







ORIGINAL ARTICLE

Narratives of older persons' frailty and physical activity in relation to environmental landscapes and time

Payom Thinuan PhD Student¹  | Penprapa Siviroy DrPH, Associate Professor¹  |
Charlotte D. Barry PhD, Professor²  | Shirley C. Gordon PhD, Professor²  |
Peerasak Lerttrakarnnon MD, Associate Professor³  | Thawon Lorga PhD, RN⁴ 

¹Department of Community Medicine,
Faculty of Medicine, Chiang Mai University,
Chiang Mai, Thailand

²Christine E. Lynn College of Nursing,
Florida Atlantic University, Boca Raton, FL,
USA

³Department of Family Medicine, Faculty
of Medicine, Chiang Mai University, Chiang
Mai, Thailand

⁴School of Nursing, Mae Fah Luang
University, Chiang Rai, Thailand

Correspondence

Penprapa Siviroy, Department of Community
Medicine, Faculty of Medicine, Chiang Mai
University, Chiang Mai, Thailand.
Email: psiviroy@gmail.com

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Abstract

Aims and objectives: The objective of this study was to explore the influence of the environmental landscape on the physical activity of older persons experiencing frailty.

Background: This manuscript describes the second phase of an unpublished larger study in the northern province of Lampang, Thailand. Phase One revealed that 14% of 1,788 older persons surveyed were found to have experienced frailty according to Fried's frailty phenotypes, and low physical activity was associated with frailty. In the light of frailty, how older persons experience physical activity in their day-to-day living environments warrants in-depth exploration.

Design: This was a qualitative study guided by narrative inquiry.

Methods: In-depth interviews and observations were conducted with 13 older persons living with frailty. The method of analysis was thematic and performance analysis.

Results: Two broad themes relating to the environmental landscapes were as follows: (a) limiting environmental landscapes and (b) engaging environmental landscapes. These landscapes, which change across time, refer to physical and social spaces, and beliefs of older persons and their family that have either positive or negative impacts on physical activity of frail older persons.

Conclusion: Complex interactions between physical and social spaces and beliefs of older persons and family influence the physical activity behaviours of older persons living with frailty.

Implications for practice: This study warrants education and policy aiming at creating optimal environmental landscapes to promote physical activity in frail older persons.

KEYWORDS

environmental landscape, frailty, narrative inquiry, older person, physical activity, Thailand, time

1 | INTRODUCTION

In 2014, 16.0% of the population in Thailand was over the age of 60 years (Knodel, Teerawichitchanan, Prachuabmoh, & Pothisiri,

2014). As numbers of older persons increase, the incidences of chronic diseases and geriatric syndromes are also likely to increase (Zaslavsky, 2012). One of the most important aspects of geriatric syndrome is frailty which is characterised by steady decline in

physiologic reserves and functions of the older persons (Clegg, Young, Iliffe, Rikkert, & Rockwood, 2013; Junius-Walker et al., 2018; Walston et al., 2006). Internationally, the prevalence of frailty among community-dwelling older persons has been reported to be between 4% and 59.1% and is higher in the oldest old group (Collard, Boter, Schoevers, & Oude Voshaar, 2012).

Frailty has been found to be associated with increased health-care utilisation, hospitalisation and visits to the emergency department and poorer quality of life (Chang et al., 2012; Collard et al., 2012; Travers, Romero-Ortuno, Bailey, & Cooney, 2019). Nonetheless, frailty can be delayed and managed using appropriate therapeutic modalities targeting modifiable risk factors (Travers et al., 2019). Risk factors for frailty include the following: age, black race, female gender, cardiovascular diseases, number of comorbidities, functional incapacity, poor self-rated health, depressive symptoms, body mass index, smoking, low schooling level, low income, poor cognitive function and alcohol consumption (Mello, Engstrom, & Alves, 2014). Apart from these, sedentary lifestyle or decreased physical activity is found to be highly correlated with frailty (Cesari et al., 2015). Quantitative evidence suggests that physical activity in older person decreases with increasing age where more frailty is expected (McPhee et al., 2016). On the other hand, an active lifestyle or increased physical activity can be preventative factor for frailty in older ages (McPhee et al., 2016).

Promoting physical activity requires a supportive environmental landscape. According to Collins Dictionary, "landscape is all the features that are important in a particular situation" (Collins English Dictionary, n.d.). In this study, the situation is referred to as physical activity, whereas the environmental landscape can include social interactions and physical surroundings that influence how people think about and decide to engage in physical activity. From the international literature perspectives, individual, psychosocial and environmental factors influence physical activity level and behaviours in older persons (Moran et al., 2014). The individual factors are, for example physical health and gender, whereas psychosocial factors include, but not limited to, self-efficacy and social support. The environmental factors can be natural or built environments as well as neighbourhood surroundings. A mixed-method study in ten Chinese communities found that motivation, sports skills, social support, social norms, safety, availability of and accessibility to the environments play roles in physical activity in older adults (Yi et al., 2016). A qualitative systematic review reveals that pedestrian infrastructure, safety, access to amenities, aesthetics and environmental conditions influence physical activity behaviours among older adults (Moran et al., 2014).

Despite this international literature, very little is documented specifically on the psychosocial and environmental aspects of physical activity among older persons who experience frailty. Existing literature also fails to discuss how time (chronological time, clock time, seasonal time or a time in the context of a story or experience) influences engaging in physical activity. This knowledge is particularly lagging in the Thai contexts where research on geriatric frailty is still at the very embryonic stage. Understanding the interactions

What does this research add to existing knowledge in gerontology?

- Physical environment and time are important concepts to study in relationship to ageing and the experience of frailty.
- In Thailand, family members' cultural beliefs about ageing influence physical activity of older persons.
- Older persons strive to maintain physical activity while experiencing declining bodily strength, limiting environmental landscapes and family influence.

What are the implications of this new knowledge for nursing care with older people?

- Nurses should consider physical environments and family influence when assessing and planning appropriate interventions to promote physical activity for frail older persons.

How could the findings be used to influence policy or practice or research or education?

- Professionals and organisations should always consider physical and social environments when planning a physical activity for frail older persons and vice versa.
- When planning physical environments in cities, towns and villages, planners need to consider including safe, inviting green spaces and outdoor social gathering places that are accessible to all.

between physical activity and social and environmental surroundings in older persons in the light of frailty will lead to the identification of socio-environmental interventions to promote physical activity in frail older persons.

2 | METHODS

2.1 | Design

A qualitative, narrative inquiry method (Wang & Geale, 2015) was used to guide the study. The qualitative, narrative inquiry method has the potential to transform the participant's experience (Hunter, 2010) by reflecting back on meaning and experience, constructing a personal story and creating a shared individual and group cultural history (Smith, 2000). The concept of contextualised dimensions or "three commonplaces," namely, sociality, place and temporality, was used to design data collection and analysis of this study (Clandinin & Connelly, 2004). Sociality refers to individual condition (personal condition), social or cultural understanding, and social condition that simultaneously occur between the researcher and the narrator. The

place is the physical layout of the narrative on which the narrator describes the specific and concrete conditions. Temporality refers to time dimensions discussed in the story. This can be chronological time, time of the day, time of the month or year as well as the time when a story or experience takes place. Narrative inquiry is appropriate in the study of physical activity which is influenced by where how and when the older persons live.

2.2 | Aim

The purpose of this study was to explore the influence of the environmental landscape on the physical activity of older persons experiencing frailty. The guiding research question was as follows: What is the influence of environmental landscape on physical activity of older persons experiencing frailty as described in participant stories of day-to-day living in rural and urban communities in Thailand?

2.3 | Participants

The setting of this study was in the province of Lampang in the north of Thailand. Lampang is among the top three provinces with the highest percentage of the older population aged 60 years and older reaching 24.1% of the total population (National Statistical Office, 2018). The majority of older persons lives in rural or semi-rural areas and participated in agricultural work before retirement. The participants in this qualitative study were selected by purposive and maximum variation sampling (Creswell, 2012) from the first phase of a larger study involving 1,788 participants. Participants from the first phase which was a quantitative study were screened using the modified frailty phenotype which assesses weight loss, fatigue, slow walking, low grip strength and decreased physical activity (Fried et al., 2001). The scores of 3–5 suggest frailty, whereas scores of 1–2 and 0 are considered pre-frailty and non-frailty, respectively. The inclusion criteria for the first phase included male and female participants with a minimum age of 60 years, who were able to communicate in the Thai language. Exclusion criteria included: unable to walk at all, unable to use of both hands for hand grip test purpose, cognitive impairment as determined by the Mental State Examination-Thai version (MSET10) with scores ranging 0 (impaired) to 29 (Dementia Association of Thailand, 2018) and considered clinically unfit (e.g. chest pain, severe arthritis, dyspnoea, severe headache) at the time of screening. Participants who scored at least 3 out of 5 criteria of the modified frailty phenotype were recruited for the subsequent qualitative study. The participants represented both urban and rural residents. The older adults from this population ($n = 60$: Frail) were asked voluntarily to participate in our study. Notably, 13 older adults were selected for interviewing using a purposive sampling method using location to represent both urban and rural environmental landscapes.

2.4 | Data collection

Interviews were conducted between December 2017 and February 2018. The interviews began with the following question to encourage participants to tell their daily life story: "Tell me about your day from the time when you first wake up until you go to bed at night." Additional questions to understand the fullness of participant activities and health status included: "How would you describe your health?" "What do you understand about the nature of frailty?" "Please describe how where you live impacts your daily activities?" Based on the participant's responses, the researcher then used in-depth questions to explore the stories further. Field notes and environmental landscape photographs were used to enhance researcher's observations and subsequent in-depth questions.

2.5 | Data analysis

The lead researcher transcribed audio-recorded interviews in Thai. The researcher validated the stories transcribed in Thai during a second visit to each participant. Field notes and photographs of the physical environmental landscape were used to substantiate participant's stories. Following transcription, the interview texts were compared with (Clandinin & Connelly, 2004) "three commonplaces" to determine whether the interviews represented a narrative in order to validate the use of a narrative analysis method. Following the validation that the interviews represented narratives, the researchers proceeded to the narrative analysis.

Narratives share a story form. They have "...sequence and consequence: events are selected, organised, connected and evaluated as meaningful to a particular audience" (Riessman, 2001). Performance analysis, a type of narrative analysis, was selected for this study to emphasise the intentional interpersonal interaction between the narrator (older person) and the listener (researcher) (Riessman, 2001, 2008). In this way, the narrator was encouraged to share his life story with the researchers who listened intently. According to (Riessman, 2019), in taking the role of the listener or the audience, the researcher analyses the text without changing the participants story. In this way, images, participant words and interactions were integrated into the analysis (Olliffe & Bottorff, 2007). Performance analysis is appropriate for studies of identity construction, in other words, "how the narrators want to be known" (Riessman, 2001).

The performance analysis began with a thematic analysis of the transcribed interviews, field notes and photographs focusing on the content of the data. The steps included: reading and re-reading each transcript and field notes, identifying significant event statements, grouping statements into categories of meaning, interpreting categories into subthemes, interpreting subthemes into themes, exploring photographic support of themes, constructing an overall meaning, validating findings with experts in qualitative research and finally validating whether the overall themes fit with the original narratives.

The researcher regularly reflected on the data and findings, identified potential biases on interpretations and revisited the analysis when needed to ensure correct interpretations and trustworthiness.

2.6 | Ethical considerations

This study was approved by the Research Ethics Committee of Faculty of Medicine, Chiang Mai University (No. 236/2015). The potential participants were informed about the research objectives and activities. Those who were willing to participate were recruited and written consent was sought. Participant's confidentiality was protected by omitting participants' identifiers and presenting demographic data at the group level.

3 | RESULTS

The participants mean age was 70.47 years. Participants resided in urban (5/13) and rural (8/13) settings and lived with family (11/13) or with family nearby (2/13). Table 1 presents the age, gender, residential location and family living arrangement. Two broad themes relating to environmental landscapes emerged from the analysis of the 13 interviews, field notes and photographs: (a) limiting environmental landscapes and (b) engaging environmental landscapes. In addition, seven subthemes are described under these themes.

3.1 | Limiting environmental landscapes

Environment landscape refers to the home and surrounding area including physical environmental structures and social interactions. In this study, older persons who experienced frailty lived in certain environmental landscapes that affected their physical activity. These landscapes had changed over time and as people grew older. The limiting environmental landscapes were described by the older persons as (a) limiting physical space and (b) family encouragement to rest.

3.1.1 | Limiting physical space

Older persons experiencing frailty in this study reported that some physical spaces limit their ability to be physically active. Examples included the structure of individual rooms and stairways, furniture placement, accumulation of many household items, size of outside areas such as patios and courtyards, and traffic patterns. Some physical spaces have changed drastically over time and have become obstacles for older persons' daily living. Some physical spaces, however, remained unchanged. Despite this, these unchanged spaces can become problematic and thus limiting for the older persons whose bodily strength has declined. Once participant described his/her the influence of the environment on physical activity:

My front yard is very narrow. It doesn't give me a decent distance for walking. I try to exercise by walking. In the front yard, I walk back and forth 20 times. Sometimes, I walk to the beginning of the alley and back, and along the street fence. I repeat this walk 5 times a day.

I cannot do anything much around the house because it is quite cramped. The walkways are quite narrow as there are things like furniture left on the way. It's difficult for me to walk through them to get to the kitchen. I have to slow down when passing these items and have to hold on to things to make sure I won't stumble. I avoid walking down these paths.

Fear of falling while walking around the house or climbing or descending narrow stairways was also common among participants.

Every morning, as the house has 2 floors, I have to walk carefully downstairs and upstairs because I'm afraid of falling down. I have to count the number of the steps to make sure that I would not miss any steps and accidentally fall down.

The environmental landscape described by participants also included yards, gardens, roadways, temples and the community centres. For example, Figure 1 depicts a typical environmental landscape including a paved, public roadway in front of a participant's home. The photograph shows the environmental landscape in and around a participant's house. At first glance, the environment may seem unremarkable but when we consider the stories of frail older persons in this study, the meaning becomes more complex. The researchers arrived at the participant's two-story wooden house located in an urban area at 2:00 p.m. There were few vehicles on the roadway. However, at other times of the day, the participant described the traffic as being heavy, which limits physical activity outside the home. One participant shared with the researchers:

I don't leave the house in the morning because the traffic is very heavy. Cars are flocking on the street as parents drive kids to school and people travel to work. The traffic will be heavy again in the afternoon when people travel back from work and schools. I won't go out during these peak times. If I have to go out, I would wait until late in the morning or after lunch time when the traffic becomes easy.

3.1.2 | Family encouraging older persons to rest

Changes in the environmental landscape also refer to the change in family view about older persons' ability to live independently and the family roles in relation to this change. In Thai culture, older persons, specifically parent, are highly valued, respected and

TABLE 1 Demographic information of the participants

Participants	Age	Gender	Residential location	Family living arrangement
1	82 years	Male	Urban	With family (daughter, son-in-law)
2	78 years	Male	Urban	With family (daughter, wife)
3	78 years	Female	Urban	With family (daughter, son-in-law)
4	93 years	Female	Urban	With family nearby
5	89 years	Male	Rural	With family (daughter, son-in-law)
6	79 years	Female	Rural	With family (daughter)
7	74 years	Female	Rural	With family nearby
8	64 years	Female	Urban	With family (son, daughter-in-law)
9	75 years	Female	Rural	With family (daughter, grandchild)
10	75 years	Male	Rural	With family (wife)
11	85 years	Female	Rural	With family (daughter)
12	85 years	Male	Rural	With family (daughter, son-in-law, grandchild)
13	80 years	Female	Rural	With family (daughter)

honoured. For example, family members consider a second-story bedroom to be a place of honour for older persons/parents. When parents grow old, their adult children express their gratitude for their parents by returning them with loving-kindness care. The adult children provide a home, food, money and other support to their parents. This reciprocal obligation is intensified when the adult children see that their parents are getting old and their health and physical strength deteriorates. Children may request their older parents to stop working and offer maximum support. Parents

are proud and happy to have loving children who care for them so well. For example, one participant shared with the researchers:

When I am sick, I am lucky to be in a warm family. My daughter has wanted to take care of me and to repay me with care. She doesn't want me to do anything at home.

This participant lived in a rural area with her husband, daughter and son-in-law and had not worked outside the home for 20 years. Her physical activity was very limited as she often felt tired, experienced difficulty walking and was encouraged by her daughter to rest. In this situation, family members interpreted the participant's weakened physical condition as being unable to engage in physical activity. Another participant reported her daughter as saying:

You spent much time to raise us. I want to repay you when you are older and sick." She would say "Mom, please wait and sit down. Don't do anything.

The traditional Thai beliefs were evident in many participants' stories. Family members often expressed caring, love and respect by doing more for the participants than was required which reduced the overall need for physical activity. However, while honouring parents with a second-story bedroom, climbing up and down stairs was physically challenging for many. For example, one participant described the need to limit climbing up stairs to his bedroom only once a day due to physical limitations.

3.2 | Engaging environmental landscape

Despite declining bodily strength and the presence of limiting environmental landscapes, participants in this study put effort into maintaining physical activity over time. They adjusted to



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FIGURE 1 Picture of a typical public paved roadway in front of a participant's home

age-related physical and temporal changes, would seek an active lifestyle in retirement, participated in household chores, motivated self to engage in physical activity and looked for environmental landscapes that would offer an opportunity for engaging in physical activity.

3.2.1 | Adjusting to age-related physical and temporal changes

As physical conditions started to decline with the advancing age, adjustments of physical activity are inevitable. Before retirement, older persons often described themselves as having a good physical condition, exercising frequently and were involved in physical activities as desired. As frailty gradually developed following retirement, physical activity became challenging for these older participants. Adjustments take a number of forms, for example adjusting the type of activity, intensity, tools used and time of activity. Adjustments of physical activity were to better fit with their physical conditions that changed over time. A 78-year-old participant stated:

Before retirement, I exercised every day (in and outside the home). When I was 70 years old, I went out to walk at the stadium, walking around the field 4 times per day (10 minutes) but now I opt for light exercise because I lost my body strength. I also cannot run or walk fast (as I used to).

Now that I am older, I have many illnesses and feel tired. I try to walk and take care of myself by walking 50 laps (around the house) per day. If I feel pain in my legs, I will do only 20 laps.

Modifying ways in which activities and jobs are accomplished demonstrates the participants' motivation to stay active:

I feel exhausted sometimes but I know if I go take a short nap, I will feel better and be able to get my jobs done. Normally, I will do everything in my house that I can. But I am older now and there is something I can't do. When pounding chili, I can no longer use the mortar stone (as it is too heavy), so I use the wooden mortar instead.

Clock time also affected physical activity. For example, participants described adjusting daily activity based on the time of day:

Because I am old, I will go out in the morning and evening to do gardening and watering plants (to avoid hot weather).

I work in the garden in the early morning to avoid the heat, traffic, and road dust.

3.2.2 | Finding an active lifestyle in retirement

Lifestyles after retirement required significantly fewer physical activities than the participants were accustomed to when working. For example, one participant who retired from a janitorial position in a high school participated in many physically demanding tasks before retirement such as cleaning, sweeping the classroom, lifting and carrying desks to various rooms and organising meeting rooms. She described feeling generally happy after retirement, but also reported a reduced level of activity. Apart from her daily routines, she sought to establish a more active lifestyle.

I did everything in my school. I would start working at 7.00 am every morning and worked until 5.00 pm. I do not work now. Now I have stopped doing almost everything I ever did. My routine now includes stretching in bed, eating a light breakfast of banana and tofu water, house cleaning/wiping, listening to music, watching TV and cycling outside the village.

Other participants stressed the importance of having something to do:

I spend most of my day at my house. I go out to the garden after I wake up, I water the plants. Sometimes I use a watering hose and a small, lightweight iron hoe for weeding grass and digging in the soil. I enjoy the exertion. Gardening makes me happy and proud when I see the products that I can sell and earn money for the family. I have done this for almost 10 years now.

I will continue doing these activities to keep myself healthy...I go to do volunteer work at the hospital. It's not a heavy job. I will do it until my body can't handle it.

In contrast, some participants were unsure of what to do with leisure time in retirement. For example:

After retirement, I have no work to do and don't know what to do. Others tell me, sit back and relax.

I look after the house for children because they go out to work. (After finishing morning household chores), I don't know what to do. Some other times, I bike to visit my friend and return home at 11 o'clock.

3.2.3 | Participating in household chores

Almost all the older persons in this study participated in routine household chores. Physical spaces and environments, as well as the need to keep active roles in the family, increased the opportunity for older persons to engage in physical activity. Living in houses that

required day-to-day maintenance such as sweeping, dusting/wiping, putting out the rubbish, preparing food, and working in the yard raking leaves and gardening helped keep the older persons physically active. For example, researchers observed one house that had a large sapodilla tree with thick branches and dry, fallen leaves. While walking into the house, the researchers saw the participant using a broom to sweep the leaves into a stack to be bagged and thrown away.

In the morning, I sweep away every leaf. It's my duty. Then comes the evening, I clean up the ground (with fallen leaves) again

I stay home every day. It is my job to help my daughter with the housework (because she works outside the home), gathering up items and taking them to the sink to wash, and sweeping the dropped leaves on the patio every day. I also cook, and prepare food for the family.

I wake up to do housework, cook, and prepare the food for the monks, sweep the fallen leaves and take the garbage out and feed the birds and dogs every day.

I wake up and steam rice. If I don't feel exhausted, I'll walk to the market. I go pick long beans in the garden (as part of a paid job) until five o'clock in the afternoon. I am doing this because I want to do something.

The home environmental landscape supported the participants' efforts to be physically active all day long accomplishing routine jobs/tasks that maintain the house and contribute to the family's needs for daily living. Therefore, the need and/or desire for physical activity stimulated participants to interact with the surrounding environmental landscape.

3.2.4 | Motivating self to engage in physical activity

Despite reduced physical strength, poorer physical conditions and family encouragement to rest, participants preferred to stay active and keep moving within their own environment. They described strategies they used to motivate themselves to engage in physical activities. One participant stated:

When I feel exhausted, I force myself to do things such as clearing up the fallen leaves with a light boom, and get up early for a light exercise at the yard.

I can't walk a long distance because of knee pain. So now instead of walking, I ride a bike 1–2 hours a day around the village to stay healthy.

My daughter has asked me to stop working because she thinks I am old. But I still want to work because I still

can work. I am still healthy. I still can do things. I secretly work to earn some money (without my daughter knowing).

Older persons with frailty were concerned with maintaining their levels of physical activity. Despite physical changes associated with ageing, participants continued to motivate themselves to do housework, gardening and leisure activities.

3.2.5 | Engaging physical and social space

Older persons described the decision to seek additional physical spaces and activities outside the home to expand their environmental landscapes. These outside spaces were important for older persons whose housing space was limited. For example, participants went to local parks for exercise with the added advantage of the presence of trees and being with nature. Parks also expanded the environmental landscape by offering social meeting space to be with friends. Other participants attended village temples, which provided space for common activities and joining with friends. Older persons also described walking and cycling as a type of physical activity that took place in those spaces outside the home.

I have joined the baton exercise group for almost three years now. We go to the temple ground (for exercise) because it offers ample space for this kind of exercise. Some other times, we use the playground or other open spaces in our village to meet and exercise together.

I go to the senior citizen club almost every week. It runs different kinds of exercise activities and is a meeting place for old people like us.

4 | DISCUSSION

The performance analysis revealed the significant impact of environmental landscapes on day-to-day living for older persons experiencing frailty in Thailand. This study focused on developing a deeper understanding of the relationship between environmental landscape, time, physical activity and frailty in older persons. The researchers found the environmental landscape to be a key issue in the physical activity of older persons with frailty. Environmental landscapes are defined as the interactions between time, place and sociality. Participants described environmental landscapes and time as limiting and/or engaging their ability to participate in physical activity depending on time.

The passing of the years has brought about the increasing age of the participants along with physical declines. From the older person's accounts, their family usually associates the declines with reduced physical ability and is likely to limit the physical activity of

the older persons. Family encouragement for the older persons to rest has been documented in Thai literature (Prasartkul et al., 2017; Rittirong, Prasartkul, & Rindfuss, 2014). This practice is in part attributed to the reciprocal family caregiving in Thai culture where adult children are expected to repay the support and care to their older parents. The family may ask the older persons to stop working or engaging in household chores or daily living activities. Not having to work in later life is considered by Thai families as comfortable living which in turn can suggest successful ageing. This is especially the case that concerns work and activity-related safety and injury. In this study, the safety concern is formed based on visibly frail symptoms such as poor vision, reduced physical strength, slow movement, frequent exhaustion and susceptibility to illnesses.

The once suitable living physical spaces can become limiting for the older persons in the presence of their physical declines. These physical spaces include structures inside and outside the house such as bedroom, living room, kitchen, courtyard and streets. As their body ages and declines, manoeuvring around these physical spaces can become more challenging and physical activity can be restricted. The older persons may either choose not to engage themselves in those physical spaces or limit their activities while in those spaces. The choices of physical activity engagement in limiting physical spaces are influenced by older persons' safety concerns in the presence of declined physical ability. Safety is one of the important factors that determine older persons' participation in physical activity (Choi, Lee, Lee, Kang, & Choi, 2017; Moran et al., 2014). Physical environments, types of activity and older persons' physical conditions contribute to safety in physical activity in older persons. In this study, safety is a result of the interaction between the physical space and physical ability that change over time as the participants' age.

Certain environmental landscapes can promote the physical activity of frail older persons. These include available physical spaces and older persons' beliefs and attitudes about their physical ability. Accessibility to physical spaces that offer physical activity opportunities helps keep older persons physically active. Such spaces can be found at local parks, temples and senior citizen clubs. Apart from providing the actual physical space for physical activity, these settings also provide an environment for learning new things and thus changing beliefs and landscapes for physical activity (Choi et al., 2017; Moran et al., 2014). In particular, senior citizen clubs have been used as a mechanism to promote lifelong learning and active ageing in Thailand and worldwide (Ethisan, Somrongthong, Ahmed, Kumar, & Chapman, 2017; Liangruenrom, Craike, Biddle, Suttikasem, & Pedisic, 2019). The older persons' narratives in this study suggest that the club has served its purpose.

The older persons' belief about their ability and need to engage in physical activity is probably the most important key for older persons to stay physically active in the face of frailty and changing environmental landscapes. Ample evidence suggests that such a belief or self-efficacy positively influences the level of physical activity in older persons across cultural backgrounds and age groups amidst without specific mentioning to frail older persons (Choi et al., 2017; Liangruenrom et al., 2019). All participants in this study

described various physical activities as an essential component in their day-to-day living. The described activities are consistent with the World Health Organization's (WHO) definition of physical activity for adults aged 65 and older. The WHO activities include leisure-time physical activity (e.g. walking, dancing, gardening, hiking, swimming), transportation (e.g. walking or cycling), occupational (if the individual is still engaged in work), household chores, play, games, sports or planned exercise, in the context of daily, family and community activities (World Health Organization, 2010). Older persons with frailty actively sought opportunities to engage in physical activity and modified their levels of activity to accommodate changing health conditions, physical space as well as family expectations.

5 | CONCLUSION

The invitation to share stories and the use of performance analysis allowed the researchers to understand how the older persons with frailty in this study wanted to be known (Riessman, 2001). This study is essentially an analysis of complex interactions between geriatric frailty, physical activity and the environmental landscapes that they live in. The environmental landscapes in this study are physical spaces, beliefs of older persons and those of their family. These landscapes change over time as individuals become older and frail. Experiences related to frailty then change the way older persons and their family view and interact with existing physical spaces. The same spaces can become limiting for the older persons to undertake physical activity as frailty progresses, whereas new spaces are explored and created as alternative platform for the already frail older persons to engage in physical activity. The family's belief that "frail older persons should rest" can prevent frail older persons from being physically active. Despite experiencing frailty and changes in these environmental landscapes, frail older persons attempt to stay as physically active as they can. Nurses working with older persons need to recognise the complex interaction between frailty and environmental landscapes across time and its influence on the physical activity of frail older persons. To motivate and promote physical activity among older persons living with frailty, nurses should take a culturally sensitive approach to educate family about geriatric frailty and physical activity as well as collaborate with other professionals and the community in redesigning appropriate physical and social spaces. The strength of this study lies within its use of different data collection techniques and sources (i.e. interview, observation and photos) as well as the use of performance analysis in addition to thematic analysis. These altogether allowed us to examine and illuminate complex interactions between geriatric frailty, environmental landscapes and physical activity. As this study employed a small number of participants for its narrative analysis, we, therefore, do not aim at making a generalisation to the wider populations of frail older persons. Findings from this study, however, can be used as a basis for understanding the relationships between geriatric frailty, physical activity and environmental landscapes

across time in global communities, given that relevant context and culture are considered.

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CONFLICT OF INTEREST

The author (s) declared that they have no potential conflicts of interests with respect to the research, authorship and/or publication of this article.

AUTHOR CONTRIBUTIONS

Study design: PT, PS, PL, TL; Interview data collection: PT; Qualitative analysis: PT, TL, PS, CDB, SCG; Initial drafting of the manuscript: PT; and Comments and preparation of the manuscript: PS, TL, CDB, SCG. All authors read and approved the final manuscript.

ORCID

Payom Thinuan  <https://orcid.org/0000-0002-0947-315X>
 Penprapa Siviroy  <https://orcid.org/0000-0003-4781-4119>
 Charlotte D. Barry  <https://orcid.org/0000-0002-3451-5198>
 Shirley C. Gordon  <https://orcid.org/0000-0002-8324-2034>
 Peerasak Lerttrakarnnon  <https://orcid.org/0000-0002-1628-0639>
 Thawon Lorga  <https://orcid.org/0000-0003-3951-4394>

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