65%. The fact that each sub-scale had highly significant correlations with the TR-RAWS-LTC total score (.72-.80) and that the relationships between the sub-scales were at minimum to medium significance levels supported the construct validity. This suggests that the items on the TR-RAWS-LTC are measuring three distinct constructs of wandering behavior.

Overall, the results of this study suggest that the TR-RAWS-LTC is a reliable and valid measure of wandering behavior in older adults with dementia. The scale has a high content validity, good internal consistency, and good test-retest reliability. The factor analysis of the scale confirmed the three-factor structure of the original scale, and the correlations between the sub-scales support the construct validity of the scale.

CONCLUSION

In the study, cognitive impairment as measured by AD-8 and total wandering as measured by TR-RAWS-LTC and its sub-scales of persistent walking, eloping behavior, and spatial disorientation were significantly higher in wanderers compared to non-wanderers, which strengthened the validity and reliability of the scale as a valid and reliable tool for the Turkish population by distinctively revealing the wandering behavior.

Due to the nature of dementia and the complexity of its effect on cognitive processes, individuals' wandering behaviors may vary periodically. Therefore, these characteristics may have affected the data obtained at the time of data collection. Another limitation of this study is that a short assessment tool such as the AD-8 was used to determine the cognitive level. However, the nursing staff in the studied institutions stated that they could not spare time for a diagnostic tool to be completed in a long time due to time constraints, especially in the preliminary interviews, so the AD-8 was used. Since there were no medical records of the dementia type of the patients, differential results in various dementia types could not be revealed. The TR-RAWS-LTC is a reliable and valid measure of wandering behavior in older adults with dementia. The scale has a high content validity, good internal consistency, and good test-retest reliability. The factor analysis of the scale confirmed the three-factor structure of the original scale, and the correlations between the sub-scales support the construct validity of the scale. In addition, the fact that 66% of the nurses participating in this study stated that they "once attended dementia-related courses," and 66% of them believed that

they were "at the beginning stage of providing care for people with dementia" revealed the necessity of providing continuous training on the care of patients with dementia for nurses working in LTC in Türkiye.

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Supplementary File-1. The Turkish Revised Algase Wandering Scale – Long Term Care Version (TR-RAWS-LTC)

Revize edilmiş Algase Gezinme Ölçeği (RAGÖ) - Uzun Süreli Bakım Versiyonu

Ofis tarafından doldurulacaktır: Katılımcı No#_____ Kurum No# _____ Tarih / /

Lütfen bu yaşlı bireyi en iyi tanımlayan ifadenin yanına bir onay işareti koyun.

SÜREKLİ YÜRÜME

1. Yaşlı kendiliğinden yürüyüş miktarında azalmaya sahiptir
☐ aynı yaşta ve yeteneğe sahip diğerleriyle aynı veya daha fazla yürür
☐ aynı yaş ve yeteneğe sahip diğerlerinden daha az yürüyor
☐ sadece minimal yürüyüşler, örn. banyoya gitmek
☐ istenmedikçe kendiliğinden yürümez

2. Yaşlı kendiliğinden yürüyüş miktarında artışa sahiptir
☐ aynı yaşta ve yeteneğe sahip diğerleriyle aynı şekilde yürür
☐ ortalamadan belirgin bir şekilde daha fazla yürür, ancak aralıklarla oturur
☐ ortalamadan daha belirgin bir şekilde yürür, nadiren oturur
☐ ortalamadan belirgin bir şekilde daha fazla yürür, asla oturmaz

3. Yaşlı kendi başına yürür
☐ sadece yönlendirildiğinde
☐ gün boyunca bazen
☐ gün boyunca sıkça
☐ gün boyunca neredeyse sürekli

4. Yaşlı huzursuzca dolaşır
☐ asla
☐ birkaç kez
☐ düzenli ama her gün değil
☐ günlük şekilde

5. Yaşlı yukarı ve aşağı adımlar
☐ asla
☐ birkaç kez
☐ düzenli ama her gün değil
☐ günlük şekilde

6. Yaşlı uyandıktan sonra yani, kahvaltıdan önceye kadar dolaşır
☐ asla
☐ aynı yaş ve yeteneğe sahip diğerlerinden daha az
☐ aynı yaş ve yeteneğe sahip diğerleriyle aynı
☐ aynı yaş ve yetenekteki diğerlerinden daha fazla

7. Yaşlı kahvaltı ve öğle yemeği arasında dolaşır
☐ asla
☐ aynı yaş ve yeteneğe sahip diğerlerinden daha az
☐ aynı yaş ve yeteneğe sahip diğerleriyle aynı
☐ aynı yaş ve yetenekteki diğerlerinden daha fazla

8. Yaşlı öğle yemeği ve akşam yemeği arasında dolaşır
☐ asla
☐ aynı yaş ve yeteneğe sahip diğerlerinden daha az
☐ aynı yaş ve yeteneğe sahip diğerleriyle aynı
☐ aynı yaş ve yetenekteki diğerlerinden daha fazla

9. Yaşlı akşam yemeğinden sonra yani, yatma zamanından önceye kadar dolaşır
☐ asla
☐ aynı yaş ve yeteneğe sahip diğerlerinden daha az
☐ aynı yaş ve yeteneğe sahip diğerleriyle aynı
☐ aynı yaş ve yetenekteki diğerlerinden daha fazla

KAÇMA DAVRANIŞI

10. Yaşlı yerleşim bölgelerini terk etme girişiminde bulunur
☐ asla
☐ birkaç kez
☐ düzenli ama her gün değil
☐ günlük şekilde

11. Yaşlı kaçar
☐ asla
☐ birkaç kez
☐ düzenli ama her gün değil
☐ günlük şekilde

12. Yaşlı yetkisi olmayan alanlara girer
☐ asla
☐ birkaç kez
☐ düzenli ama her gün değil
☐ günlük şekilde

13. Yaşlı fark edilmeden huzurevi alanından ayrıldıktan sonra geri getirildi
☐ asla
☐ sadece bir kere
☐ bir kereden fazla ama sık değil
☐ sık sık

MEKANSAL BOZUKLUK

14. Yaşlı kaybolur
☐ asla
☐ birkaç kez
☐ düzenli ama her gün değil
☐ günlük şekilde

15. Yaşlı yardım olmadan banyonun yerini bulamaz
☐ yardım gerektirmiyor
☐ bazen yardım gerektirir
☐ genellikle yardım gerektirir
☐ her zaman yardım gerekli

16. Yaşlı yardım olmadan yemekhanenin yerini bulamaz
☐ yardım gerektirmiyor
☐ bazen yardım gerektirir
☐ genellikle yardım gerektirir
☐ her zaman yardım gerekli

17. Yaşlı yardım almadan kendi odasını bulamaz
☐ yardım gerektirmiyor
☐ bazen yardım gerektirir
☐ genellikle yardım gerektirir
☐ her zaman yardım gerekli

18.Yaşlı amaçsızca yürür
☐ her zaman tanımlanabilir bir yönü / hedefi var
☐ genellikle tanımlanabilir bir yönü / hedef vardır
☐ bazen tanımlanabilir bir yönü / hedef var
☐ hiçbir zaman tanımlanabilir bir yönü / hedefi olmaz

19.Yaşlı yalnız yürürken, engellere ve diğer insanlara çarpar
☐ asla
☐ birkaç kez
☐ düzenli ama her gün değil
günlük şekilde

DEĞERLENDİRME MADDELERİ

20. Yaşlı başıboş dolaşır
☐ kesinlikle hayır
☐ zaman zaman
☐ evet, ama sorun değil
☐ evet ve bu bir sorun

21. Ben
☐ bir bakım çalışanı
☐ bir hemşire
☐ bir sosyal çalışan
☐ bir diyetisyen veya diyet yardımcısı
☐ bir fiziksel terapist
☐ bir birim memuru
☐ diğer

22. Ben bu yaşlı ile çalıştım
☐ sadece bugün
☐ bugün ve bir kerede öncesinde
☐ birkaç defa
☐ bir çok zaman

23. Demans ile ilgili derslere katıldım
☐ asla
☐ bir zamanlar
☐ birkaç defa
☐ sık sık

24. Kendimin
☐ demans ile ilgili deneyimsiz olduğumu düşünüyorum
☐ demanslı kişilerin bakımında başlangıç aşamasında biri olduğumu düşünüyorum
☐ demans bakımı konusunda deneyimli olduğumu düşünüyorum
☐ demans bakımı konusunda uzman olduğumu düşünüyorum

Bu sakin hakkında yapmak istediğiniz herhangi bir yorum var mı?

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Long-Term Care Models in Select OECD Countries and Policy Implications for Canada: A Focused Qualitative Systematic Review

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ABSTRACT

The COVID-19 pandemic highlighted many problems with Canada's older adults (OA) long-term care (LTC) model. The demographic changes in the next two decades require a novel approach to LTC. This study aimed to conduct a focused qualitative systematic review (SR) of the publicly supported LTC models and policies in select advanced economies. The authors used PubMed, Embase, and Medline to conduct an SR following the preferred reporting items for systematic reviews and meta-analyses (PRISMA) 2020 guidelines. Fully published articles in the English language related to LTC for Germany, Sweden, Australia, Denmark, France, and the Netherlands were included. Predefined data on the LTC models, including eligibility criteria, coverage, funding, and delivery methods, were extracted. Out of 1,682 screened articles/websites, 28 publications, websites, and reports were included. Despite differences in LTC models, there were two primary funding sources for LTC in the selected countries: general tax and LTC insurance. Aligned with the OAs preference, there was an emphasis on providing LTC at home. The care services were need-based and often defined by healthcare professionals or specialized teams. To address the growing number of OAs and to fulfill their needs, the Canadian LTC system requires a major shift to LTC at home and keeping the institutional LTC as the last resource. A sustainable LTC at home also requires a new legislative framework and financial levers.

KEYWORDS: Older Adults; Long-Term Care; Care at Home; Policy; Canada.

KEY PRACTITIONER MESSAGE

1. Older adults prefer receiving long-term care (LTC) at home instead of in nursing homes.
2. Several OECD countries implemented LTC models that prioritize care at home, resulting in improved efficiency.
3. Globally, new regulations to facilitate LTC at home are required if policymakers are to keep up with the soaring demand for LTC.

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INTRODUCTION

The COVID-19 pandemic shed light on global long-term care (LTC) shortcomings (Danis et al., 2020). The pandemic-related mortality was higher in LTC facilities. For example, the mortality per million in Belgium, France, and Sweden was 413.3, 201.6, and 173.7, respectively (Danis et al., 2020). Similarly, a combination of underfunding, understaffing, and inadequate legislative standards led to high COVID-19-related mortality among residents of LTC homes (LTCH) in Canada (Canadian Institute for Health Information, 2022). Due to severe staffing shortages and the prohibition of visitors, residents were forced to live in isolation without quality care (Badone, 2021). Although COVID-19 exacerbated these deficiencies, in Canada, the need for a major overhaul of caring for older adults (OAs) has long preceded the onset of the pandemic (Bliss, 2010).

LTCHs provide ongoing care to eligible OAs who cannot independently manage daily activities and require round-the-clock care (Fleming, 2006). There are 2,076 LTCHs in Canada, and 46% are publicly owned; of the privately-owned LTCHs, 29% are for-profit facilities (Canadian Institute for Health Information, 2021). In comparison, in 2017, there were 64,471 LTCHs with 3,440,071 beds in the European Union/European Economic Area (Suetens et al., 2018). Admission to LTCHs is subject to strict eligibility criteria and substantial co-payment and out-of-pocket payments (Ontario Ministry of Long-Term Care, 2022). While there is no absolute minimum age requirement, eligible OAs are typically over 65. In Ontario - the largest province in Canada - those over 65 account for approximately 93% of LTCH residents (Ontario Long-Term Care Association, 2019).

LTC services are not part of Canada's universal healthcare system (Medicare) (Canada Health Act, 1985). Provincial governments have the right to decide LTC service delivery, funding, and eligibility criteria, leading to interprovincial variations (Landry et al., 2008). For example, the LTCHs in Ontario are operating under the Ontario Long-term Act (Long-Term Care Homes Act, 2007). The Ontario Ministry of Long-Term Care (MOLTC) currently funds 626 LTCHs with over 78,000 residents. Between 2011 and 2019, the LTCH waitlist increased by 78%, while the number of LTC beds increased by 1%. As a result, in 2019, 35,000 OAs were waitlisted for LTC beds (Financial Accountability Office of Ontario, 2019).

The lack of capacity planning and inadequate provincial funding has prevented OAs from accessing the LTCHs and forced them to stay home without support. Consequently, the family members become de facto (unpaid) carers for OAs. It is estimated that 35% of working Canadians, often family members, provide, on average, 17-19 hours per week of unpaid caregiving duties to OAs, causing substantial distress (Sinha et al., 2019).

Studies have shown that 90% of OAs desire to live at home and maintain their independence for as long as possible with some support (Muscedere et al., 2019). Accordingly, some Organisation for Economic Co-operation and Development (OECD) countries prioritize delivering LTC to OAs at a person's home instead of LTCH. An LTC at-home model broadly describes how the LTC services are organized, funded, and delivered to OAs in their homes (Gray & Farrah, 2019). In contrast to those OECD countries, many OAs fail to get adequate care at home in Canada. One study estimated that annually, approximately 11% of OAs admitted to LTCHs have low-level care needs could benefit from LTC at home (Labrie, 2021).

Prioritizing care provision in a higher-cost LTCH setting may have contributed to Canada trailing behind other OECD countries in providing successful quality care for OAs (Canadian Institute for Health Information, 2020). The inadequacies and inefficiencies of the Canadian LTC system raise the question of the efficacy and sustainability of the current system. Hence, exploring new models and policies pertaining to LTC delivery is reasonable. The authors theorized that Canada would require a public LTC system that focuses on providing LTC at home as the primary means of caring for OAs while keeping institutional care as a last resort option. This study aims to conduct a focused, systematic review, examine publicly funded LTC at-home models in select OECD countries, and offer a road map for policy changes for the Canadian LTC system.

METHODS

Literature Search and Review

A literature search strategy using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement was developed to map the current publicly funded and regulated LTC models with a focus on LTC at home (Page et al., 2021). The authors used PubMed, EMBASE, and MEDLINE databases using the following keywords: (Long-term care at home, home care, care at home, nursing at home, home nursing, stay-at-home care, age in place), AND (Canada, Australia, the United Kingdom, England, Scotland, Wales, Northern Ireland, Netherlands, Sweden, Denmark, France, Germany), AND (government-supported, Medicare, national health service, aged care), AND (policy, model, fund, payment), AND (elderly, senior citizens, older adults). Government-associated websites and the reference sections of relevant studies were also searched for grey literature. The primary search was conducted from the inception of each database up to December 2022 and updated on March 1, 2023.

Authors independently screened titles and abstracts of retrieved articles and websites to identify articles and reports for full-text review.

Exclusion criteria included (1) articles published in a non-English language, (2) studies ascertained for age groups below 65, (3) studies concerned with private systems, and (4) no direct relation with the topic. Twenty-eight articles and online reports were included in the review (see Figure-1). The summary scope of selected sources is abridged in Table-1.

Adopting the general description of the "model of care" in this study, the LTC model was broadly defined as how LTC services are organized and delivered (Brereton et al., 2017). The relevant parameters of an LTC model include eligibility criteria, decision-makers, workforce management, health and social care integration efforts, and coverage and funding frameworks. The information on the LTC at-home model for Australia, Denmark, France, Germany, Sweden, the UK, and the Netherlands was extracted (Table-2). The specific OECD countries were chosen because they value the provision of LTC at home and have organizational models that may be useful to Canada's system.

RESULTS

The literature search yielded 1,682 results. After careful review, 22 journal articles and six websites were included. Fifteen journal articles were specific to one country, and seven were international or regional comparisons of LTC systems. Four reports from government websites provided general information and data on LTC, and two websites reported specific policies (Table-1).

There were major organizational differences among international models of LTC at home, including the terminology used to refer to LTC at-home services, eligibility criteria, governance, coverage and funding, and policies (Table-2). However, the models had some similarities, including the provision of comprehensive LTC at-home services, which enable institutional care to remain a last resort option. Such programs cover a broad scope of round-the-clock services that are provided for as long as needed, including personal support, home management, nursing, rehabilitative, and end-of-life care.

While most LTC models focused on the universality and assuring access to LTC at home to all eligible OAs based on their needs (needs-tested), some restrictive criteria often exist (e.g., means-tested). Australia, France, and Germany LTC models outline specific eligibility levels and criteria (Courbage & Roudaut, 2008; Eagar et al., 2020; Nadash et al., 2018). These countries have specific eligibility for various care needs based on assessments from healthcare professionals, social workers, and other care teams. In contrast, some other LTC models (e.g., Denmark, Sweden, Netherlands) allow for a degree of flexibility at the decision-maker's discretion, including assessment teams, case

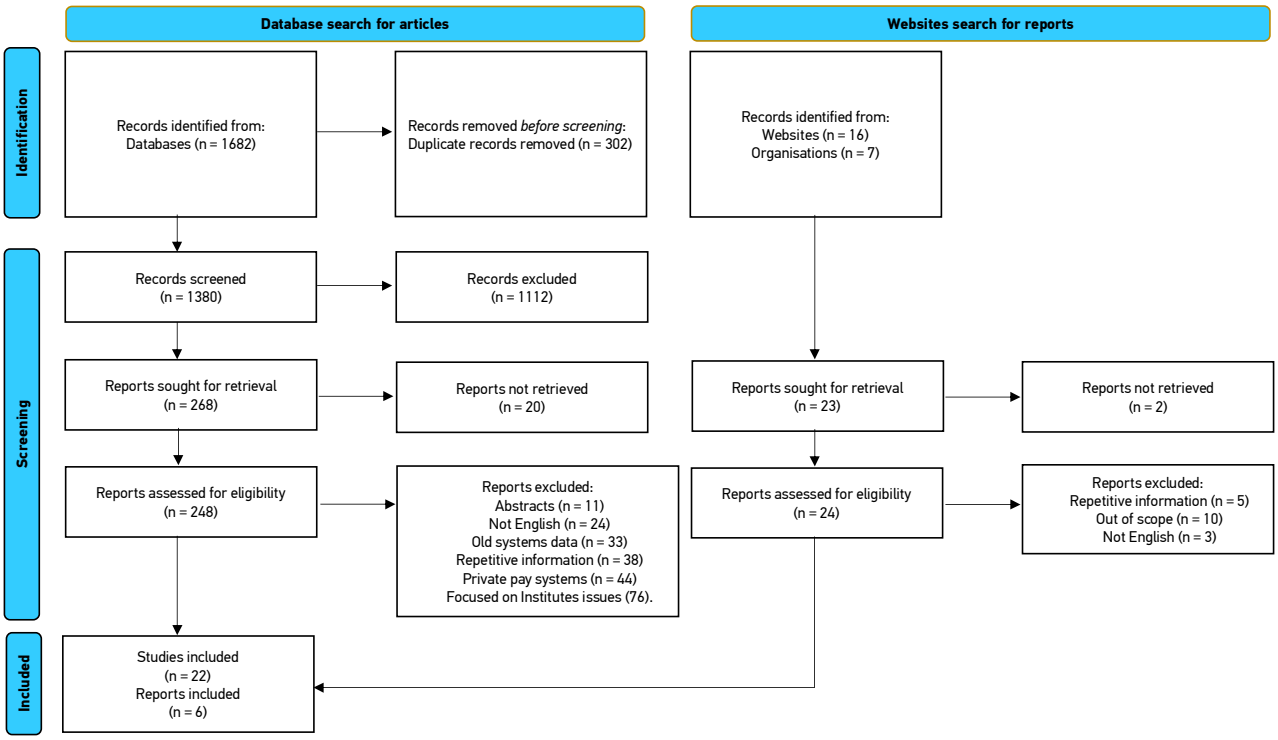

Figure-1. Literature search screening and selection flow-chart

managers, or healthcare professionals (Schulz & Berlin, 2010; Szebehely & Trydegård, 2012; Veghte, 2021). Additionally, LTC models in Australia and the Netherlands consider access to informal caregivers when determining the extent of an OA's needs, while the other LTC models do not (Dyer et al., 2020; European Commission, 2021).

The philosophy behind care for OAs varies between countries. Sweden and Denmark consider LTC for OAs as a public responsibility rather than the responsibility of individual families (Schulz & Berlin, 2010). Therefore, there is a lower percentage of informal caregivers in these countries. For example, less than 8% of Denmark's population has informal caregiving duties (Dyer et al., 2020).

There were three categories of coverage and reimbursement, including direct cash payments (e.g., France), in-kind services that are capped based on needs (e.g., Australia's subsidy-based care packages), and unlimited in-kind services (e.g., Denmark). Certain LTC models, such as the one in Germany, also have the option to choose between receiving services in-kind or in cash (Nadash et al., 2018). In France, Germany, and the Netherlands, in-cash benefits allow informal caregiver reimbursement. Aside from the models in Germany and the Netherlands, which are mainly funded through mandatory LTC insurance policies and payroll tax, most models are funded through general taxation and means-tested with co-payments (Veghte, 2021).

Table-1. Summary scope of articles and websites included in the study

Authors	Year	Country	Scope / Summary
			Journal Articles
Alders	2019	Netherlands	Review the LTCI reform and provides solutions to overcome incentives, misalignment and fundings problems
Bihan	2018	France	Discuss personal autonomy allowance LTC model to increase autonomy based on care plan needs
Courbage	2018	France	Analyse the Survey of Health, Ageing, and Retirement in Europe database to estimate the probability of purchasing LTC insurance in France
Curry	2019	UK	Comparative analysis of UK and Germany LTC system and implications for UK
Da Roti	2010	EU	Analyse policies and systematic review assessing differences among Austria, France, Germany, Italy, the Netherlands & Sweden's cash-for-care schemes for LTC
Dussuet	2019	France	Analyse French LTC system bureaucracy, policy implementation and decisions focusing on gender differences
Dyer	2020	International	Review of international approaches LTC provides learnings for Australia's aged care system and situates it within the appropriate global context.
Eager	2020	Australia	A cross-sectional study of resident characteristics in 30 non-government residential facilities in 3 regions to develop a case-mix classification to support the funding model
Genet	2012	EU	Reporting all aspects of the home-care sector in 31 EU countries comparing organisation, financing, and provision of home care across Europe
Kiersey	2017	EU	Analyse legislation, national standards, accreditation, eligibility and needs assessment, and financing of formal home care services in four European countries
Labire	2021	EU	Analysed German, Japan, the Netherlands, and Sweden's LTC system financial sustainability to meet the needs of OAs adequately
Lagergren	2018	Sweden & Japan	Project LTC cost 2010 - 40 for different assumptions of population change, LTC need by age group and gender, and LTC provided per level of need and cost in Japan and Sweden
Muscedere	2019	Denmark	Comparing LTC in Denmark and Canada in an attempt to address the shortcomings of the Canadian LTC model
Nadash	2018	Germany	Reviews legislative and programmatic changes using program data, as well as legislative documents and program reports
Powell	2021	UK	Explores the extent of the debate in England over the LTC funding involved learning from abroad
Shulz	2010	Denmark	Overview of the LTC, number of beneficiaries and the LTC policy in Denmark based on the Assessing Needs of Care in European Nations project by the EU Commission
Sinha	2019	Canada	Explore LTC across Canada and contextualise it globally with comparable countries with significant demographic transitions as they redevelop their transitions and systems of care
Sinha	2020	Canada	Review Ontario LTC landscape and regulations and proposes leveraging virtual care to support OAs in a more cost-effective way
Szebehely	2012	Sweden	Analyse Swedish eldercare policies and legislative changes and impact of marketizing the services, and the interplay of market trends and recipients of the services
Watt	2018	UK	Analyse the future pressures that the current system of publicly funded adult social care will face, provide options for funding the additional costs by changes in the level of national and local taxes or benefits.
Veghte	2021	Germany & EU	Review the range of existing approaches abroad to the provision of universal LTC and then considers lessons from an in-depth case study of the German program
Yakerson	2019	Canada	Examines the history of Ontario's home care reform and current challenges with health equity. Assess the impact of market-based health care reforms on gendered experiences and access to home care services.
			Websites
CIHI	2021	Canada	Statistical data on healthcare and LTC
EU Com.	2021	EU	Statistical data on LTC
OECD	2021	International	Statistical data on healthcare and LTC
OECD	2011	International	Review of LTC
WHO	2021	International	Review of LTC
RCAC	2021	Australia	Review of Australia's LTC system

Notes. LTC: Long-term care, LTCI: Long-term care insurance, EU: European Union, OA: Older adults, CIHI: Canadian Institute of Health Information, OECD: Organisation for Economic Co-operation and Development. WHO: World Health Organization, EU Com.: EU Commission, RCAC: Royal Commission into Aged Care Quality and Safety

Since funding varies between countries, many individuals rely on private insurance to receive additional care for more complex needs in some countries like France (Dussuet & Ledoux, 2019).

Furthermore, most assessed models do not have policies pertaining to minimum training levels, service hours, and staff-to-patient ratios in terms of labor and quality legislation. Lastly, in line with the integration of health and social care for OAs, Sweden, and Denmark employ specific care management teams and leverage technology to share and monitor patient information, which has resulted in substantial decreases in emergency department visits, duration, and the number of hospitalizations (Labrie, 2021; Muscedere et al., 2019).

DISCUSSION

Advances in medicine and technology have created an era where people live longer (Sadri, 2020). Approximately 25% of Canada's population is expected to be over 65 by 2041, and the current LTC system cannot serve their growing needs (Yakerson, 2019). The LTC limitations are a global problem. Despite well-structured LTC systems, some OECD countries have, to some extent, failed to keep up with the needs of the increasing aging population (Kiersey & Coleman, 2017). However, the current Canadian system has fallen further behind by focusing o underfunded, understaffed, and costly LTCHs as the primary means of OA care (Kuluski et al., 2012). In line with the models reviewed in this study, the Canadian LTC system can benefit from reform by adopting a system that primarily provides LTC at home while keeping institutional LTC as a last resort option. In this review, in order to provide a policy framework guidance that is useful to Canadian policymakers, the authors analyzed the LTC model from countries that, despite providing a comprehensive LTC at home, they had relatively different systems to ensure that each LTC model presents valuable information. In contrast, their socioeconomic, healthcare delivery, and funding models apply to the Canadian system. As such, LTC systems that seemingly operate effectively for their citizens. However, their fundamentals did not apply to Canada because the socioeconomic, cultural, social construct, and healthcare system delivery were excluded. (Iwagami & Tamiva, 2019; Rhee et al., 2015).

The UK LTC model was excluded from the policy analysis because following the review of several relevant articles, it was determined that the LTC system in the UK and, in particular, England is similar to Canada, specifically Ontario, in terms of eligibility criteria, funding, and scope of services.

Canadian policymakers can leverage the experience of existing LTC at-home models in other jurisdictions, including appropriate eligibility criteria, sustainable

Table-2. Characteristics of long-term care models in select OECD countries

Geography	GERMANY	FRANCE	DENMARK	AUSTRALIA
Reference	Da ROIT and Le BIHAN, 2010 Nadash, Doty and von Schwanenflügel, 2018 Labrie, 2021	Colombo et al., 2011 Doty, Nadash and Racco, 2015 Bihan and Martin, 2018 Dussuet and Ledoux, 2019	Schulz and Berlin, 2010 Dyer et al., 2020 European Commissions, 2021	Eagar et al., 2020 Royal Commission, 2021
Model	Mandatory Long Term Care Insurance (LTCI) program.	Maintaining Autonomy for Continuing Care	A comprehensive, universal program.	Aged Care; 2 subsidy-based programs. Home Care Packages Program - high-level needs; Commonwealth Home Support Program (CHSP) - lower-level needs/waiting for HCP
Eligibility Criteria & Levels	Needs assessed for ADL, universal LTCI for 60+ (earlier if needed) for 6 months. 5 levels: PG1: No ADL need; PG2: Need personal hygiene, feeding, or mobility for min. 2 activities/day, house helps several times/week for 90 min + 45 min basic care; PG3: PG2 + daily assistance in 2 basic ADLs 3 times/day, help IADLs several times/week 3 hrs/day + 2 hrs basic care; PG4: PG3 + daily assistance in min 2 ADLs round-the-clock, help in IADLs several times/week 5 hrs/day +4 hrs basic care; PG5: PG4 + for daily assistance, min 7 hrs/day with min 2 hrs at night or need basic care provided by >1 person simultaneously.	Needs assessed. Universal access for ages 60+. 4 eligibility levels: Level 1 - confined to bed/chair, severe mental impairments, require 24/7 care; Level 2 - confined to bed/chair, some level of mental impairment, require support for most daily activities or require constant monitoring; Level 3 - mental autonomy, need help several times a day for personal care; Level 4 - some mobility limitations, need help for personal care, or no mobility problems but need help for body care & meals.	Needs assessed. Universal access for all Danish residents, irrespective of age. All >75 are entitled to min. 2 annual preventative visits.	Needs assessed. Universal access for ages 65+ (50+ for Indigenous people). 4 eligibility levels: Level 1 - basic care; Level 2 - low-level care; Level 3 - intermediate-level care; Level 4 - high-level care.
Decision	HCP & case manager	HCP & social worker	Municipal home care council case managers.	Independent, qualified Aged Care Assessment Teams (ACATs).
Funding	Payroll taxes - 3.05% split equally between employer & employee. Retirees pay the total contribution. Workers with no children contribute an extra 0.25%.	The majority is funded through national & local taxation; the remainder is from co-payments. Co-pay is income-related & the amount is deducted from the allowance.	LTC public spending = 3.5% of GDP in 2019. 90% from local taxes; <5% from co-payments; the remainder from block grants & temporary subsidies from the national government.	75% from general taxation & the remainder from means-assessed co-payments deducted from subsidies.
Delivery & Benefit Rates	In-kind or opt-out for in-cash or a combination. It can be used to pay informal caregivers. Insurance companies directly pay providers through a fixed per diem payment structure for in-kind. Fixed monthly benefit rates, irrespective of income: PG 1 - N/A; PG 2 - $1067 in-kind, $490 in cash; PG 3 - $2010 in-kind, $845 in cash; PG 4 - $2498 in-kind, $1128 in cash; PG 5 - $3090 in-kind, $1427 in cash.	Direct monthly cash allowances are given to OAs/guardians. It can be used to pay informal caregivers, excluding spouses. Monthly cash allowance rates: Level 1 - $2038; Level 2 - $1744; Level 3 - $1310; Level 4 - $876.	Complete in-kind coverage for permanent home care needs. Temporary home care services require means-tested co-payments. Meal prep is subject to a max. Co-payment of $10.75/meal.	Individually approved annual subsidies are given to providers to cover the services outlined in the care plan. Annual subsidy rates: Level 1 - $8,720; Level 2 - $15,380; Level 3 - $33,500; Level 4 - $50,800.

Table-2. Continued...

Geography	Reference	Model	Eligibility Criteria & Levels	Decision	Funding	Delivery & Benefit Rates
NETHERLANDS	Alders and Schut, 2019 European Commissions, 2021 Labrie, 2021 Veghte, 2021	Universal LTC coverage is provided through 3 social insurance programs. Long Term Care Act (WLZ): institutional & intensive homecare. Health Insurance Act (ZVW): home nursing care & personal care (e.g., personal hygiene, eating). Social Support Act (WMO): home maintenance services (e.g., cleaning, laundry, shopping).	Needs assessed. Universal access for all Dutch residents, irrespective of age. WLZ: the need for 24/7 supervision & intensive health & personal care. ZVW: Healthcare practitioner referral needed. WMO: Assessment of physical/psychological impairments.	WLZ: Regional Care Assessment Agencies. ZVW: HCP. WMO: Municipal "WMO consultants."	WLZ: payroll tax from employees & retirees (9.65% of income); ZVW: 45% employer payroll tax (6.7% of income); 45% premiums paid by employees & retirees; the remainder from general tax. WMO: Majority funded through general taxation & block grants; the remainder from income-adjusted monthly co-payments.	In-kind or in-cash. In-kind coverage has a yearly means-tested deductible. In-cash benefits are called Personal Care Budgets (PCB) & can be used to pay formal/informal caregivers. Maximum PCB rates for formal caregivers: Personal care - $55.75/hr & $4.65/5 min.; Nursing at home - $82.50/hr & $6.87/5 min. Maximum PCB rates for informal caregivers: Personal care/nursing at home - $34.25/hr & $2.85/5 min. PCB is income-adjusted.
SWEDEN	Da ROIT and Le BIHAN, 2010 Szebehely and Trydegård, 2012 Lagergren, Kurube and Saito, 2018 OECD Health Statistics, 2021	A comprehensive, universal tax-funded program.	Needs assessed. Universal access for all Swedish residents, irrespective of age. The Allowance Program requires a min. Need of 17 hrs/week to allow employment of extra care for those with extensive needs.	Municipal care managers.	LTC public spending = 3.4% of GDP in 2018. 85% from local taxes, 10% from national taxes, 5% from co-payments. Means assessments determine the co-pay amount if required.	In-kind coverage. Max. Cash payments of $700/month are given through the Allowance Program. It can be used to pay informal caregivers
UK	(Watt et al., 2018; Curry, Schlepper and Hemmings, 2019; Dyer et al., 2020; OECD, 2021; Powell, 2021)	A blend of health and social care, provided in a combination of institutional & community care. Managed separately by Wales, England (majority service use), Scotland and Northern Ireland.	Social care for 65 plus (frailty) and people with disability. Needs and means-tested. OAs with low-level needs do not qualify but may receive cash benefits. In Scotland, personal care is free. Informal caregiver services are considered in the needs assessment.	GPs, practice nurses and the wider primary care workforce	Largely private (50%), 37% fully funded, 12% partially funded by NHS. National authorities determine the amount and obligations of local authorities	Mostly delivered by private for-profit independent facilities (86%) with the choice to accept publicly funded residents. Local authorities provide publicly funded care to eligible OAs

Notes. OECD: Organisation for Economic Co-operation and Development, LTC: Long-term care, HCP: Healthcare professional, GDP: Gross domestic product, OA: Older adults, ADL: Activities of Daily Living, IADL: Instrumental Activities of Daily Living.
NHS: National Health Service

financing, informal caregiver support, workforce management, and integration efforts, to design a practical LTC at-home model tailored to the Canadian OA's needs. Plausibly, there is a need for legislative changes to expand the scope of existing LTC and home care regulations to cover the LTC at-home options for OAs. Alternatively, the policymakers could draft legislation exclusively focusing on providing LTC at home.

Another important factor is creating provincially mandated guidelines and oversight to ensure provider compliance and avoid intra-provincial inequities (Brassolotto et al., 2020; Kornelsen et al., 2021). Nevertheless, maintaining regional authority teams governed by the relevant authorities (e.g., the Ministry of Long-Term Care in Ontario) is equally important to accommodate local needs.

A central aspect of a successful new LTC at-home model is harmonization with the principles of the Canada Health Act: equity and universality (Canada Health Act, 1985). OAs should have access to LTC at-home services for as long as needed, regardless of income, assets, or access to informal caregivers, which is the main differentiator between the current home care system and the proposed LTC at-home model. The current homecare system has limited funds available for homecare services through regional planning teams governed under the Home Care and Community Services Act (HCCSA) (Homecare Ontario, 2019). These services are short-term and meant to assist in post-hospital discharge recovery and support families coping with an older family member's need. However, these services have a narrow scope, non-standardized eligibility criteria, limited care hours, and poor quality due to insufficient funding and under-trained workers (Sinha & Nolan, 2020). As a result, approximately 150,000 OAs pay out-of-pocket for 20 million visits/hours of private home care services per year (Homecare Ontario, 2019).

Universality alludes to providing access to LTC services without imposing strict eligibility criteria (Labrie, 2021). The current Canadian means-tested model contradicts the universality principle, depriving thousands of OAs of receiving adequate publicly funded LTC due to strict and non-standardized eligibility criteria. A successful LTC at-home model should include a set of needs-based criteria similar to the eligibility level guidelines in France, Australia, and Germany (Table-1).

In response to the COVID-19 pandemic challenges, Canadian provinces have introduced programs to increase the LTCH beds. However, increasing funding for the current LTC system is not justifiable (Falk, 2021). The main criterion of an efficient and sustainable LTC system is to put OAs' needs and preferences at the center of decision-making. In order to accommodate the greater number of care

recipients, efforts should be made to increase LTC at home and homecare providers instead of making costly investments in LTCH beds.

A potential Canadian LTC at-home model can adopt one of the three types of coverage recognized in this study to provide standardized public support for OAs, based on the extent of their needs. First is direct cash payment, similar to France and Germany, which allows OAs/guardians to make decisions regarding their care and budget allocation freely. However, limited care manager intervention means that OAs/guardians accept the risks and responsibilities of care planning, which can be time-consuming and tedious (Flood et al., 2021). The burden of caregiving may increase the risk of elder abuse, especially financial exploitation (Pillemer et al., 2016). As a preventative measure to minimize the risk of financial exploitation, this model requires mechanisms to ensure proper cash utilization, including submitting monthly statements and unused funds to guarantee the appropriate use of the OA's agreed-upon care plan (Naylor et al., 2012). Another possibility is the subsidy-based care packages used in Australia, which are capped based on the level of need and given directly to the older adult's homecare provider. Several private homecare organizations are active in Canada, which can be leveraged for the LTC at-home model. In this model, the care planning is delegated to care management teams, facilitating user experience, and allowing for skillful planning and service recommendations. The third option is providing universal coverage, similar to Canada's healthcare system, through general tax. An example is the Nordic countries, where a broad scope of LTC at-home services is predominantly free to OAs. Healthcare in Sweden and Denmark encompasses LTC at home. Thus, coverage is funded through their tax system. Besides using the general tax for cash payments or subsidies, Canada can fund LTC at home by implementing mandatory LTC insurance similar to Germany and the Netherlands. Insurance companies pay providers fixed per diem to allow efficient budget allocation. This model is viable in Canada as employers and employees are accustomed to payroll deductions for various social services, including unemployment or complementary health insurance (Sadri & Sadri, 2022). However, since payroll tax funds this model, contribution rates and coverage fluctuations can occur depending on employment rates and age distribution (Nadash et al., 2018).

Expectedly, employing such coverage for LTC at home is costly. However, the potential cost savings from delivering care in a lower-cost environment can be allocated towards further supporting the LTC workforce, accommodating more OAs, and increasing the quality and scope of services provided in the home. For example, in Denmark, 80% of LTC is

provided at home, and in Sweden, the "aging in place" strategy caused LTCH usage to decrease by a third from 2007 to 2020 (Dyer et al., 2020; Labrie, 2021). Limiting institutional LTC funding allowed Denmark to spend 64% of its LTC funding on providing home care services in 2017, while in Canada, only 13% of budgets are allocated to home care (Sinha & Nolan, 2020). The case is different for the Netherlands, where the majority of LTC is provided at home, even though a greater proportion of LTC funding is spent on institutional care (Comas-Herrera et al., 2021).

Furthermore, the shortage of LTC beds has increased the alternate level of care (ALC) patients, who occupy over 15% of the hospital beds in Ontario, costing the province $170 million annually (Sibbald, 2020). The ALC patients no longer require the intensity of services provided at the hospital but continue to occupy a bed due to limited access to post-acute care services (Sutherland & Crump, 2013). An efficient LTC at-home system will save the ALC beds significantly for the provincial governments. The issue of ALC beds has also been reported in other healthcare systems (Edwards, 2017).

While various factors can affect budgeting proportions in each country, specifically for Canada, the daily cost per person of providing LTC at home, at an institution, and care for an ALC patient is $103, $201, and $730, respectively (Sinha & Nolan, 2020). As such, increasing the scope of and accessibility to LTC at-home services may, at a minimum, decrease early LTCH admissions and unnecessary acute care bed occupancy (ALC) by OAs. Moreover, similar to other care planning, a sustainable LTC at-home model requires precise cost estimates for optimal resource allocation (Sadri et al., 2021).

One of the benefits of LTC at home is formally accommodating a greater number of needs, thus diminishing the care provided by informal caregivers. However, increasing support for those who provide care is important, especially working full-time. Currently, up to eight weeks of unpaid leave is available under the Employment Standards Act and is subject to strict eligibility requirements regarding caregiving duties (Employment Standards Act, 2000). Some LTC at-home models acknowledge informal care by allowing cash benefits to employing informal caregivers. The downside of this approach is that it limits legal care outsourcing (Genet & European Observatory on Health Systems and Policies, 2012). Moreover, since females comprise the majority of caregivers, this policy adversely affects female participation in the labor market (Statistics Canada, 2018). Therefore, a policy similar to Sweden's system may be beneficial where cash benefits for reimbursing informal caregivers are only given when OAs require support in addition to their publicly provided services (WHO Centre for Health Development, 2021).

To further increase the quality of LTC, both at the

institution and home, there is a need to design and implement policies to improve the LTC workforce skills. Currently, personal support workers who work in LTC or home care services have no formal training requirements (Saari et al., 2017). Similarly, in most provinces, the long-term care legislations (e.g., Long-Term Care Homes Act in Ontario) which govern LTCH do not require a minimum staff-to-resident ratio, leading to inadequate care (Badone, 2021). It is important to set provincial mandates within Canada's LTC at-home model for minimum training levels, staff-to-patient ratios for service providers, and weekly care hours needed based on eligibility levels. Furthermore, the pandemic exacerbated the shortage of human health resources, impacting all care levels, including LTC (Sadri & Fraser, 2022). Appropriate policies to address training and recruiting qualified health human resources are necessary for the success of a new LTC at-home model.

Integrating health and social care for OAs is important because proper provider communication allows efficient resource utilization and limits early admission to LTCH. Canadian provincial authorities can benefit from employing and overseeing regional care management teams, similar to that of Sweden and Denmark, who are solely responsible for integrating care for OAs by completing assessments to determine eligibility, connecting individuals to the proper care services, and capitalizing on technology to monitor and share patient information between service providers. This approach allows for a more cohesive and standardized care delivery compared to standalone local teams responsible for care provision and integration without government intervention, as is currently the case in Ontario. Integration efforts will help provide seamless and individualized care to OAs and allow for better resource allocation in balancing home care, institutional care, and hospital care.

Limitations

Similar to other international comparison studies, this study has limitations that may limit its generalizability. International comparisons between systems have their shortcomings, making transferring ideas difficult. This study was a narrow-scope qualitative systematic literature review focusing on select countries with advanced LTC at-home models. Understandably, many different care models for OAs in other nations were not examined. The countries analyzed in this study have different social constructs and healthcare systems with varying degrees of complexity, further limiting the linear transferability of their experiences. The proposed policy changes require a national willingness to change and may be hindered by political forces in a federation. Further research is necessary to systematize the suggestions made in this study and critically evaluate feasibility based on Canada-specific data, such as funding mechanisms.

CONCLUSION

There are various LTC at-home models among OECD countries with different structures and funding sources. In order to address the growing demand and the challenges of care for OAs, Canada needs to reform its LTC system. Canada's current focus on institutional care cannot adequately fulfill the aging population's needs, resulting in inequitable and suboptimal care. Aligned with the LTC at-home models of select OECD countries explored in this study, Canada's viable option is to prioritize the provision of LTC at home.

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INSTRUCTIONS TO AUTHORS

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JALTC is published three times a year. Articles submitted should not have been previously published or be currently under consideration for publication any place else and should report original unpublished research results. The journal does not expect any fees for publication. All articles are available on the website of the journal with membership.

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Vision and Mission

The major goal of the Journal of Aging and Long-Term Care (JALTC) is to advance the scholarly contri-butions that address the theoretical, clinical and practical issues related to aging and long-term care. The JALTC, while making efforts to create care services for older people at the best quality available that are more humane, that pay special attention to people's dignity, aims from the perspective of the whole aging process- to discuss Social Care Insurance as a human right, to contribute care for older people to be trans-formed into an interdisciplinary field, to integrate care services for older people and gerontological concepts and to create more effective collaboration between them, to enhance the quality of care services for older people and the quality of life of caregivers from medical, psychological and sociological perspectives, to highlight the cultural factors in care for older people, to increase the potential of formal and informal care services, to provide wide and reachable gerontological education and training opportunities for caregivers, families and the older people.

Aims and Scope

"National Association of Social and Applied Gerontology (NASAG)"has recently assumed responsi-bility for the planning and introduction of a new international journal, namely, the Journal of Aging and Long-Term Care (JALTC). With world societies facing rapid increases in their respective older populations, there is a need for new 21st century visions, practices, cultural sensitivities and evidenced-based policies that assist in balancing the tensions between informal and formal longterm care support and services as well as examining topics about aging.

The JALTC is being launched as the official journal of the NASAG. The preceding journal aims to foster new scholarship contributions that address theoretical, clinical and practical issues related to aging and long-term care. It is intended that the JALTC will be the first and foremost a multidisciplinary and interdis-ciplinary journal seeking to use research to build quality-based public policies for long-term health care for older people.

It is accepted that aging and long-term care is open to a diverse range of interpretations which in turn cre-ates a differential set of implications for research, policy, and practice. As a consequence, the focus of the journal will be to include the full gamut of health, family, and social services that are available in the home and the wider community to assist those older people who have or are losing the capacity to fully care for themselves. The adoption of a broader view of aging and long term care allows for a continuum of care support and service systems that include home base family and nursing care, respite day care centers, hospital and hospice care, residential care, and rehabilitation services. It is also crucial to be aware that life circumstances can change suddenly and dramatically resulting in the need for transitional care arrange ments requiring responsive, available, accessible, affordable and flexible health care service provision.

For further assistance and more detailed information about the JALTC and the publishing process, please do not hesitate to contact Editor-in-Chief of the JALTC via sending an e-mail: editor-in-chief@jaltc.net Editor-in-Chief: Emre SENOL-DURAK

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