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老人休閒活動參與量表之發展

Development of Leisure Participation Questionnaire

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摘要



背景：

現今全球老化問題隨著醫學及科技進步而逐漸增加。面臨人口老化持續加快，如何維持一個人老化歷程中健康與安適是十分重要的。過去研究顯示出參與休閒活動對於老年人具有多種益處，包括生理及心理之安適感。過去文獻中，針對老年族群所使用之休閒活動參與量表探討的面向多為「參與頻率」。然而，迄今仍無研究將多樣性、頻率、和誰一起、地點、喜好程度等環境及個人因素一併考量於同一份量表中，以便對於老年族群參與休閒活動之情形有更完整之了解。

目的：


本研究目的為二：(1)發展一老年人休閒活動參與量表，除了考量休閒活動之種類、頻率，也將納入參與活動之陪同者、地點以及個人喜好等，(2)以此發展之老人休閒活動參與量表，探討老年人休閒活動參與之情形。

方法：

此研究分為兩階段。此兩階段之收案條件皆為：(1)年滿60歲以上且(2)可以中文或台語溝通者。排除條件為患有嚴重腦傷、失智症及其他認知相關疾病者。第一階段透過五個步驟：文獻回顧、初步量表項目發展、專家效度、量表測試及信度分析，發展為老年休閒活動參與量表(Leisure Participation Questionnaire)。第一階段完成後，由研究者至位於台北之社區單位向個案說明研究內容並協助其填寫研究量表。第二階段為探討老年人之休閒活動參與情形，分析全體研究個案參與休閒活動之種類、頻率、陪同者、地點、喜好及重要程度。

結果：

本研究共納入149位個案，其中30位於四周後進行第二次施測。第一階段研究所發展之「老人休閒活動參與量表」共包含31項休閒活動及六個面向：多樣性(Diversity)、頻率(Frequency)、與誰一起(With whom)、地點(Where)、喜好(Preference)及重要程度(Value)。研究結果顯示此量表具有良好信度，其內部一致性分析以其



中三個面向：頻率(Frequency)、喜好(Preference)及重要程度(Value)呈現，Cronbach's alpha分別為.792、.794及.799皆屬高信度。再測信度分析結果顯示六個面向中，多樣性($\rho = .619$)、強度($r = .718$)、與誰一起($\rho = .717$)及地點($\rho = .660$)皆達中至高信度，而喜好($r = .370$)及重要程度($r = .387$)屬於較主觀之面向，因而其再測信度較低。第二階段之研究結果顯示個案之平均年齡為70.7歲($SD = 6.35$)，83.9%為女性，60%為接受九年以上教育者，55%屬於衰弱長者。於全體個案中，參與比例最高的兩個活動為「聊天(99%)」及「與家人、朋友聚會(99%)」，而比例最低的為「游泳(8.1%)」。參與休閒活動之「與誰一起」面向比例最高為「自己(39.2%)」，「地點」中比例最高為「在家(36.76%)」。老年人參與休閒活動之「喜好」及「重要程度」則皆介於「喜歡」和「很喜歡」。另外，將個案依據年齡、教育程度及衰弱程度區分為各兩組，研究結果顯示年齡較低及教育程度較高者參與休閒活動多樣性及強度較高，達顯著差異。

結論：

本研究顯示此由上述六個活動參與面向及四個活動類型所組成之老人休閒活動參與量表為一可信之工具。未來研究及臨床應用可藉由此量表，考量多種參與面向及休閒活動項目，以全面地了解老年人參與休閒活動之情形。

關鍵字：老年人、休閒活動、休閒活動參與量表

Abstract



Background: With advances in medicine and technology, the increase of aging population is taking place worldwide. Confronted with such rapid growing aging population, maintaining one's health and well-being throughout late life is of great urgency. A multitude of studies have revealed the benefits of participating in leisure activities for older adults' mental and physical well-being. Through literature review of measures of leisure participation among older adults, the most often measured dimension of participation is frequency. However, to date, no research has considered diversity, frequency, with whom, where, preference and value altogether, for a comprehensive profile of the leisure participation among older adults.

Objectives: The purpose of this study was two-fold: (1) to develop a leisure participation questionnaire in order to have a comprehensive profile of older adults' leisure participation, considering not only frequency and types of activities, but also who they do leisure activities with, at what location, and their preference altogether, and (2) to investigate the profile of leisure participation among community-dwelling older adults.

Methods: This research was conducted in two phases. The inclusion criteria of participants of both research phases were (1) older adults aged more than 60 years and (2) being capable of communicating in Mandarin Chinese or Taiwanese Hokkien. Those with severe brain injury, dementia, and other cognitive-related diseases will be excluded. In phase I, the questionnaire was developed through five steps: literature review, preliminary item development, expert validation, pilot testing and reliability of the questionnaire. After the Leisure Participation Questionnaire was developed, researcher recruited participants from different community sites in Taipei and assisted them to fill out the questionnaire one-to-one. The data were then analyzed in phase II to investigate



older adults' leisure participation profile.

Results: 149 older adults were recruited in this research and the second administration was conducted after a four-week interval on 30 participants. The Leisure Participation Questionnaire developed in phase I has 31 leisure activities and six dimensions: Diversity, Frequency, With whom, Where, Preference and Value. The internal consistencies of the Frequency, Preference and Value dimensions were .792, .794, and .799 respectively. The results of test-retest reliability of the Diversity, Frequency, With whom and Where dimension showed moderate to high reliability, while the dimensions of Preference and Value showed lower reliability. The results of phase II showed that among all participants, “chatting (99%)” and “getting together with family and friends (99%)” have the highest participation rate, while the lowest was “swimming (8.1%)”. As to the dimension of With whom, the rating “on one’s own (39.2%)” was the highest, and the rating “at home (36.8%)” was the highest in the dimension of Where. The ratings of the dimension Preference and Value were both between “pretty much” and “very much”. In addition, the results of the *t*-tests showed that significantly higher diversity and frequency among older adults who were younger and with higher education level.

Conclusion: The Leisure Participation Questionnaire, which includes six dimensions, has good reliability. By using this questionnaire, future research and health professionals can have a comprehensive profile of older adults' leisure participation.

Keywords: Older adults, leisure activities, leisure participation questionnaire

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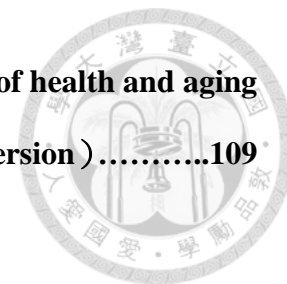


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Chapter 1. Introduction



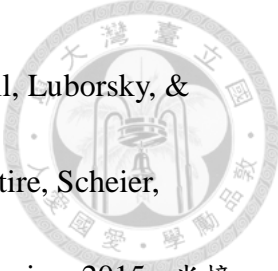
With advances in medicine and technology, the increase of aging population is taking place worldwide, which has a great effect on social, economic, and health. In Taiwan, the number of people over the age of 65 has also increased rapidly. According to the statistics from the Ministry of Health and Welfare, in 2018, 14% of the population is older adults, transforming Taiwan into an “aged society”. In 2025, over 20% of the whole population will be older adults, thrusting into a “super-aged society” (National development council, 2016). Confronted with such rapid growing aging population, maintain one’s health and quality of life throughout late life is of great urgency.

The ratio of chronic diseases and functional disabilities rises along with the extended life expectancy. If aging is to be a positive experience, longer life must be accompanied by continuing activity participation. Increasing activity participation is beneficial to an individual’s health, since remaining involved in meaningful and purposeful activities is a key component in promoting health and extending lives of older adults (Lennartsson & Silverstein, 2001; Rowe & Kahn, 1998). According to activity theory, proposed by Havighurst and Albrecht in 1953, more participation in social and leisure activities have positive relationships with better life satisfaction and adjustment to aging among older adults (Diggs, 2008; Steinkamp & Kelly, 1987). Older adults may gradually be limited to continue many activities and roles due to physical or



cognitive decline or disability. Yet, remaining active and making creative use of spare time to participate in activities has been suggested to be helpful to transition to old age and health (Adams, Leibbrandt, & Moon, 2011; Nimrod, 2007). A concept proposed by World Health Organization, active aging has also expressed similar points of view as activity theory (World Health Organization, 2001; WHO, 2002). Older adults will have more potential to sustain their health and well-being through maintaining participation in a range of activity domains in later life.

Around the age of 60 to 65 years old, most people retire from work, which is a major alteration that portrays aging (Nimrod, 2007). With more free time, leisure often becomes the main activity that these retired older adults participate in (林佳蓉, 2000). Recent literature noted that older adults today have longer life expectancy and they value more highly about health care and happiness, thus tend to become a more active participant in leisure activities (Agahi & Parker, 2005; 張靜惠, 2008). There is a substantial literature on the benefits of participating in leisure activities among older adults. In order to lower their morbidity, mortality, and promote well-being, remaining active in later life has been found to be beneficial. Participating in diverse leisure activities, such as swimming, dancing, taking classes, is advantageous to buffer stress, increase muscle strength and endurance, lower risks of chronic disease, and sustain mental health condition (Ellwardt, Aartsen, Deeg, & Steverink, 2013; Eriksson Sörman,



Sundström, Rönnlund, Adolfsson, & Nilsson, 2014; Fallahpour, Borell, Luborsky, & Nygård, 2015; Herrera et al., 2011; Pressman, Matthews, Cohen, Martire, Scheier, Baum, & Schulz, 2009; Singh, 2002; Takeda, Noguchi, Monma, & Tamiya, 2015; 尚憶薇, 2000; 林佳蓉, 2000).

In order to experience the journey of aging positively and actively, longer life expectancy ought to require continuous and readily-achieved opportunities for leisure participation. Therefore, understanding how these older adults manage their additional free time with leisure activities and how they experience these activities is crucial to their health and well-being (Adams et al., 2011; Agahi & Parker, 2005; Strain, Grabusic, Searle, & Dunn, 2002). In order to enhance leisure participation among older adults, from occupational therapists' perspective, who specialize in promoting health and facilitating active participation, obtaining in-depth and inclusive information of leisure participation is critical. Despite the far-reaching interest in leisure participation among older adults, there is still no assessment tool which could comprehensively profile older adults' leisure participation, blindfolding a broader perception on this topic (Menec, 2003; Nilsson & Fisher, 2006; Wang, Karp, Winblad, & Fratiglioni, 2002; 李月萍、陳清惠, 2010). Current leisure participation assessment tools used in literatures vary widely in definition, categorization and how to measure participation in leisure activities (Agahi, Ahacic, & Parker, 2006; Agahi & Parker, 2008; Chen & Fu, 2008;



Fallahpour et al., 2015; Friedland et al., 2001; Herrera et al., 2011; Hyypa, Maki, Impivaara, & Aromaa, 2006; Iwasa et al., 2012; Lee, Lee, & Park, 2014; Lennartsson & Silverstein, 2001; Maselko et al., 2014; Minhat & Amin, 2012; Nummela, Sulander, Rahkonen, & Uutela, 2008; Pressman et al., 2009; Scarmeas, Levy, Tang, Manly, & Stern, 2001; van der Meer, 2008; Verghese et al., 2006; Verghese et al., 2003; Crowe, Andel, Pedersen, Johansson, & Gatz, 2003; Schooler & Mulatu, 2001; van der Meer, 2008; 吳秀汝、林金定、張必正、陳麗美, 2012; 李月萍、陳清惠, 2010; 李維靈、施建彬、邱翔蘭, 2007; 李錦東、張峻嘉, 2009; 林聰哲、李世昌, 2008; 柳立偉、王嘉淳, 2009; 張俊一、許建民, 2012; 莊智鈞, 2005; 陳俊宏、陳鎰明, 2008; 陳祥慈, 2012; 湯幸芬、楊明青、黃詩閔, 2010; 黃淑貞, 2011; 李素箱、林志偉、李文裕、傅善恆, 2013; 莊婷婷, 2013). Based on literature review, most studies measures frequency of participation or domains of leisure activities (Agahi et al., 2006; Agahi & Parker, 2008; Chen & Fu, 2008; Fallahpour et al., 2015; Friedland et al., 2001; Herrera et al., 2011; Hyypa et al., 2006; Iwasa et al., 2012; Lee et al., 2014; Lennartsson & Silverstein, 2001; Maselko et al., 2014; Minhat & Amin, 2012; Nummela et al., 2008; Pressman et al., 2009; Scarmeas et al., 2001; van der Meer, 2008; Verghese et al., 2006; Verghese et al., 2003; 吳秀汝等人, 2012; 李月萍、陳清惠, 2010; 李維靈 等人, 2007; 李錦東、張峻嘉, 2009; 林聰哲、李世昌, 2008; 柳立偉、王嘉淳, 2009; 張俊一、許建民, 2012; 莊智鈞, 2005; 陳俊宏、陳鎰明,



2008；陳祥慈，2012；湯幸芬等人，2010；黃淑貞，2011；鄭政宗、賴昆宏，2007；李素箱等人，2013；莊婷婷，2013). The naming of activity domains were also inconsistent among these reviewed literatures(Iwasa et al., 2012; Lee et al., 2014; Morrow-Howell et al., 2014; 吳秀汝等人，2012；李維靈等人，2007；盧俊吉等人，2011；莊婷婷，2013). For example, “exercise”, “physical activities”, “sports and outdoor activities” and “fitness exercise” all included similar leisure activities, like jogging, playing table tennis and swimming. Also, an older adult’s value and preference of each leisure activity to have yet been investigated jointly (Agahi & Parker, 2005; Agahi & Parker, 2008; Chen & Fu, 2008; Diggs, 2008; Herrera et al., 2011; Hyypa et al., 2006; Iwasa et al., 2012; Lee et al., 2014; Lennartsson & Silverstein, 2001; Maselko et al., 2014; Minhat & Mohd Amin, 2012; Ingeborg Nilsson & Fisher, 2006; I. Nilsson, Nyqvist, Gustafson, & Nygard, 2015; Nummela et al., 2008; Pressman et al., 2009; van der Meer, 2008; 李月萍、陳清惠，2010；何麗芳，1992). Leisure participation among older adults have long been investigated (Godbey, Caldwell, Floyd, & Payne, 2005; Liu, Yeh, Chick, & Zinn, 2008), however, such basic questions about how to profile older adults’ leisure participation remain unclear.

Therefore, the purpose of this study is two-fold: (1) to develop a leisure participation questionnaire to comprehensively profile how older adults participate in leisure activities, considering not only frequency and types of activities, but also with

whom, where, preference and value jointly, and (2) to investigate the profile of leisure participation among community-dwelling older adults.



Chapter 2. Definition of terms

2.1. Leisure activity

The definition of leisure activities varies slightly among wordings between different studies, however, they all share the following concepts: (1) free and unrestrained, (2) oblivious of oneself, (3) for one's satisfaction and enjoyment and (4) meaningful (Neulinger & Breit, 1969; Dumazedier, 1974 ; Fallahpour et al., 2015; Kelly, 2012; Verghese et al., 2006; 曾智樺, 2012). Leisure activities vary widely and are kaleidoscopic in character. Professor John R. Kelly, defined leisure as *a human activity chosen in relative freedom for one's satisfaction, away from any time-consuming duties or responsibilities*. The variety of leisure activity is colossal since it can take place anywhere and at any time, with or without other people, which differ from each person (Kelly, 2012). For example, a leisure activity may require cognitive skills (e.g. attending lifelong learning classes), physical engagement (e.g. taking a stroll), or productivity (e.g. volunteering). In addition, leisure activities also vary according to different social contexts. Some include active interaction with others (e.g. playing tennis), while some tend to be more solitary (e.g. playing Sudoku or

reading).



2.2. Leisure participation

Mary Law (2002) described participation as involvement in formal and informal everyday activities. Formal activities are involved with rules or goals and usually have a leader or instructor (i.e., art lessons, organized sports). Informal activities have little planning and are initiated by the person him- or herself (i.e., reading, gardening, chatting with friends). Participation occurs across different locations, including environments for entertainment, sports, learning and religious expression.

The concept of participation has become increasingly significant in the field of the aging population. Since participation in occupations is complex, weaving across time and space, thus, capturing its essence through measurement is challenging. For older adults, leisure participation is a significant way to develop social support networks and enhance quality of life and well-being. Freysinger et al. (1993) indicated that participation may decrease with age, and that participation by men is less than by women.

2.3. Older adults

The original cutoff age of older adults proposed by World Health Organization is 65 years old (WHO, 2002), yet older adults aged over 60 years old are about to or already facing the problems of health decline and may have more spare time after

retirement. In order to improve older adults' well-being and prevent rapid health decline, in this research, we included older adults who are over 60 years old to investigate their leisure participation profile.



Chapter 3. Literature review

To develop a comprehensive leisure participation questionnaire for older adults to profile how they participate in leisure activities, descriptions of the character of the elder population, benefits of participating in leisure activities among older adults and how literatures to date profile their leisure participation is discussed in this section. Moreover, the construct of leisure participation questionnaires reviewed in current literatures is addressed.

3.1. The increase in elderly population and underlying health related issues in older adults

Comparing Taiwan to other developed countries around the world, the progress of going through from aged society to super-aged society is extremely fast, which only needs 7 years to reach to the peak. Shown from the latest statistics, the average life expectancy of Taiwan in 2015 has reached to a high peak: 80.2 years old, among which the average life-span of men and women are 77.01 and 83.62 years old accordingly (Ministry of Interior, 2016). Another precise way to measure the level of aging of an area is by using the aging index. In 2014, the aging index in Taiwan was 86.2%, with




the increase of aging population and decrease of birth rate, the aging index has raised to over 100% and is estimated to reach to 472.7% in 2061 (Ministry of Interior, 2016).

Health-related issues among this rapid-growing elder population demands urgent public attention and preventive strategies.


The prevalence of chronic disease often increases with age. Common health issues among the aging population include obesity, hypertension, diabetes, metabolic syndrome, dementia, and other chronic diseases, thus limiting functional status (Sörman et al., 2014; Singh, 2002; 王琤、李佳謀、張瓊芳、簡淑慧、陳美燕, 2015; 陳慶餘, 2015). The ratio of chronic diseases and functional disabilities rise along with the extended life expectancy, without preventive strategies, massive medical expense and social cost will increase, becoming heavier burdens for the health care and pension systems. Hence, under the circumstances of rapid increase of aging population and rising prevalence of chronic diseases, how to maintain health and quality of life throughout aging is of great urgency (Mendoza-Ruvalcaba & Arias-Merino, 2015; 張成秀、盧希鵬、羅天一、楊培珊, 2015).

3.2. Role of activity participation in aging

Remaining active in activity participation is beneficial to an individual's health. Engaging in meaningful and purposeful activities is a key component in promoting health and well-being of older adults. Activity theory was introduced by Havighurst and



Albrecht in 1953, in their book titled *Older people*, stating that “activity in a wide variety of social roles is positively related to happiness and good social adjustment in old age”. They proposed that there is a positive relationship between an older adult’s level of activity and life satisfaction, which improves adjustment in later life (Havighurst and Albrecht, 1953; Diggs, 2008). As people age, they may face retirement, widowhood, or loss of ability to participate in past activities that they used to do, experiencing role loss, social isolation and well-being(Adams et al., 2011; Diggs, 2008). According to activity theory, if older adults could find substitutes for those interactions; optimal aging may be seen as a successful experience (Havighurst and Albrecht, 1953; Gillespie, 1993). Thus, higher levels of participation in activities, especially social and leisure activities, can lead to greater life satisfaction and better adjustment to aging among older adults (Havighurst and Albrecht, 1953; Diggs, 2008; Longino & Kart, 1982; Nimrod, 2007; 莊婷婷, 2013). As we face the increasing demographic imperative of an aging population, remaining involved in meaningful activities and maintaining social interaction, such as participating in leisure activities and volunteering have positive influences leading to active aging (Rodríguez et al., 2007; Steinkamp & Kelly, 1987). In a similar vein, the concept of active aging, which was proposed by WHO, also put emphasis on the concept of remaining an active lifestyle among older adults. Older adults will have more potential to sustain their health and well-being through



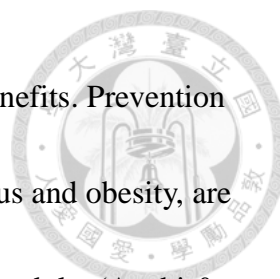
maintaining participation in a range of activity domains in later life. Establishing supporting systems for caregivers, improving employment and leisure participation among older adults, and increasing lifelong learning systems are all related to promotion of active aging. (李佳綺、胡淑貞、李中一，2015；林嬪嬭，2014；黃品齊、方佩欣、張少熙，2014)

Activity theory, which has played an important role in the area of gerontology and among public health professionals, echoed the idea of remaining better health condition through participating in meaningful activities. For older adults, active participation in leisure activities is a considerable way to sustain their health and well-being.

3.3. Benefits of leisure participation to older adults

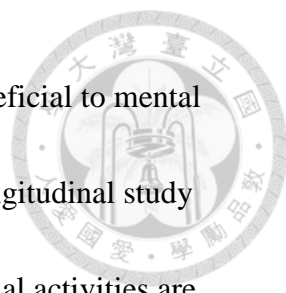
Active engagement in life has profound influences to health in later life (Agahi & Parker, 2005; Lennartsson & Silverstein, 2001; Singh, 2002; Strain et al., 2002).

Gerontologists and leisure researchers have shared great interest in both physical and mental health benefits of leisure participation in later life, which leisure is viewed from a health promotion perspective. In order to prevent health decline, aside from medication, participating in leisure activities, both indoor and outdoor, has been found to be beneficial among older populations (Herrera et al., 2011; Lennartsson & Silverstein, 2001; Simone, 2013; Verghese et al., 2006). Participating in physical activities, such as swimming, using fitness exercise equipment, going mountain



climbing and other outdoor activities, has well documented health benefits. Prevention of chronic diseases, including cardiovascular disease, diabetes mellitus and obesity, are beneficial and can prolong health and preserve quality of life of older adults (Agahi & Parker, 2005; Singh, 2002; Strain et al., 2002; 趙美玲、江東亮、白豐銘，2011)


Among the rising numbers of elderly, prevention of cognitive decline has also been widely acknowledged as a major public health issue worldwide. Frequent engagement in various leisure activities can exercise one's "mental muscle" (Chao, 2014; Simone, 2013; Schooler & Mulatu, 2001), which has potential benefits in lowering risks of dementia and deteriorating cognitive function among community-dwelling older adults (Sörman et al., 2014; Iwasa et al., 2012). Mental health status is also an important aspect building up one's well-being. Previous studies indicated that social support may positively affect cognition and mortality in old age (Ellwardt et al., 2013; Gleib et al., 2005; Hajek et al., 2015; Holwerda et al., 2012). Participating in leisure activities can provide pleasurable feelings, which can be helpful to lower levels of depression (Cernin & Lichtenberg, 2009; Chan, Chan, Mok, & Tse, 2009; García-Martín, Gómez-Jacinto, & Martimortugués-Goyenechea, 2004). The presence of others when participating in leisure activities can also provide social interaction, which may be beneficial to sustain one's mental health status (Pfeiffer, Heisler, Piette, Rogers, & Valenstein, 2011; Teo, Choi, & Valenstein, 2013). An 18-year follow-up study in Taiwan indicated that



participation in group leisure or social activities was found to be beneficial to mental health status of older adults (Chiao, Weng, & Botticello, 2011). A longitudinal study found that few social connections and infrequent participation in social activities are potential risk factors for cognitive decline among community-dwelling elderly persons (Zunzunegui Mí, Alvarado, Del Ser, & Otero, 2003). These findings suggested that aside from doing solitary activities, the social interaction provided through participating in activities with other people also have additional positive effects, emphasizing the importance of remaining social relationships with others during aging.


3.4. Leisure participation of older adults

The transitions of social environment and improvement of public health are possible reasons why older adults gradually put more emphasis on participating in leisure activities. Also, after retirement, they have more spare time and opportunity to participate in leisure activities. According to past research in Taiwan, the most common leisure activities older adults participate in tend to be more static or recreational, such as watching TV, chatting with others, listening to radio and other indoor leisure activities; as to physical leisure activities, older adults tend to go take a stroll. (吳秀汝等人, 2012; 李維靈等人, 2007; 李錦東、張峻嘉, 2009; 莊婷婷, 2013; 陳宇嘉、吳美玲, 1984; 陳畹蘭, 1991; 蔡長清, 2001; 陳肇男, 2003; 陳娟娟, 2005; 陳俊宏、陳鎰明, 2008; 高菁如、陳燕禎, 2009). A study investigating the time usage and quality



of life of community-dwelling older adults found that aside from sleeping, older adults spend over 3 hours per week watching television, which is the most common activity participated (蔡蜜西, 2003). Chen & Fu (2008) discussed about the relationship between leisure participation and leisure benefits, discovering that among the 499 interviewed older adults, over 80% of them watch television every day.

As to foreign countries, there are also some findings in common. Strain, Grabusic, Searle & Dunn (2002) investigated leisure participation differences between 1985 and 1993, among the 380 Canadian older adults, the most frequently participated leisure activities are watching television, reading and shopping. A research held in Korea found that out of the 155 participants over 60 years old, the most time spent was use of media, of which the most time was spent in watching television (Lee et al., 2014). Some leisure activities, such as gardening, are also common in Taiwan, yet not as popular as other western countries. Silverstein & Parker (2002) analyzed the data to investigate the variation between leisure participation of 1981 and 1992, and found that gardening and reading are the most frequently participated leisure activities. Minhat & Amin (2011) discovered that the most frequently daily done leisure activities were having conversations while relaxing, watching television, and reading among older adults in Malaysia. The results also showed that the Malaysian older adults were more likely to participate in passive and sedentary leisure activities compared to physical activities



(Minhat & Amin, 2012). Due to the cultural and environmental differences, some leisure activities commonly listed in studies from western countries, including Sweden, Finland and America, are seldom seen in Taiwan, for example, hunting and fishing (Hyypä, Mäki, Impivaara & Aromaa, 2006; Agahi et al., 2006; Nilsson & Fisher, 2006; Nilsson et al., 2015).

Both older adults of Taiwan and foreign countries tend to participate in sedentary indoor leisure activities, and interact mostly with their own family and friends, limiting their social internet. In order to decrease social isolation and promote active aging, encouraging more participation in various leisure activities is of great importance among older adults (Hyypä et al., 2006; Karp et al., 2006; Minhat & Amin, 2012; Nummela et al., 2008; Pressman et al., 2009; 柳立偉、王嘉淳，2009).

3.5. Measures of leisure participation for older adults

In spite of the far-reaching interest in leisure participation among older adults, there is a lack of valid tools for evaluating leisure participation. There is great inconsistency and variability in the contents of leisure participation measurement (Agahi & Parker, 2005; Fallahpour et al., 2015; Iwasa et al., 2012; Maselko et al., 2014; Morrow-Howell et al., 2014; Nilsson & Fisher, 2006; 陳肇堯，2015). Under a thorough literature review, we found 37 studies investigating leisure participation among older



adults (Appendix 1). The following paragraphs illustrate how past research measures leisure participation of older adults, including the classification of leisure activities and the measured dimensions.

3.5.1. Formats of leisure participation questionnaire

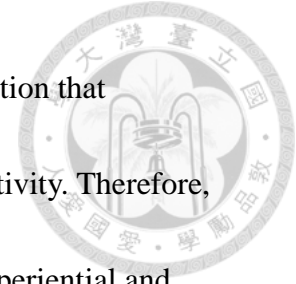
Studies of leisure participation among older adults mostly used self-designed questionnaires to investigate the frequency and diversity of participating in leisure activities (Menec, 2003; Nilsson & Fisher, 2006; Wang et al., 2002). 34(92%) of them used questionnaires (Agahi et al., 2006; Agahi & Parker, 2008; Chen & Fu, 2008; Ferrer et al., 2015; Herrera et al., 2011; Hyypa et al., 2006; Iwasa et al., 2012; Lennartsson & Silverstein, 2001; Minhat & Amin, 2012; Morrow-Howell et al., 2014; Nilsson & Fisher, 2006; I. Nilsson et al., 2015; Nummela et al., 2008; Pressman et al., 2009; Scarneas et al., 2001; van der Meer, 2008; 吳秀汝等人, 2012; 李維靈等人, 2007; 李錦東、張峻嘉, 2009; 林聰哲、李世昌, 2008; 柳立偉、王嘉淳, 2009; 張俊一、許建民, 2012; 陳俊宏、陳鎰明, 2008; 陳祥慈, 2012; 陳肇堯, 2015; 湯幸芬等人, 2010; 黃淑貞, 2011; 盧俊吉、蕭崑杉、林如森、王春熙, 2011; 莊婷婷, 2013; 李素箱等人, 2013), one (3%) used time diary (Lee et al., 2014), and 2 (5%) used interviews (Verghese et al., 2006; Verghese et al., 2003). Since open-ended questions may be too complicated and difficult for older adults to respond, the leisure participation questionnaire developed in our study was in the format of multiple choices, as most of

the studies do.

3.5.2. *Classification of leisure activities*

Leisure activities may have different meanings among each person, therefore, it is quite difficult to classify an activity into one specific domain. Classification of leisure activities varies among past research, the numbers of activity domain range from two to eight, while some didn't classify activity items into different domains (Agahi et al., 2006; Agahi & Parker, 2008; Chen & Fu, 2008; Nummela et al., 2008; Pressman et al., 2009; van der Meer, 2008; 李月萍、陳清惠，2010). A study investigating the relationship between leisure participation, self-worth and well-being, listed only two domains of leisure activity, sedentary and non-sedentary, and included only 10 items, limiting the results of research findings (陳祥慈，2012). Another study focusing on the relationship between leisure participation and mental health among older adults, also listed two domains of leisure activities but from a different perspective, i.e., physical and recreational, including less than 10 items. In addition, it only investigated how many activities the older adults participated in, without a comprehensive approach to the leisure participation profile of older adults (盧俊吉等人，2011). Most studies on participation in leisure activities among older adults classified activities into four domains, i.e., social, recreation, physical and self-improvement activities (Fallahpour et al., 2015; 張家好、曾美惠，2015). Aside from these four commonly seen activity





domains from literature review, Lawton (1993) proposed a classification that discriminates best between activities based on the meaning of the activity. Therefore, Lawton classified activities into three domains, including Social, Experiential and Developmental activities (Lawton, 1993; Aartsen et al., 2002). *Social activities* include social interaction and services, such as volunteering. *Experiential activities* are characterized by the intrinsic satisfaction of the activity, including activities that people are engaged to find relaxation or relief. *Developmental activities* are to help oneself become something, or change in some way, such as intellectual-related activities.

3.5.3. Naming of activity domains and activity items

In addition to the differences in activity classification among literatures, there are also inconsistencies in the naming of activity domains, though they include similar activity items. For example, different studies used “exercise”, “physical activities”, “sports and outdoor activities” and “fitness exercise” as the name of the domain for leisure activities like jogging, mountain climbing, and swimming (Iwasa et al., 2012; Lee et al., 2014; Morrow-Howell et al., 2014; 吳秀汝等人, 2012; 李維靈等人, 2007; 盧俊吉等人, 2011; 莊婷婷, 2013).

To sum up, a considerable multitude of research has shown that participating in various leisure activities have positive effects on physical and mental health among older adults, delaying cognitive decline, increasing social connectedness, thus



improving quality of life (Sörman et al., 2014; Iwasa et al., 2012; Maselko et al., 2014; Scarmeas et al., 2001; Takeda et al., 2015; Toepoel, 2013; Verghese et al., 2006; 李素箱等人, 2013; 盧俊吉等人, 2011). Due to cultural differences, it is not suggested to apply leisure participation questionnaires translated from foreign countries(李月萍、陳清惠, 2010; Iwasa et al., 2012; Maselko et al., 2014). However, the leisure participation questionnaires used in the reviewed literature have failed to consider social, environmental and personal perspective altogether. Through the combining scope of active aging and occupational therapy, we are guided to develop a more comprehensive leisure participation questionnaire, in order to comprehensively profile older adults' leisure participation in depth and for further leisure-related health research application in the future.

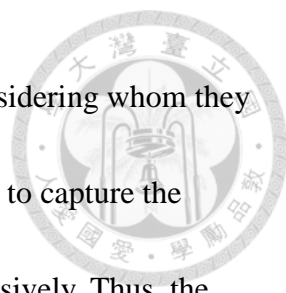
3.5.4. Leisure participation dimensions

Leisure participation was operationalized and measured as engagement or involvement in the diversity of leisure activities by 19 studies (51%)(Agahi et al., 2006; Agahi & Parker, 2008; Chen & Fu, 2008; Ferrer et al., 2015; Herrera et al., 2011; Hyypä et al., 2006; Iwasa et al., 2012; Lennartsson & Silverstein, 2001; Minhat & Amin, 2012; Morrow-Howell et al., 2014; Nilsson & Fisher, 2006; I. Nilsson et al., 2015; Nummela et al., 2008; Pressman et al., 2009; Scarmeas et al., 2001; van der Meer, 2008; 吳秀汝等人, 2012; 李維靈等人, 2007; 李錦東、張峻嘉, 2009; 林聰哲、



李世昌，2008；柳立偉、王嘉淳，2009；張俊一、許建民，2012；陳俊宏、陳鎰明，2008；陳祥慈，2012；陳肇堯，2015；湯幸芬等人，2010；黃淑貞，2011；盧俊吉、蕭崑杉、林如森、王春熙，2011；莊婷婷，2013；李素箱等人，2013), frequency of participation by 26 studies (70%)(Agahi et al., 2006; Agahi & Parker, 2008; Chen & Fu, 2008; Herrera et al., 2011; Hyyppa et al., 2006; Iwasa et al., 2012; Lee et al., 2014; Lennartsson & Silverstein, 2001; Maselko et al., 2014; Minhat & Amin, 2012; Nummela et al., 2008; Pressman et al., 2009; 吳秀汝等人，2012；李維靈等人，2007；李錦東、張峻嘉，2009；林聰哲、李世昌，2008；柳立偉、王嘉淳，2009；張俊一、許建民，2012；陳俊宏、陳鎰明，2008；陳祥慈，2012；黃淑貞，2011；李素箱等人，2013), with whom the older adult was being accompanied by in 2 studies (5%)(李錦東、張峻嘉，2009；陳祥慈，2012), and perceived value of leisure activity in 1 studies (2.7%)(張俊一、許建民，2012). Among the aforementioned four dimensions of leisure participation, some of the studies measured only frequency, some only focused on the diversity of leisure activities, and some a combination of these two.

Each study focused on a specific dimension of leisure participation, yet none of the above studies has included all dimensions simultaneously to comprehensively profile leisure participation among older adults. Under such circumstances, we do not know much about the details of their leisure participation altogether, such as what leisure activities they prefer, who they do them with, how much they value them and whether



these activities are at home or community-based (Law, 2002). In considering whom they do them with, environment, and the leisure activities, we will be able to capture the profile of how older adults participate in leisure activities comprehensively. Thus, the combination of each dimension of participation, including frequency, social environment, physical environment and preference of leisure participation, is recommended, so as to form a leisure participation questionnaire to comprehensively profile how older adults participate in leisure activities.

Chapter 4. *Phase I: Development of Leisure Participation Questionnaire*

The questionnaire was developed through five steps: (a) literature review, (b) preliminary item development, (c) expert validation, (d) pilot testing, (e) internal consistency and test-retest reliability of the questionnaire. The development procedure of the questionnaire is shown in figure 1.

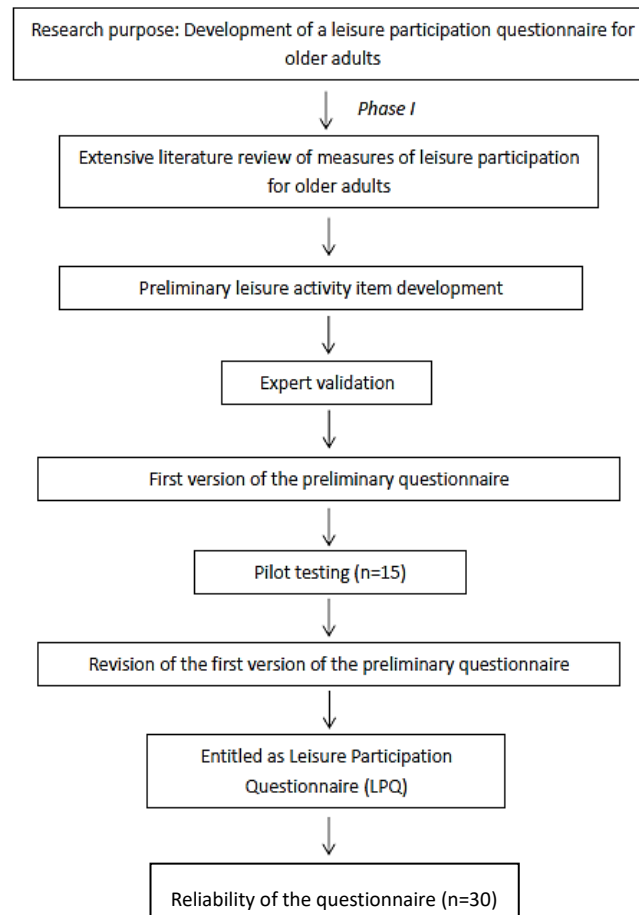


Figure 1. Flow chart of research phase I

4.1. Methods

4.1.1. Literature review

Electronic databases including PubMed, Medline, and Airiti were searched for literatures about measures of leisure participation used in samples of older adults. The keywords included are “leisure participation, leisure activity, leisure, older adults, elderly, old people, aging”. Domains and items of leisure activities, dimensions of leisure participation and the scaling were all investigated within extensive literature review. Literatures from both Taiwan and western countries, written in Chinese or



English, were included.

4.1.2. Preliminary item development

Based on literature review, we recruited 33 activity items in the initial version of leisure participation questionnaire, according to Lawton's classification of activities, including three domains, Social, Experiential and Developmental activities, and an additional domain, Physical activity, which is often adopted in the studies of leisure participation, resulting in four activity domains.

In order to have a comprehensive profile of the leisure participation among older adults, five dimensions were included in the questionnaire, comprising Diversity, Frequency, With whom, Where and Preference. Each leisure activity that the older adult has participated in the past three months was followed by these questions related to the other four dimensions: *How often do you do this activity? Who do you usually do this with? Where do you usually do this activity? How much do you like this activity?*

4.1.3. Expert validation

Three occupational therapy experts with master's and doctoral degrees in the field of geriatric care were invited to form an expert panel. They were given a questionnaire with 3-point scale to evaluate each item in terms of suitability and clarity. As for the suitability, there were three categories, i.e., "suitable", "unsuitable and requiring further revision," and "unsuitable and should be deleted". A column was also included in the

questionnaire for experts to provide comments and suggestions regarding the descriptions of each question and activity, five diverse dimensions of participation, and the structure of the preliminary questionnaire.



Based on experts' comments and suggestions the naming and description of 6 activity items were revised for easy understanding, i.e., the items of "Going shopping (外出購物)" and "Going window-shopping(逛街)" were combined together into "Going shopping (including shopping malls and markets) (逛街購物(含購物中心、傳統市場))", since they are similar activities. The item of "Going camping (露營)" was a less common leisure activity for older adults in Taiwan, so this item was deleted. The item of "Going to the gym" was changed to "Going to the gym or sports center (including using fitness exercise equipment)(去健身房、運動中心(含使用健身器材))", since in Taiwanese society "going to the gym(去健身房)" implies a leisure activity for people with higher economic status. Therefore, "using fitness exercise equipment (使用健身器材)," which described an activity for the common people, was added to the item. "Attending activities and classes held by senior associations and communities(參加里民及社區關懷據點活動)" was added to the item of "going to community colleges", since senior associations and communities also hold a wide range of lifelong learning classes or activities for older adults. "Going to exhibitions and shows (參觀表演和展覽)" was recommended to be added to the item of "going to concerts(欣賞音樂會)" to



give a clearer description of this activity item.

Second, “frequency” was changed from a 5-point scale to a 9-point scale for a more continued timeline, with ratings from “once per three months(三個月一次)” to “more than once per day(一天多次)”. Out of the 5 point scaling of Where, two of the ratings: “in your community(在自己的社區)” and “out of your community(在自己的社區之外)” were changed into “takes less than 30 minutes(30分鐘以內可到)” and “takes more than 30 minutes(30分鐘以上才可到)”, to be more specific about the differences of the distance. A new dimension of leisure participation, “How important is this activity to you?” was also added. The structure of the questionnaire was also revised into a clearer way for older adults to read. An additional open-ended question was added for older adults to fill in the leisure activity that they often do which was not mentioned above. The structure of the questionnaire was also revised into a clearer way for older adults to read. After revision, the first version of the preliminary questionnaire was then used for pilot testing.

4.1.4. Pilot testing

The first version of the preliminary questionnaire was tested on 15 participants (mean age=66.3, SD=3.59, range: 60-73, 3males, 12 females), recruited from an elderly community service site in Northern Taiwan. The education level of the participants ranged from elementary school to Master’s degree, with a majority of senior high

school graduates (n=6, 40%). Only one of them lived alone, the others lived with their families. Eight of the participants have no chronic disease; the others have at least two types of chronic diseases, such as hypertension and heart disease.



The participants filled out the preliminary questionnaire with the assistance of the researcher. After filling out the questionnaire, the participants were asked to give suggestions about the wordings and structure of the first version of the preliminary leisure participation questionnaire. Three of them were concerned about the length of the questionnaire. In addition, during pilot testing, we have noticed that the questionnaire had better be filled out through the assistance of the researcher to ensure their fully understanding of each item, as well as reduce the tediousness when filling out the questionnaire. Therefore, after pilot testing, the preliminary questionnaire was entitled as Leisure Participation Questionnaire and used in the studies of test-retest reliability and leisure profile, as follows.

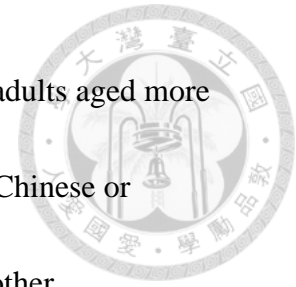
4.1.5. Internal consistency and test-retest reliability of the Leisure

Participation Questionnaire

4.1.5.1. Participants:

Thirty participants were recruited from different community locations in Northern Taiwan. These community locations, including community colleges for the elderly and senior associations, held different programs to improve or enhance older adults' health,

well-being, and quality of life. The inclusion criteria were (1) older adults aged more than 60 years and (2) being capable of communicating in Mandarin Chinese or Taiwanese Hokkien. Those with severe brain injury, dementia, and other cognitive-related diseases were excluded.



4.1.5.2. Measures:

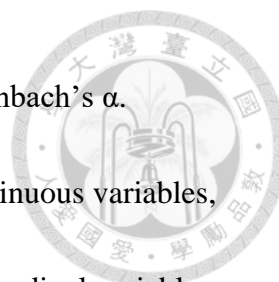
Leisure Participation Questionnaire developed in phase I was used.

4.1.5.3. Procedure:

We contacted the directors of the community colleges and senior associations through telephone and email to give brief introduction of our research. After getting the permission to get access to older adults, we made appointments for visiting the community sites. The directors excluded those who have cognitive-related diseases, such as dementia. We explained our research purpose and procedure to older adults, after obtaining their informed consents, the participants filled out the Leisure Participation Questionnaire with the assistance of the researcher. It took approximately twenty minutes for each participant to complete the questionnaire. For the test-retest reliability study, thirty older adults underwent two administrations of the LPQ with an interval of 4 weeks.

4.1.5.4. Data analysis:

The internal consistency of three of the six dimensions of the LPQ, including



Frequency, Preference and Value, were examined by computing Cronbach's α . Test-retest reliability was examined by Pearson's coefficient for continuous variables, including Frequency, Preference and Value, and Spearman's rho for ordinal variables, including Diversity, With whom and Where.

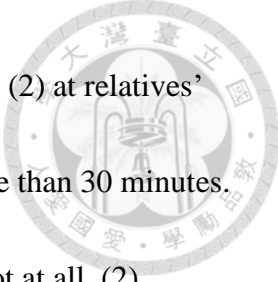
4.2. Results

4.2.1. Contents of Leisure Participation Questionnaire

The Leisure Participation Questionnaire has 31 activity items (Appendix 2).

Leisure Participation Questionnaire measures six dimensions, including Diversity, Frequency, With whom, Where, Preference and Value. The ratings of each dimension are described as follows (Appendix 3):

- Diversity: "Over the past three months, have you ever participated in this activity?" (1) yes, (2) no.
- Frequency: "How often?" (1) once every three months, (2) once every two months, (3) once a month, (4) every three weeks, (5) every two weeks, (6) once a week, (7) two-five times a week, (8) once a day, (9) more than once a day.
- With whom: "With whom do you do this most often?" (1) alone, (2) with nuclear family members, (3) with relatives, (4) with friends, (5) others.

- 
- Where: “Where do you do this most often?” (1) at home, (2) at relatives’ home, (3) at friend’s home, (4) within 30 minutes, (5) more than 30 minutes.
 - Preference: “How much do you like this activity?” (1) not at all, (2) somewhat/sort of, (3) pretty much, (4) very much, (5) love it.
 - Value: “How much do you value this activity?” (1) not at all, (2) somewhat/sort of, (3) pretty much, (4) very much, (5) extremely important.

4.2.2. Interpretation of the ratings

By administering the Leisure Participation Questionnaire, researchers can have a clear profile of older adult’s leisure participation.

- Diversity: By adding up the number of activity items that the older adult ticks “yes”, researchers can understand how many leisure activities the older adult participated in.
- Frequency: The mean of frequency is obtained by adding up the ratings of the frequency, and then divided by the total number of the activity items being participated in. Base on the frequency, researchers can understand how often the older adult has participated in leisure activities over the past three month.
- With whom: By calculating the percentage of each of the five ratings, researchers can know who accompanies the older adult most often when he/she participates in leisure activities, giving initial information about one’s



social network.

- **Where:** By calculating the percentage of each of the five ratings, researchers can know where the older adult usually goes for leisure activities , giving information about whether he/she tends to be homebound or is able to participate in the community.
- **Preference:** By calculating the mean of ratings of preference, researchers can know the overall preference among the leisure activities that the older adult participated in.
- **Value:** By calculating the mean of the ratings of value, researchers can understand how the older adult values these leisure activities that he/she has participated in.

With further investigation, the Diversity, Frequency, Preference and Value dimensions can be interpreted together by each item. In this way, researchers can have more detailed information and a clearer view of whether the older adult has participated in the leisure activities that he/she liked as frequent as possible. The underlying factors that hinder or support the older adult's leisure participation can be documented through interview. Furthermore, health professionals, such as occupational therapists can help solve the possible barriers through intervention, in order to improve more active participation in leisure activities for the older adult.



4.2.3. Internal consistency of the LPQ

The analysis of internal consistencies of the three dimensions of the LPQ, including Frequency, Preference and Value, which were all continuous variables, were performed (N=149). Cronbach's α for the Frequency dimension was .792, .794 for the Preference dimension, and .799 for the Value dimension. Cronbach's α of all three dimensions reached .70, indicating acceptable internal consistency (Table 2) (Cronbach, 1951).


4.2.4. Test-retest reliability of LPQ

Table 3 presents the results of test-retest reliability of all six dimensions of the LPQ, with a sample of thirty older adults. Among them, four dimensions, including Diversity ($\rho=.619$), Frequency ($r=.718$), With whom ($\rho=.717$) and Where ($\rho=.660$), showed moderate to high test-retest reliability. In addition, the dimensions of Preference ($r=.370$) and Value ($r=.387$) were rated as low test-retest reliability (Streiner & Norman, 2003).

Chapter 5. Phase II: Leisure participation profile of older adults

5.1. Participants

Older adults were recruited from different community locations in Northern Taiwan. These community locations, including community colleges for the elderly and



senior associations, which held different programs to improve or enhance older adults' health, well-being, and quality of life. The inclusion criteria were (1) older adults aged more than 60 years and (2) being capable of communicating in Mandarin Chinese or Taiwanese Hokkien. Those with severe brain injury, dementia, and other cognitive-related diseases were excluded.

5.2. Measures

Older adults' leisure participation was measured by Leisure Participation questionnaire, which was developed in phase one. Leisure Participation Questionnaire (LPQ) measures six dimensions, including Diversity, Frequency, With whom, Where, Preference and Value. This questionnaire includes 31 activity items in total.

5.3. Procedure

We contacted the directors of the community colleges and senior associations through telephone or email to give brief introduction of our research. After getting the permission to get access to the older adults, we made appointments for visiting the community sites. The directors excluded those who have cognitive-related diseases, such as dementia. We explained our research purpose to older adults, and after they agreed to join in, they signed an informed consent form before filling out the questionnaire. The participants filled out the Leisure Participation Questionnaire with

the assistance of the researcher. It took approximately 20 minutes for participants to complete the questionnaire.



5.4. Data analysis

Descriptive analysis was conducted to characterize the basic properties of demographic data and all six dimensions in the Leisure Participation Questionnaire. Categorical variables include Diversity, With whom and Where, and these are presented as percentages. As to continuous variables, Frequency, Preference and Value were presented as means and standard deviations (SD).

Age, education level and level of frailness were regrouped respectively. T-tests were conducted to examine group differences in the six dimensions of the Leisure Participation Questionnaire.

5.5. Results

5.5.1. Characteristics of participants

The characteristics of the participants were presented in Table 1. The 149 older adults ranged in age from 60 to 88 years old (mean=70.7; SD=6.35). 83.9% were women; 81% lived with their family. 57.7% of the participants were married; the others were single, divorced or widowed. Over 60% of the participants had more than 9 years of education; 1% of the participants were supported by government subsidy. In terms of



health, 20.8% of the participants had no past medical history, 70.2% reported at least one disease. As to level of frailty, 45% of the participants were categorized as level 1 and 2, indicating good health status.

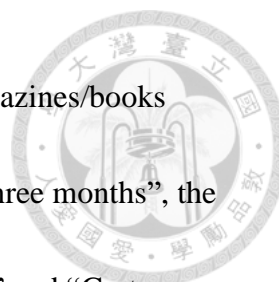
5.5.2. Overall leisure participation profile

5.5.2.1. Diversity

The average number of activity items that older adults participated in were 15.76 (SD=4.40) (Table 5). Presented in Table 4, the most common leisure activities were “chatting” and “getting together with families and friends”, both reported by 99.3% of the participants. The second highest leisure activity was “watching TV/movies (96.6%)”, and the third was “going shopping (92.6%)”. The least participated leisure activities were all physical activities, including “running (12.1%)”, “playing ball games (9.4%)” and “swimming (8.1%)”.

5.5.2.2. Frequency

The ratings of frequency is from 1 to 9, and the average frequency of leisure participation of older adults among the 31 activity items is 3.24 (SD=0.93), which is between “Once every month” and “Once every three weeks” (Table 5). Table 6 indicates the highest reported percentage of frequency of each activity item. Among the 31 items, the top two activities that older adults participate in “More than once a day” are “Watch TV/movies (62.4%)” and “Use electronic devices/gadgets (58.4%)”. As to the top two



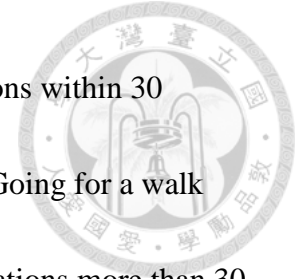
activities that older adults participate in “Once a day” are “Read magazines/books (41.6%)” and “Go for a walk (34.9%)”. For the rating “Once every three months”, the top two activities that older adults participate in are “Travel (33.6%)” and “Go to concerts/exhibitions (20.8%)”.

5.5.2.3. *With whom*

In Table 5, among the five with whom ratings of all leisure activities, older adults participated in leisure activities “On one’s own (39.2%)” the most, followed by “With friends (32.3%)”. Table 6 shows the highest percentage of the rating of each activity item in the “With whom” dimension. Activities that older adults participate in most often with friends are the activities of “Chatting with others (89.3%)”, and followed by “Getting together with friends and family (77.9%)”. Activities that older adults participate in most often on one’s own are the activities of “Shopping (79.2%)”, and followed by “Use electronic devices/gadgets (76.5%)”.

5.5.2.4. *Where*

Among all leisure activities, older adults tend to participate in leisure activities at home (36.76%) and at locations within 30 minutes (36.17%), and the least frequent were at relatives’ home (2.08%) and friend’s home (3.58%) (Table 5). In Table 6, the top two activities that older adults participate in most often at home are the activities of “Watch TV/movies (91.3%)” and “Use electronic devices/gadgets (78.5%)”. As to the



top two activities that older adults participate in most often at locations within 30 minutes include the following activities: “Shopping (82.6%)” and “Going for a walk (71.8%)”. Activities that older adults participate in most often at locations more than 30 minutes are “Travel (78.5%)”, “Go mountain climbing (38.9%)”.

5.5.2.5. Preference

The mean of the Preference dimension among all leisure activities was 3.48 (SD=0.43) (Table 5). The level of Preference of each leisure activity was between “pretty much (coded as 3)” and “very much (coded as 4)”.

5.5.2.6. Value

The mean of the Value dimension among all leisure activities was 3.44 (SD=0.45) (Table 5). The level of Value of each leisure activity was between “pretty much (coded as 3)” and “very much (coded as 4)”.

5.5.3. Age differences in leisure participation profile

The mean age of our participants was 70.7 years old (SD=6.35), therefore, the older adults were separated into two groups, i.e., the group of young-old was aged below 70 years (52.3%), and the group of the old-old was aged above 70 years (47.7%).

5.5.3.1. Diversity

The activity that the young-old participated in the most were getting together with friends and family (100%) and chatting (100%), and the least was swimming (7.7%)



(Table 7). In the old-old group, the most common leisure activity were getting together with friends and family (98.6%) and chatting (98.6%), and the least were swimming (8.5%) and jogging (8.5%) (Table 7).

The age differences of the Diversity dimension among all leisure activities between the young-old and old-old group was statistically significant ($p < .05$), indicating that the young-old participated in more leisure activities in total (Table 8).


5.5.3.2. Frequency

In Table 8, the mean of Frequency dimension of the young-old and old-old group was 3.39(SD=0.88) and 3.07(SD=0.95) respectively. The age differences of the Frequency dimension among all leisure activities between the young-old and old-old group were statistically significant ($p < .05$), indicating that the young-old participated in leisure activities with higher frequency in total than the old-old.

5.5.3.3. With whom

In the With whom dimension, the mean of “On one’s own” was the highest among the five ratings in both groups, which were 0.39(SD=0.13) for the young-old group and 0.40(SD=0.13) for the old-old, indicating that in all leisure activities, both groups tend to participate in activities on their own. There were no significant group differences among the five ratings (Table 8).

5.5.3.4. Where



In the Where dimension, there were significant group differences among the rating “Within 30 minutes ($p < .05$)”, indicating that the young-old group participated more at locations within 30 minutes. As to the rating “More than 30 minutes”, there were also significant group differences ($p < .05$), showing that the old-old group participated more at locations more than 30 minutes (Table 8).

5.5.3.5. Preference

The level of Preference of all leisure activity domains were between “pretty much (coded as 3)” and “very much (coded as 4)”, and there were no significant differences between the groups of young-old and old-old (Table 8).

5.5.3.6. Value

Among the two groups, the level of value of all leisure activity domains were between “pretty much (coded as 3)” and “very much (coded as 4)”, and there were no significant differences between the groups of young-old and old-old (Table 8).

5.5.4. Differences in Leisure participation profile between the healthy and frail older adults

Level of frailness was defined by the Canadian study of health and aging clinical frailty scale (CSHA-CFS) Chinese in-person interview version. From low to high level of frailness, CSHA-CFS is rated as level one to seven. In this research, we categorized older adults who were rated as level one and two as healthy older adults, coded as 1, and



those whose levels were three to seven as frail older adults, coded as 2. Of all participants, eighty-two (55%) participants were rated as frail older adults.

5.5.4.1. Diversity

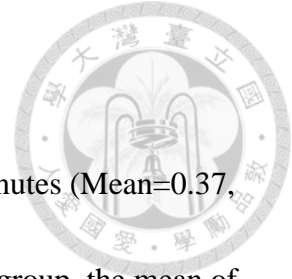
The leisure activity that the frail group participated in the most was getting together with friends and family (100%), and the least was swimming (7.3%). As to healthy group, chatting (100%) was the leisure activity that they participated in the most, and the least was playing ball games (7.5%) (Table 9). The Diversity dimension among all leisure activities between the healthy and frail group showed no significant differences (Table 10).

5.5.4.2. Frequency

In Table 10, the mean of Frequency dimension of the healthy and frail group were 3.29(SD=0.82) and 3.20(SD=1.01). There were no significant group differences in the Frequency dimension among the two groups of healthy and frail.

5.5.4.3. With whom

In the With whom dimension, the mean of “On one’s own” was the highest among the five ratings in both groups, which were 0.40(SD=0.13) for the healthy group and 0.38(SD=0.13) for the frail group, indicating that in all leisure activities, both groups tend to participate in activities on their own. There were no significant group differences among the five ratings (Table 10).



5.5.4.4. *Where*

In the healthy group, the mean of the rating “Within 30 minutes (Mean=0.37, SD=0.14)” was the highest among the five ratings, while in the frail group, the mean of the rating “At home (Mean=0.37, SD=0.11)” was the highest. Among the five ratings of the dimension Where, there were no significant group differences (Table 10).

5.5.4.5. *Preference*

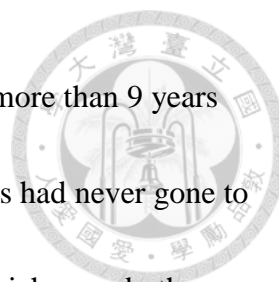
The level of Preference of overall leisure activities were between “pretty much (coded as 3)” and “very much (coded as 4)”. The mean rating for the Preference dimension of the frail group was 3.44(SD=0.41) and the healthy group was 3.51(SD=0.45). Among these two groups, there were no significant group differences (Table 10).

5.5.4.6. *Value*

Among the two groups, the level of value of all leisure activities were between “pretty much (coded as 3)” and “very much (coded as 4)”. The mean rating for the Value dimension of the frail group was 3.42(SD=0.46) and the healthy group was 3.46(SD=0.45). There were no significant differences between two groups (Table 10).

5.5.5. *Differences in leisure participation profile differences between low and high-education levels*

According to the 9-year compulsory education system in Taiwan, participants were



categorized into two groups. 63.8% of the older adults had received more than 9 years of education, coded as “high-education group”. 4% of the older adults had never gone to school and 32.2% of them received less than 9 years of education, which were both coded as “low-education group”.

5.5.5.1. Diversity

The leisure activity that the high-education group participated in the most was getting together with friends and family (100%), and the least is playing ball games (9.5%). As to the low-education group, chatting (100%) was the leisure activity that they participated in the most, and the least was swimming (3.7%) (Table 11).

In Table 11, overall, the high-education group participated in more leisure activities than the low-education group, and has showed significant differences ($p < .01$).

5.5.5.2. Frequency

The mean of the Frequency dimension of the high-education and low-education groups were 3.52(SD=0.84) and 2.75(SD=0.86) respectively. The high-education group participated more often in leisure activities than the low-education group, showing statistically significant differences among two groups ($p < .01$) (Table 12).

5.5.5.3. With whom

In the With whom dimension, the mean of “On one’s own” was the highest among the five ratings in both groups, which were 0.39(SD=0.12) for the high-education group



and 0.40(SD=0.14) for the low-education group, indicating that in all leisure activities, both groups tend to participate in activities on their own. There were no significant group differences among the five ratings (Table 12).

5.5.5.4. *Where*

In the Where dimension, the mean of the rating “At home” was the highest among the five ratings in both groups, which were 0.37(SD=0.09) for the high-education group and 0.37(SD=0.13) for the low-education group. Among the five ratings of the dimension Where, there were no significant group differences (Table 12).

5.5.5.5. *Preference*

Overall, the levels of preference of leisure activities were between “pretty much (coded as 3)” and “very much (coded as 4)” in both groups. The mean rating of the high-education group was 3.47(SD=0.43), while the low-education group was 3.48(SD=0.43). Among these two groups, there were no significant differences between all four activity domains (Table 12).

5.5.5.6. *Value*

Overall, the levels of Preference of leisure activities were between “pretty much (coded as 3)” and “very much (coded as 4)” among both groups. The mean rating for the Value dimension of the high-education group was 3.45 (SD=0.47) and the low-education group was 3.44(SD=0.41). Level of value in all four activity domains

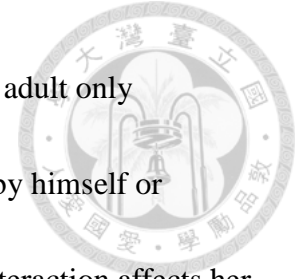
showed no significant differences between two groups (Table 12).



Chapter 6. Discussion

This chapter consists of three themes: the first is the discussion about the results of the reliability of the LPQ; the second is the profile of older adults' leisure participation; the third is the limitation of this research.

To the best of our knowledge, this questionnaire is the first to develop a comprehensive questionnaire for use in the elder population in Taiwan, incorporating the Diversity, Frequency, With whom, Where, Preference and Value jointly. The Leisure Participation Questionnaire (LPQ) is a reliable tool that can be of great use in understanding the leisure participation profile of older adults, depicting the details and providing clear view of each individual. *“Occupational therapy, at its best, focuses on occupations important to each person within his or her environment (Law, 2002)”*. Therefore, when investigating one's leisure participation, aside from the commonly measured dimensions: Diversity and Frequency, it is also crucial to consider social, physical environment and personal perspective jointly. The inclusion of the six dimensions in LPQ allows health professionals to recognize what the older adult is in need of and to develop effective and targeted health promotion strategies through participating in leisure activities. Along with the Diversity and Frequency dimensions that are often measured, the With whom dimension can provide information about the



social interaction of an individual's leisure participation. If the older adult only participated in a small number of leisure activities and mostly done by himself or herself, then further investigation of whether the infrequent social interaction affects her health condition is needed. The Where dimension is useful in providing information of one's functional mobility, to understand whether an individual is homebound or is able to participate in the community. Through this dimension, health professionals can further ask the older adult how they transport from their home to the community, therefore understanding his/her cognitive and physical abilities. As to the Preference and Value dimensions, we can understand whether older adults are supported or have opportunities or not to participate in the leisure activities that they love and value. If the older adult love to participate in a specific leisure activity, yet the frequency of this activity is low, then further investigation on how to solve the gap for more participation in this activity is needed.

6.1. Internal consistency and test-retest reliability of the LPQ

6.1.1. Internal consistency of the Frequency, Preference and Value dimensions of the LPQ

Out of the six dimensions of the LPQ, three of the dimensions, Frequency, Preference and Value dimension were continuous variables, therefore suitable for the analysis of internal consistency. The Cronbach's alpha of the Frequency, Preference and



Value dimensions were all over 0.7, indicating high internal consistencies.


6.1.2. Test-retest reliability of the LPQ

The test-retest reliability of the four dimensions of the LPQ, Diversity, Frequency, With whom and Where, were moderate to high, while the other two dimensions, Preference and Value, were low. The possible reason for the low test-retest reliability of the Preference and Value dimensions was that these two dimensions tended to be more subjective, representing one's own perspective. Thus, after a four-week interval, older adults may have some changes about their preference and value, causing low test-retest reliability.

6.2. Leisure participation profile of older adults

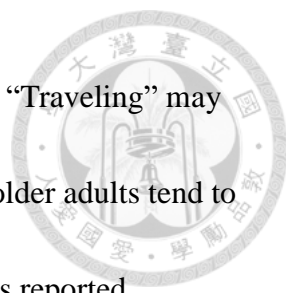
The mean age of the participants was 70.7 years old (SD=6.35), with 90% of the participants aged below 80 years old. 63.8% of the participants received more than nine years of education, and 45% of them were rated as non-frail group. The ratio of men to women was 1 to 5. The gender discrepancy is in agreement with Freysinger's study in 1993, that the frequency of leisure activity decreased significantly over time for both men and women, and that women participated more frequently in leisure activities than did men during old age.

The most common leisure activities that older adults participated in include chatting (99.3%) and getting together with friends and family (99.3%). This finding was



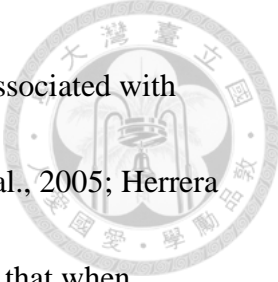
in consistent with the results of previous studies, showing that older adults participated most in sedentary leisure activities, such as chatting and watching television (Chen & Fu, 2008; Lee et al., 2014; Minhat & Amin, 2011; 李維靈等人，2007; 吳秀汝等人，2012; 莊婷婷，2013). The leisure activities that older adults seldom participate in were mostly physical activities, such as swimming (8.1%), playing ball games (9.4%) and jogging (12.1%). This may be due to the physiological changes that came along with aging, including decline in cardiovascular function, pulmonary function and exercise capacity (i.e., maximal heart rate and motor coordination), thus, resulting in decrease of participating in physical leisure activities (Singh, 2002). Environmental factors, such as accessibility to exercise opportunities, safety, and environmental quality, could also affect older adults to participate in physical leisure activities (Moran, Van Cauwenberg, Hercky-Linnewiel, Cerin, Deforche and Plaut, 2014). For older adults who have declined health condition, lack of suitable exercise facilities, convenient transportation to these facilities, and poor environmental quality (e.g., pollution, noise, lack of fresh air) may all decrease the possibility for older adults to participate in physical leisure activities. Therefore, in order to maintain older adults' health condition, future research and the government should explore and put effort in solving the negative impacts of environmental factors on older adults' physical leisure participation.

Among all leisure activities, the frequency ratings that older adults chose tend to



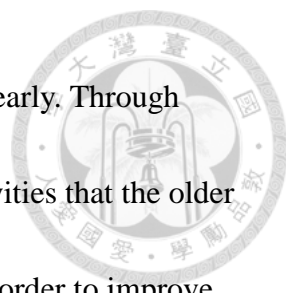
relate to the characteristics of each activity. Leisure activities such as “Traveling” may not be as frequent considering longer transportation time, therefore, older adults tend to choose “Once every three months”. Leisure activities that older adults reported participating in “More than once a day” are all activities that are more static and can be done at home or at places nearby their communities, such as “Watching TV”, “Chatting”, “Use electronic devices/gadgets(e.g., Smartphone, computer)” and “Playing on-line games”. From this data, we can see that aside from those commonly mentioned leisure activities, nowadays, internet use has become more common among older adults (Zickuhr & Madden, 2012). The high frequency of using smartphone/computer and playing on-line games (e.g., online mahjong, poker, sudoku) indicated that once they learned how to use these devices, internet use may gradually become a regular part of their leisure activity.

As for the dimensions of With whom and Where, to date, no research has investigated these two dimensions of each leisure activity item among older adults. In this study, half of the leisure activities were reported by the older adults that they participated in on their own the most, and half of the leisure activities were reported participated in with friends most often. As to the Where dimension, older adults reported that they tend to participate in leisure activities at home or at locations within 30 minutes. Past research has shown that more participation in leisure activities which



includes social interaction and broader social network are generally associated with lower risks of cognitive decline (e.g., Fallahpour et al., 2015; Gleib et al., 2005; Herrera et al., 2011; Sörman et al., 2014; Verghese et al., 2006), and indicated that when participating in leisure activities with others may be beneficial to older adult's mental health status (Takeda et al., 2015). Older adults may have more social interaction if participate in both community and home, comparing to those who are homebound. However, during data collection, some older adults said that they disliked attending senior courses/activities and doing exercise, but preferred staying at home and participated in only a few sedentary leisure activities, yet they were still satisfied with their health condition and life. These older adults' description were inconsistent with previous studies, thus whether the presence of others during leisure participation is significant to older adults' health or not remained unclear. More investigation of the underlying supporting factors in these older adults who tend to participate in solitary and sedentary leisure activities, while still consider themselves as healthy is needed in the future.

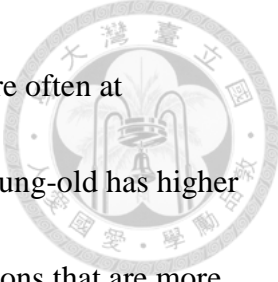
The dimension Preference and Value have yet to be profiled respectively among each leisure activity in past research. Investigating the level of Preference and Value of the leisure activities that older adults participate in can help health professionals understand more about one's interest. With a structured rating of preference and value of



each activity item, older adults can express their likes and dislikes clearly. Through these two dimensions, health professionals can also pick out the activities that the older adult preferred and valued, yet unable to participate in frequently. In order to improve active aging, with the base of the leisure participation profile, further investigation of the hindering factors and solutions is needed.

6.2.1. Influences of age, education level and frailty in leisure participation among older adults

Past research has indicated that age, education level and health condition may influence older adults' leisure participation (李月萍、陳清惠，2010). According to past research, age has played a significant role in older adults' leisure participation (Agahi, 2006; Chen & Fu, 2008; Meer, 2013; 莊婷婷，2013). In this research, among the groups of young-old and old-old, there were statistically significant group differences in the Diversity ($p < .05$) and Frequency dimension ($p < .05$), indicating that the young-old participated in more and higher frequency of leisure activities than the old-old, which was consistent with past research that leisure participation may gradually decrease with age. Old age tends to be followed by chronic diseases, therefore affecting one's accessibility to participate in leisure activities. In the Where dimension, of the five ratings, two of the ratings, "Within 30 minutes" and "More than 30 minutes" showed significant group differences. The young-old group participated more often at locations



within 30 minutes than the old-old, while the old-old participated more often at locations more than 30 minutes. The results may be due to that the young-old has higher frequency of leisure participation, therefore they tend to choose locations that are more convenient with shorter transportation distance. The high ratio of the rating “Within 30 minutes” of the young-old group causes lower number of the rating “More than 30 minutes”, when comparing to the old-old group.

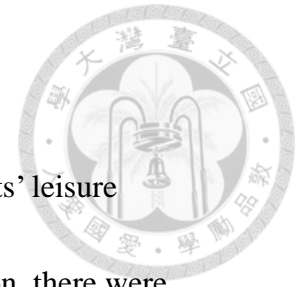
Health condition may deteriorate during aging, hindering one’s activity participation. Between the groups of healthy and frail, no group differences were discovered in the six dimensions, except for one of the rating “At relatives’ home” of the Where dimension. The results were inconsistent with previous study which indicated that frailty and leisure are inversely related, showing that “the greater the endorsement of frailty, the less likely an individual is to participate in leisure activities” (Simone & Haas, 2013). This may be due to that the older adults in this study were mostly recruited from senior courses or community centers, who were able to go to the community on their own and tend to be more active, therefore, the health conditions of both groups were similar. As to the Where dimension, the frail group participated more “At relatives’ home” than the healthy group, showing significant group differences ($p<.05$). This may because the healthy group tends to participate more “At friend’s home” and at locations “Within 30 minutes”, therefore significant group differences in the rating “At relatives’

home” were presented.

Education level is also one of determining factors of older adults' leisure participation. Among the groups of high-education and low-education, there were significant group differences in the Diversity ($p<.05$) and Frequency ($p<.05$) dimension, showing that the high-education group participated more than the low-education. The results were in consistent with previous studies, indicating that those who have higher education level are more likely to participate in leisure activities, since they may demonstrate better cognitive function (Chen & Fu, 2008; Meer, 2008; Minhat & Amin, 2012).

6.3. Limitations of the research

This research has three potential limitations. First, the data collection of older adults was carried out only in Taipei, which may not be able to reflect the variability of older adults in Taiwan, considering the differences of rural and urban area. Secondly, our participants were restricted to those who went to senior associations or communities, which tended to be more active in participating in various activities and were mostly in healthier condition. Thirdly, we were not clear about the factors that might hinder or enhance participation in leisure activities from these data. If the information of the hindering and enhancing factors were provided, therapists would be able to give



suggestions to each individual on how to avoid the hindering factors and compensate for enhancement in leisure participation.



Chapter 7. Conclusion and suggestions of the research

7.1. Conclusion

To the best of our knowledge, this questionnaire is the first to develop a comprehensive questionnaire for use in the elder population in Taiwan, incorporating the Diversity, Frequency, With whom, Where, Preference and Value dimensions jointly.

The results of this study support the use of LPQ by clinicians and researchers as a measure to profile leisure participation among older adults. Along with the Diversity and Frequency dimensions that are often measured, the With whom dimension can provide information about the social interaction of an individual's leisure participation.

The Where dimension is useful in providing information of one's functional mobility, to understand whether an individual is homebound or is able to participate in the

community. As to the Preference and Value dimensions, we can understand whether

older adults are supported or have opportunities or not to participate in the leisure activities that they love and value. In future, studies can recruit older adults from

different areas and characteristics in Taiwan, such as rural and urban, homebound versus

community-dwelling, in order to provide more information on how to support older

adults to remain active during aging.



7.2. Suggestions for future research

This research provided a new and comprehensive questionnaire regarding the profile of leisure participation among older adults. First, it should be noted that this questionnaire was implemented on older adults who regularly went to community sites. Therefore, more research is required in this area in order to investigate the leisure participation profile of older adults recruited from different locations, such as those who are mostly home-bound or from rural area, which are possible factors influencing their leisure participation.

Secondly, in this study, we have administered the CSHA-CFA to assess older adults' health condition, yet we have not included enough participant of all levels, therefore, future research can recruit more participants of different health status, in order to compare the differences of leisure participation profile among various levels of frailty. Further investigation of the influences of levels of frailty to older adults' leisure participation, we may provide prevention programs or courses to maintain the health conditions of those who are prefrail or frail.

Last but not least, more inclusion of male participants is also crucial, in order to have a clearer discussion of the differences of leisure participation profile among gender and the underlying psychosocial factors.

7.3. Suggestions for clinical application


Aside from the use of the LPQ in future studies, it can also be used for investigating the impact of diseases to older adults' leisure participation. During aging, older adults may face the problems of chronic diseases and the decline of health status, which can significantly affect one's participation in leisure activities. Occupational therapists support clients to improve physical, cognitive and psychological functions through daily activities, while participating in leisure activities is a great way to restore their abilities. Therefore, the LPQ can offer comprehensive perspective and a guideline for health professionals to profile older adults' leisure participation. In this way, suggestions on how to balance one's leisure participation can be structurally provided to older adults and their caregivers, fulfilling the concept of active aging.



References

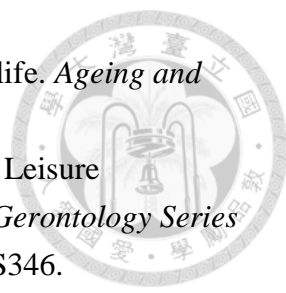
一、中文部分

1. 王瑋、李佳謀、張瓊芳、簡淑慧、陳美燕 (2015)。The Development and Psychometric Testing of the Geriatric Health Promotion Scale[老人健康促進量表建構與發展]。 *The Journal of Nursing Research*, 23(1), 56-64。
2. 江正發、周財勝 (2006)。老年人休閒活動型態之分析。 *大專體育*(87), 133-137。
3. 吳秀汝、林金定、張必正、陳麗美(2012)。臺北縣三重市獨居老人參與休閒活動之調查研究。 *臺灣老人保健學*， 8(1)， 29-50。
4. 李月萍、陳清惠(2010)。社區老人休閒活動研究現況。 *護理雜誌*，57(1)，82-88。
5. 李佳綺、胡淑貞、李中一(2015)。臺灣活躍老化政策的現狀與未來發展。 *長期照護雜誌*，19(2)，117-126。
6. 李素箱、林志偉、李文裕、傅善恆(2013)。臺中市中老年人休閒參與、自我價值與幸福感之研究。 *臺灣老人保健學刊*， 9(2)，126-143。
7. 李維靈、施建彬、邱翔蘭(2007)。退休老人休閒活動參與及其幸福感之相關研究。 *人文暨社會科學期刊*，3(2)，27-35。
8. 李錦東、張峻嘉(2009)。台中縣外埔鄉老農休閒偏好與休閒阻礙。 *鄉村旅遊研究*，3(2)，65-85。
9. 尚憶薇(2000)。推廣臺灣老年休閒活動—以 YMCA 的老年人休閒活動設計為借鏡。 *中華體育季刊*，14(1)， 77-83。
10. 尚憶薇(2001)。花蓮地區老年人休閒動機與休閒阻礙之研究。 *體育學報*， 31， 183-192。
11. 林佳蓉(2000)。老人的休閒參與對休閒滿意和生活滿意之影響。 *大專體育*， 51， 156-162。
12. 林嬪嬾(2014)。國民健康署「友善高齡—活躍老化」。 *醫療品質雜誌*，8(3)， 44-47。
13. 林聰哲、李世昌(2008)。南投縣老年人休閒參與、休閒利益與休閒滿意度之研究。 *運動休閒管理學報*，5(1)， 35-56。
14. 柳立偉、王嘉淳(2009)。台灣兩大都市公立安養中心老人休閒參與、休閒動機與生活滿意度之研究。 *休閒產業管理學刊*，2(2)，22-47。
15. 張成秀、盧希鵬、羅天一、楊培珊(2015)。「活力老化」：2000-2014 ssci 期刊文獻之檢閱。 *臺大社會工作學刊*， 32，177-224。
16. 張俊一、許建民(2012)。原住民老年人的休閒參與及休閒阻礙。 *體育學報*， 45(3)， 247-260。
17. 張家銘(2009)。嘉義市老年人休閒運動參與程度、心流體驗、生活滿意、憂鬱程度之相關研究。 *體育學報*，42(3)，113-129。
18. 張靜惠(2008)。休閒運動對中老年人健康促進之效益。 *臺中教育大學體育學系系刊*，3，89-93。

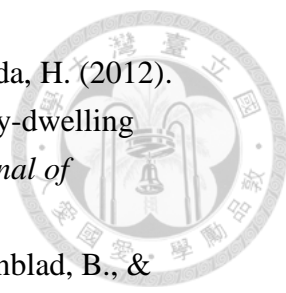
- 
19. 莊智鈞(2005)。台北都會區老年人健康知識與其休閒活動參與情形之關係研究。國立臺灣師範大學社會教育學系碩士論文，台北。
 20. 陳俊宏、陳鎰明(2008)。雲林縣獨居老人休閒活動參與現況之研究。台灣生態休閒產業管理學會，2，110-120。
 21. 陳祥慈(2012)。老年人參與休閒活動對休閒活動參與效益、生活品質與幸福感之影響探討—以臺中縣長青學苑為例。朝陽科技大學休閒事業管理系碩士論文，台北。
 22. 陳肇堯(2015)。年長者休閒活動類型選擇影響因素之研究：以臺南地區為例。體育學報，48(3)，345-364。
 23. 陳慶餘(2015)。臺灣年老衰弱症的研究與應用。長期照護雜誌，19(2)，137-148。
 24. 曾智樺(2012)。老年人參與休閒活動現況之探討。休閒保健期刊(7)，111-119。
 25. 湯幸芬、楊明青、黃詩閔(2010)。「老年休閒」：繪畫題材、休閒生活型態、動機與效益。旅遊健康學刊，9(1)，25-40。
 26. 黃品齊、方佩欣、張少熙(2014)。活躍老化：高齡者運動促進政策與實施狀況分析。休閒與社會研究，9，105-116。
 27. 黃淑貞(2011)。高雄市大樹區老人休閒參與其對生活滿意度調查。休閒保健期刊，6，13-21。
 28. 趙美玲、江東亮、白豐銘(2011)。臺灣老人休閒運動之型態及相關因素。旅遊健康學刊，10(1)，81-95。
 29. 鄭政宗、賴昆宏(2007)。台中地區長青學苑老人之社會支持、孤寂感、休閒活動參與及生命意義之研究。朝陽學報，12，217-254。
 30. 盧俊吉、蕭崑杉、林如森、王春熙(2011)。高齡者社會支持、休閒活動與心理健康關係之研究。農業推廣文彙，56，99-108。
 31. 行政院國家發展委員會(2014)。中華民國人口推計(103至150年)。Available from: www.ndc.gov.tw/dn.aspx?uid=38321
 32. 莊婷婷(2013)。台灣地區老年人參與休閒活動狀況與影響因素之探討。國立台灣師範大學社會工作學研究所碩士論文，台北。
 33. 內政部(2016)。104年簡易生命表。
 34. 國家發展委員會(2016)。中華民國人口推估(105-150年)報告書。
 35. 李素箱、林志偉、李文裕、傅善恆(2013)。台中市中老年人休閒參與、自我價值與幸福感之研究。台灣老人保健學刊，126-143。
 36. 何麗芳(1992)。台北市老人休閒活動與生活滿意度研究。東吳大學社會工作研究所碩士論文，未出版，台北。
 37. 張家好、曾美惠(2015年12月)。老年人休閒活動參與與評量工具之文獻回顧。臺灣職能治療學會第34次學術研討會暨第1屆國際研討會，台北。

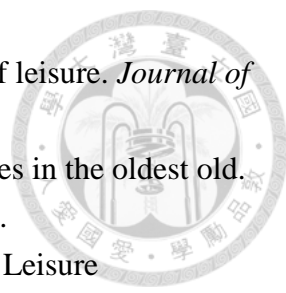
二、英文部分

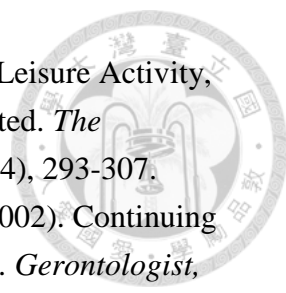
1. Adams, K. B., Leibbrandt, S., & Moon, H. (2011). A critical review of the

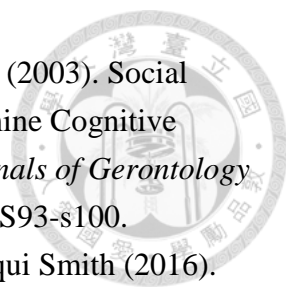
- 
- literature on social and leisure activity and wellbeing in later life. *Ageing and Society*, 31(4), 683-712.
2. Agahi, N., Ahacic, K., & Parker, M. G. (2006). Continuity of Leisure Participation From Middle Age to Old Age. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 61(6), S340-S346.
 3. Agahi, N., & Parker, M. G. (2005). Are today's older people more active than their predecessors? Participation in leisure-time activities in Sweden in 1992 and 2002. *Ageing and Society*, 25(6), 925-941.
 4. Agahi, N., & Parker, M. G. (2008). Leisure activities and mortality: does gender matter? *Journal of Aging and Health*, 20(7), 855-871.
 5. Chan, M. F., Chan, E. A., Mok, E., & Kwan Tse, F. Y. (2009). Effect of music on depression levels and physiological responses in community-based older adults. *International Journal of Mental Health Nursing*, 18(4), 285-294.
 6. Chao, S. F. (2014). Changes in Leisure Activities and Dimensions of Depressive Symptoms in Later Life: A 12-Year Follow-Up. *Gerontologist*.
 7. Chen, S.-Y., & Fu, Y.-C. (2008). Leisure Participation and Enjoyment Among the Elderly: Individual Characteristics and Sociability. *Educational Gerontology*, 34(10), 871-889.
 8. Chiao, C., Weng, L.-J., & Botticello, A. L. (2011). Social participation reduces depressive symptoms among older adults: An 18-year longitudinal analysis in Taiwan. *BMC Public Health*, 11(1), 292.
 9. Crowe, M., Andel, R., Pedersen, N. L., Johansson, B., & Gatz, M. (2003). Does participation in leisure activities lead to reduced risk of Alzheimer's disease? A prospective study of Swedish twins. *The journals of gerontology. Series B, Psychological Sciences and Social Sciences*, 58(5), P249-255.
 10. Dumazedier, R. (1974). *Sociology of Leisure*. Amsterdam: Elsevier. Gist, N.P. & Fava, S.F. (1964). *Urban society*. NY : Crowell.
 11. Diggs, J. (2008). Activity Theory of Aging. In S. J. D. Loue & M. Sajatovic (Eds.), *Encyclopedia of Aging and Public Health* (pp. 79-81). Boston, MA: Springer US.
 12. Ellwardt, L., Aartsen, M., Deeg, D., & Steverink, N. (2013). Does loneliness mediate the relation between social support and cognitive functioning in later life? *Social Science & Medicine*, 98, 116-124.
 13. Eriksson Sörman, D., Sundström, A., Rönnlund, M., Adolfsson, R., & Nilsson, L.-G. (2014). Leisure Activity in Old Age and Risk of Dementia: A 15-Year Prospective Study. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 69(4), 493-501.
 14. Fallahpour, M., Borell, L., Luborsky, M., & Nygård, L. (2015). Leisure-activity

- participation to prevent later-life cognitive decline: a systematic review. *Scandinavian Journal of Occupational Therapy*, 1-36.
15. Ferrer, A., Formiga, F., Cunillera, O., Megido, M. J., Corbella, X., & Almeda, J. (2015). Predicting factors of health-related quality of life in octogenarians: a 3-year follow-up longitudinal study. *Quality of Life Research*, 24(11), 2701-2711.
 16. Friedland, R. P., Fritsch, T., Smyth, K. A., Koss, E., Lerner, A. J., Chen, C. H., Petot, G. J. and Debanne, S. M. (2001). Patients with Alzheimer's disease have reduced activities in midlife compared with healthy control-group members. *Proceedings of the National Academy of Sciences*, 98(6), 3440-3445.
 17. García-Martín, M. Á., Gómez-Jacinto, L., & Martimortugués-Goyenechea, C. (2004). A Structural Model of the Effects of Organized Leisure Activities on the Well-Being of Elder Adults in Spain. *Activities, Adaptation & Aging*, 28(3), 19-34.
 18. Gleib, D. A., Landau, D. A., Goldman, N., Chuang, Y.-L., Rodríguez, G., & Weinstein, M. (2005). Participating in social activities helps preserve cognitive function: an analysis of a longitudinal, population-based study of the elderly. *International Journal of Epidemiology*, 34(4), 864-871.
 19. Godbey, G. C., Caldwell, L. L., Floyd, M., & Payne, L. L. (2005). Contributions of leisure studies and recreation and park management research to the active living agenda. *American Journal of Preventive Medicine*, 28(2 Suppl 2), 150-158.
 20. Hajek, A., Brettschneider, C., Lange, C., Posselt, T., Wiese, B., Steinmann, S., . . . König, H. H. (2015). Gender differences in the effect of social support on health-related quality of life: results of a population-based prospective cohort study in old age in Germany. *Quality of Life Research*.
 21. Herrera, A. P., Meeks, T. W., Dawes, S. E., Hernandez, D. M., Thompson, W. K., Sommerfeld, D. H., . . . Jeste, D. V. (2011). Emotional and cognitive health correlates of leisure activities in older Latino and Caucasian women. *Psychology, Health and Medicine*, 16(6), 661-674.
 22. Holwerda, T. J., Beekman, A. T., Deeg, D. J., Stek, M. L., van Tilburg, T. G., Visser, P. J., Schmand, B., Jonker, C. and Schoevers, R. A. (2012). Increased risk of mortality associated with social isolation in older men: only when feeling lonely? Results from the Amsterdam Study of the Elderly (AMSTEL). *Psychological Medicine*, 42(4), 843-853.
 23. Hyypä, M. T., Maki, J., Impivaara, O., & Aromaa, A. (2006). Leisure participation predicts survival: a population-based study in Finland. *Health Promotion International*, 21(1), 5-12.

- 
24. Iwasa, H., Yoshida, Y., Kai, I., Suzuki, T., Kim, H., & Yoshida, H. (2012). Leisure activities and cognitive function in elderly community-dwelling individuals in Japan: A 5-year prospective cohort study. *Journal of Psychosomatic Research*, 72(2), 159-164.
25. Karp, A., Paillard-Borg, S., Wang, H. X., Silverstein, M., Winblad, B., & Fratiglioni, L. (2006). Mental, physical and social components in leisure activities equally contribute to decrease dementia risk. *Dementia and Geriatric Cognitive Disorders*, 21(2), 65-73.
26. Kielhofner G. (2008) Model of Human Occupation: Theory and Application. Philadelphia, Lippincott Williams & Wilkins.
27. Kelly, J. R. (2012). Leisure. (Fourth edition).
28. Lee, J. H., Lee, J. H., & Park, S. H. (2014). Leisure activity participation as predictor of quality of life in Korean urban-dwelling elderly. *Occupational Therapy International*, 21(3), 124-132.
29. Lennartsson, C., & Silverstein, M. (2001). Does engagement with life enhance survival of elderly people in Sweden? The role of social and leisure activities. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 56(6), S335-342.
30. Liu, H., Yeh, C.-K., Chick, G. E., & Zinn, H. C. (2008). An Exploration of Meanings of Leisure: A Chinese Perspective. *Leisure Sciences*, 30(5), 482-488.
31. Longino, J. C. F., & Kart, C. S. (1982). Explicating Activity Theory: A Formal Replication1. *Journal of Gerontology*, 37(6), 713-722.
32. Maselko, J., Sebranek, M., Mun, M. H., Perera, B., Ahs, J., & Ostbye, T. (2014). Contribution of generative leisure activities to cognitive function in elderly Sri Lankan adults. *Journal of the American Geriatrics Society*, 62(9), 1707-1713.
33. Mendoza-Ruvalcaba, N. M., & Arias-Merino, E. D. (2015). "I am active": effects of a program to promote active aging. *Journal of Clinical Interventions in Aging*, 10, 829-837.
34. Menec, V. H. (2003). The relation between everyday activities and successful aging: a 6-year longitudinal study. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 58(2), S74-82.
35. Minhat, H. S., & Mohd Amin, R. (2012). Sociodemographic determinants of leisure participation among elderly in Malaysia. *Journal of Community Health*, 37(4), 840-847.
36. Morrow-Howell, N., Putnam, M., Lee, Y. S., Greenfield, J. C., Inoue, M., & Chen, H. (2014). An investigation of activity profiles of older adults. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 69(5), 809-821.

- 
37. Neulinger, J. A., & Breit, H. C. (1969) Attitude dimensions of leisure. *Journal of Leisure Research*, 1,255-261.
38. Nilsson, I., & Fisher, A. G. (2006). Evaluating leisure activities in the oldest old. *Scandinavian Journal of Occupational Therapy*, 13(1), 31-37.
39. Nilsson, I., Nyqvist, F., Gustafson, Y., & Nygard, M. (2015). Leisure Engagement: Medical Conditions, Mobility Difficulties, and Activity Limitations-A Later Life Perspective. *Journal of Aging Research*, 2015, 610154.
40. Nimrod, G. (2007). Expanding, Reducing, Concentrating and Diffusing: Post Retirement Leisure Behavior and Life Satisfaction. *Leisure Sciences*, 29(1), 91-111.
41. Nummela, O., Sulander, T., Rahkonen, O., & Uutela, A. (2008). Associations of self-rated health with different forms of leisure activities among ageing people. *International Journal of Public Health*, 53(5), 227-235.
42. Patricia M. Simone, A. L. H. (2013). Frailty, Leisure Activity and Functional Status in Older Adults: Relationship With Subjective Well Being. *Clinical Gerontologist*, 36, 275-293.
43. Pfeiffer, P. N., Heisler, M., Piette, J. D., Rogers, M. A., & Valenstein, M. (2011). Efficacy of peer support interventions for depression: a meta-analysis. *General Hospital Psychiatry*, 33(1), 29-36.
44. Pressman, S. D., Matthews, K. A., Cohen, S., Martire, L. M., Scheier, M., Baum, A., & Schulz, R. (2009). Association of enjoyable leisure activities with psychological and physical well-being. *Psychosomatic Medicine*, 71(7), 725-732.
45. Rowe, J. R., & Kahn, R. L. (1998). Successful aging. New York: Pantheon Books.
46. Rodríguez, A., Látková, P., & Sun, Y.-Y. (2007). The relationship between leisure and life satisfaction: application of activity and need theory. *Social Indicators Research*, 86(1), 163.
47. Scarmeas, N., Levy, G., Tang, M. X., Manly, J., & Stern, Y. (2001). Influence of leisure activity on the incidence of Alzheimer's disease. *Neurology*, 57(12), 2236-2242.
48. Schooler, C., & Mulatu, M. S. (2001). The reciprocal effects of leisure time activities and intellectual functioning in older people: A longitudinal analysis. *Psychology and Aging*, 16(3), 466-482.
49. Singh, M. A. F. (2002). Exercise Comes of Age: Rationale and Recommendations for a Geriatric Exercise Prescription. *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, 57(5), M262-M282.

- 
50. Steinkamp, M. W., & Kelly, J. R. (1987). Social Integration, Leisure Activity, and Life Satisfaction in Older Adults: Activity Theory Revisited. *The International Journal of Aging and Human Development*, 25(4), 293-307.
51. Strain, L. A., Grabusic, C. C., Searle, M. S., & Dunn, N. J. (2002). Continuing and ceasing leisure activities in later life: a longitudinal study. *Gerontologist*, 42(2), 217-223.
52. Takeda, F., Noguchi, H., Monma, T., & Tamiya, N. (2015). How Possibly Do Leisure and Social Activities Impact Mental Health of Middle-Aged Adults in Japan?: An Evidence from a National Longitudinal Survey. *PLoS ONE*, 10(10), e0139777.
53. Teo, A. R., Choi, H., & Valenstein, M. (2013). Social relationships and depression: ten-year follow-up from a nationally representative study. *PLoS ONE*, 8(4), e62396.
54. Toepoel, V. (2013). Ageing, Leisure, and Social Connectedness: How could Leisure Help Reduce Social Isolation of Older People? *Social Indicators Research*, 113(1), 355-372.
55. van der Meer, M. J. (2008). The sociospatial diversity in the leisure activities of older people in the Netherlands. *Journal of Aging Studies*, 22(1), 1-12.
56. Verghese, J., LeValley, A., Derby, C., Kuslansky, G., Katz, M., Hall, C., . . . Lipton, R. B. (2006). Leisure Activities And The Risk of Amnesic Mild Cognitive Impairment In The Elderly. *Neurology*, 66(6), 821-827.
57. Verghese, J., Lipton, R. B., Katz, M. J., Hall, C. B., Derby, C. A., Kuslansky, G., Buschke, H. (2003). Leisure activities and the risk of dementia in the elderly. *The New England Journal of Medicine*, 348(25), 2508-2516.
58. World Health Organization. (2002). Active aging—A policy framework. Retrieved from http://apps.who.int/iris/bitstream/10665/67215/1/WHO_NMH_NPH_02.8.Pdf
59. World Health Organization. (2002). Towards a Common Language for Functioning, Disability and Health ICF. Geneva: WHO.
60. World Health Organization: International Classification of Functioning, Disability and Health (ICF). Geneva, Switzerland, World Health Organization, 2001.
61. World Health Organization. (1986). Ottawa charter for health promotion. *Health Promotion International*, 1(4).
62. Wang, H. X., Karp, A., Winblad, B., & Fratiglioni, L. (2002). Late-life engagement in social and leisure activities is associated with a decreased risk of dementia: a longitudinal study from the Kungsholmen project. *American Journal of Epidemiology*, 155(12), 1081-1087.

- 
63. Zunzunegui Mí, V., Alvarado, B. E., Del Ser, T., & Otero, A. (2003). Social Networks, Social Integration, and Social Engagement Determine Cognitive Decline in Community-Dwelling Spanish Older Adults. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 58(2), S93-s100.
64. Nicky J. Newton, Jana Pladevall-Guyer, Richard Gonzalez, Jacqui Smith (2016). Activity Engagement and Activity-Related Experiences: The Role of Personality. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*.
65. Zickuhr, K., & Madden, M. (2012). Older adults and internet use. Pew Internet & American Life Project, 6.
66. Moran, M., Van Cauwenberg, J., Hercky-Linnewiel, R., Cerin, E., Deforche, B., & Plaut, P. (2014). Understanding the relationships between the physical environment and physical activity in older adults: a systematic review of qualitative studies. *International Journal of Behavioral Nutrition and Physical Activity*, 11(1), 79.

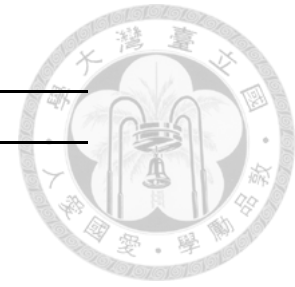


Table 1. Characteristics of participants (N=149)

Characteristics	
Age(years) : mean(SD)	70.7(6.35)
60-64 : n(%)	21(14.09)
65-69 : n(%)	57(38.27)
70-74 : n(%)	30(20.13)
75-79 : n(%)	26(17.49)
80-84 : n(%)	9(6.04)
85-89 : n(%)	6(4.03)
Gender (Male / Female) : n (%)	24(16.1)/125(83.9)
Living status : n (%)	
Living alone	26(17.4)
Living with family	121(81.2)
Nursing home	2(1.3)
Educational level : n (%)	
Master's degree	4(2.7)
Bachelor's degree	26(17.4)
College	25(16.8)
Senior high	40(26.8)
Junior high	15(10.1)
Elementary	33(22.1)
None	6(4.0)
Marital status : n (%)	
Single	11(7.4)
Married/ Live together	86(57.7)
Divorced/ Separated	10(6.7)
Widowed	42(28.2)
Economic status: n(%)	
Government subsidy	2(1.3)
Below NT\$10,000	19(12.8)
NT\$10,000 ~ 20,000	45(30.2)
NT\$20,000 ~ 30,000	34(22.8)
NT\$30,000 ~ 40,000	18(12.1)
NT\$40,000 ~ 50,000	15(10.1)
Over NT\$50,000	16(10.7)
Medical history : n(%)	
None	31(20.8)

1~2 types	78(52.4)
3~4 types	29(19.5)
More than 5 types	11(7.4)
Frailty: n(%)	2.51(1.26)
Healthy	
1	48(32.2)
2	19(12.8)
Frail	
3	47(31.5)
4	29(19.5)
5	5(3.4)
6	1(0.7)



Table 2. Coefficient of internal consistency of the Frequency dimension

Cronbach's alpha	Dimensions		Value
	Frequency	Preference	
	.792	.794	.799

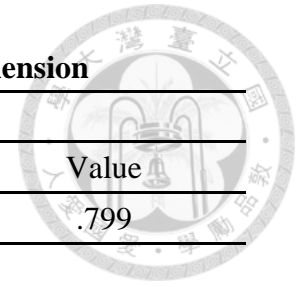


Table 3. Test-retest reliability of the six dimensions of the LPQ (N=30)

Dimensions	Test mean(SD)	Re-test mean(SD)	ρ/r	p-value
Diversity	15.43(4.15)	14.17(4.27)	$\rho = .619^{**}$.000
Frequency	3.12(0.83)	2.86(0.97)	$r = .718^{**}$.000
With whom	20.23(7.34)	22.97(9.24)	$\rho = .717^{**}$.000
Where	18.87(6.38)	18.77(7.55)	$\rho = .660^{**}$.000
Preference	3.45(0.42)	2.05(1.22)	$r = .370^*$.044
Value	3.42(0.42)	2.02(1.22)	$r = .387^*$.035

** $p < .01$

* $p < .05$

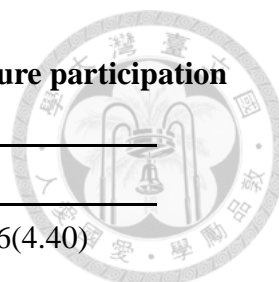


Table 4. The descriptive statistics of the six dimensions of the leisure participation profile of all participants (N=149)

Dimensions	
Diversity: Mean(SD)	15.76(4.40)
Frequency: Mean(SD) (range=1-9)	3.24(0.93)
With whom: n(%)	
On one's own	58(39.2)
With nuclear family members(i.e., parents, siblings, spouse, children and grandchildren)	32(21.17)
With relatives	6(3.79)
With friends	48(32.3)
Others	5(3.54)
Where: n(%)	
At home	55(36.76)
At relatives' home	3(2.08)
At friend's home	5(3.58)
Within 30 minutes	54(36.17)
More than 30 minutes	32(21.41)
Preference: Mean(SD) (range=1-5)	3.48(0.43)
Value: Mean(SD) (range=1-5)	3.44(0.45)



Table 5. Participation rate of each activity item (N=149)

	Activity items	n(%)
1.	Get together with friends or family	148(99.3)
2.	Social/political groups	39(26.2)
3.	Play chess/poker/mahjong	35(23.5)
4.	Religious activities	90(60.4)
5.	Volunteer activities	65(43.6)
6.	Watch TV/movies	144(96.6)
7.	Chat with others(including face to face, using online chatting apps)	148(99.3)
8.	Listen to music/radio	108(72.5)
9.	Read magazines/books	120(80.5)
10.	Shopping (including markets/shopping malls)	138(92.6)
11.	Clip/paste in a scrapbook	69(46.3)
12.	Gardening	94(63.1)
13.	Take care of pets	29(19.5)
14.	Play instruments or sing	97(65.1)
15.	Go to concerts/exhibitions	84(56.4)
16.	Painting or calligraphy activities	36(24.2)
17.	Travel	125(83.9)
18.	Handicrafts	21(14.1)
19.	Play on-line games	36(24.2)
20.	Tai-chi/qigong	39(26.2)
21.	Dance	52(34.9)
22.	Go mountain climbing	76(51.0)
23.	Go for a walk	124(83.2)
24.	Running/jogging	18(12.1)
25.	Ball games	14(9.4)
26.	Swimming	12(8.1)
27.	Go to the gym or use fitness equipment	29(19.5)
28.	Take photographs	81(54.4)
29.	Lifelong learning courses or activities	125(83.9)
30.	Electronic devices/gadgets (i.e.,	122(81.9)

cellphone, tablet CP, and computer)	
31. Learn foreign languages	30(20.1)



Table 6. The descriptive statistics of the six dimensions of the leisure participation profile by each item among all participants (N=149)

Activities	Diversity	Frequency	With whom	Where	Preference	Value
	n(%)	Mode: n(%)	Mode: n(%)	Mode: n(%)	Mean (SD)	Mean (SD)
1. Get together with friends or family	148(99.3)	2-5 times a week: 49(32.9)	With friends: 116(77.9)	Within 30 minutes: 76(51.0)	3.78(.727)	3.77(.739)
2. Social/political groups	39(26.2)	2-5 times a week: 16(10.7)	With friends: 23(15.4)	Within 30 minutes: 30(20.1)	3.74(.751)	3.74(.785)
3. Play chess/poker/mahjong	35(23.5)	Once a week: 8(5.4)	With friends: 19(12.8)	At home: 16(10.7)	3.46(.741)	3.20(.759)
4. Religious activities	90(60.4)	Once a week: 23(15.4)	On one's own: 46(30.9)	Within 30 minutes: 48(32.2)	3.59(.717)	3.59(.806)
5. Volunteer activities	65(43.6)	Once a week: 23(15.4)	With friends: 43(28.9)	Within 30 minutes: 47(31.5)	3.65(.759)	3.62(.764)
6. Watch TV/movies	144(96.6)	More than once a day: 93(62.4)	On one's own: 106(71.1)	At home: 136(91.3)	3.16(.644)	3.00(.729)
7. Chat with others (including face to face, using online chatting apps)	148(99.3)	More than once a day: 78(52.3)	With friends: 133(89.3)	At home: 107(71.8)	3.46(.705)	3.42(.711)
8. Listen to music/radio	108(72.5)	More than once a day: 38(25.5)	On one's own: 91(61.1)	At home: 96(64.4)	3.55(.661)	3.44(.715)
9. Read magazines/books	120(80.5)	Once a day: 62(41.6)	On one's own: 111(74.5)	At home: 108(72.5)	3.46(.709)	3.42(.762)
10. Shopping (including markets/shopping malls)	138(92.6)	2-5 times a week: 66(44.3)	On one's own: 118(79.2)	Within 30 minutes: 123(82.6)	3.14(.686)	3.14(.653)
11. Clip/paste in a scrapbook	69(46.3)	2-5 times a week: 16(10.7)	On one's own: 60(40.3)	At home: 66(44.3)	3.30(.464)	3.28(.482)
12. Gardening	94(63.1)	Once a day: 47(31.5)	On one's own: 83(55.7)	At home: 82(55.0)	3.53(.683)	3.45(.757)
13. Take care of pets	29(19.5)	More than once a day: 19(12.8)	On one's own: 23(15.4)	At home: 28(18.8)	3.45(.948)	3.45(.827)
14. Play	97(65.1)	Once a	With friends:	Within 30	3.53(.647)	3.46(.72)

	instruments or sing		week: 70(47.0)	minutes: 3)		
			36(24.2)	60(40.3)		
15.	Go to concerts/exhibitions	84(56.4)	Once every three month 31(20.8)	With friends: 55(36.9)	More than 30 minutes: 54(36.2)	3.52(.649) 3.39(.712)
16.	Painting or calligraphy activities	36(24.2)	Once a week: 13(8.7)	On one's own: 28(18.8)	At home: 23(15.4)	3.61(.728) 3.67(.756)
17.	Travel	125(83.9)	Once every three month: 50(33.6)	With friends: 90(60.4)	More than 30 minutes: 117(78.5)	3.73(.688) 3.77(.709)
18.	Handicrafts	21(14.1)	Once every three month/Once every month: 5(3.4)	On one's own: 16(10.7)	At home: 16(10.7)	3.29(.561) 3.14(.655)
19.	Play on-line games	36(24.2)	More than once a day: 13(8.7)	On one's own: 34(22.8)	At home: 35(23.5)	3.31(.786) 3.19(.920)
20.	Tai-chi/qigong	39(26.2)	Once a day: 17(11.4)	With friends: 27(18.1)	Within 30 minutes: 30(20.1)	3.64(.668) 3.64(.628)
21.	Dance	52(34.9)	Once a week: 20(13.4)	With friends: 42(28.2)	Within 30 minutes: 37(24.8)	3.48(.610) 3.48(.700)
22.	Go mountain climbing	76(51.0)	Once every three month/Once every month/ Once a day: 15(10.1)	With friends: 52(34.9)	More than 30 minutes: 58(38.9)	3.50(.663) 3.49(.721)
23.	Go for a walk	124(83.2)	Once a day: 52(34.9)	On one's own: 95(63.8)	Within 30 minutes: 107(71.8)	3.53(.680) 3.54(.715)
24.	Running/jogging	18(12.1)	Once a day: 5(3.4)	On one's own: 13(8.7)	Within 30 minutes: 15(10.1)	3.61(.778) 3.50(.707)
25.	Ball games	14(9.4)	2-5 times a week: 5(3.4)	With friends: 8(5.4)	Within 30 minutes: 7(4.7)	3.71(.611) 3.70(.699)
26.	Swimming	12(8.1)	2-5 times a week: 4(2.7)	With friends: 7(4.7)	Within 30 minutes: 8(5.4)	3.42(.900) 3.50(.905)
27.	Go to the gym or use fitness equipment	29(19.5)	2-5 times a week: 13(8.7)	On one's own: 19(12.8)	Within 30 minutes: 14(9.4)	3.41(.682) 3.41(.907)
28.	Take	81(54.4)	2-5 times a	With friends:	More than	3.46(.653) 3.40(.68)

	photographs		week: 18(12.1)	46(30.9)	30 minutes: 52(34.9)	3)	
29.	Lifelong learning courses or activities	125(83.9)	2-5 times a week: 67(45.0)	With friends: 91(61.1)	Within 30 minutes: 96(64.4)	3.68(.736)	3.67(.760)
30.	Electronic devices/gadgets (i.e., cellphone, tablet CP, and computer)	122(81.9)	More than once a day: 87(58.4)	On one's own: 114(76.5)	At home: 117(78.5)	3.25(.659)	3.29(.721)
31.	Learn foreign languages	30(20.1)	Once a week: 16(10.7)	On one's own: 20(13.4)	At home: 14(9.4)	3.43(.568)	3.47(.776)

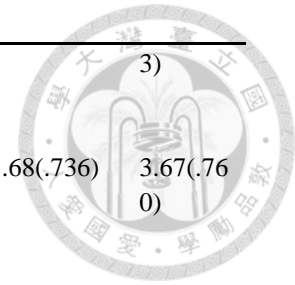


Table 7. Participation rate of each leisure activity in the groups of young-old and old-old (N=149)

Activity items	n(%)	
	Young-old (<70 years old) (n=78)	Old-old (≥70 years old) (n=71)
1. Get together with friends or family	78(100)	70(98.6)
2. Social/political groups	25(32.1)	14(19.7)
3. Play chess/poker/mahjong	18(23.1)	17(23.9)
4. Religious activities	48(61.5)	42(59.2)
5. Volunteer activities	40(51.3)	25(35.2)
6. Watch TV/movies	75(96.2)	69(97.2)
7. Chat with others(including face to face, using online chatting apps)	78(100)	70(98.6)
8. Listen to music/radio	60(76.9)	48(67.6)
9. Read magazines/books	66(84.6)	54(76.1)
10. Shopping (including markets/shopping malls)	74(94.9)	64(90.1)
11. Clip/paste in a scrapbook	40(51.3)	29(40.8)
12. Gardening	53(67.9)	41(57.7)
13. Take care of pets	21(26.9)	8(11.3)
14. Play instruments or sing	53(67.9)	44(62.0)
15. Go to concerts/exhibitions	49(62.8)	35(49.3)
16. Painting or calligraphy activities	21(26.9)	15(21.1)
17. Travel	66(84.6)	59(83.1)
18. Handicrafts	11(14.1)	10(14.1)
19. Play on-line games	21(26.9)	15(21.1)
20. Tai-chi/qigong	13(16.7)	26(36.6)
21. Dance	26(33.3)	26(36.6)
22. Go mountain climbing	44(56.4)	32(45.1)
23. Go for a walk	63(80.8)	61(85.9)
24. Running/jogging	12(15.4)	6(8.5)
25. Ball games	7(9.0)	7(9.9)
26. Swimming	6(7.7)	6(8.5)
27. Go to the gym or use fitness equipment	16(20.5)	13(18.3)
28. Take photographs	51(65.4)	30(42.3)

29.	Lifelong learning courses or activities	66(84.6)	59(83.1)
30.	Electronic devices/gadgets (i.e., cellphone, tablet CP, and computer)	71(91.0)	51(71.8)
31.	Learn foreign languages	20(25.6)	10(14.1)

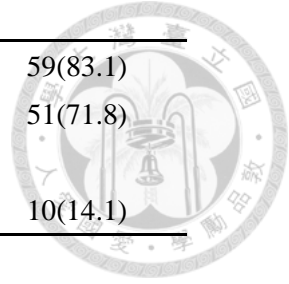


Table 8. Group differences in the six dimensions of the leisure participation between the young-olds and old-olds (N=149)

Dimensions: Mean(SD)	Below 70 y/o (n=78)	Above 70 y/o (n=71)	<i>t</i>	<i>P</i> -value	95% Confidence Interval	
					Lower	Higher
Diversity	16.56(4.09)	14.87(4.59)	1.987	.049*	.008	2.836
Frequency	3.39(.88)	3.07(.95)	2.165	.032*	.028	.621
With whom						
On one's own	0.39(0.13)	0.40(.13)	-.287	.775	-.048	.036
With nuclear family members	0.22(0.13)	0.20(0.14)	.966	.335	-.022	.064
With relatives	0.04(0.06)	0.03(0.05)	1.523	.130	-.004	.031
With friends	0.30(0.15)	0.34(0.15)	-2.118	.062	-.098	-.003
Others	0.05(0.08)	0.03(0.05)	2.183	.104	.002	.044
Where						
At home	0.35(0.10)	0.38(0.11)	-1.722	.087	-.065	.004
At relatives' home	0.03(0.05)	0.02(0.03)	1.513	.133	-.003	.022
At friend's home	0.04(0.07)	0.03(0.04)	1.060	.291	-.009	.031
Within 30 minutes	0.39(0.14)	0.33(0.16)	2.725	.007**	.018	.115
More than 30 minutes	0.19(0.13)	0.24(0.16)	-2.353	.020*	-.105	-.009
Preference	3.44(0.41)	3.52(0.45)	-1.015	.312	-0.211	0.068
Value	3.44(0.47)	3.45(0.43)	-.221	.826	-0.163	0.130

** $p < .01$

* $p < .05$

Table 9. Participation rate of each leisure activity in the groups of healthy and frail (N=149)

Activities	n(%)	
	Healthy (n=67) (Levels 1-2)	Frail (n=82) (Levels 3-7)
1. Get together with friends or family	66(98.5)	82(100)
2. Social/political groups	19(28.4)	20(24.4)
3. Play chess/poker/mahjong	16(23.9)	19(23.2)
4. Religious activities	41(61.2)	49(59.8)
5. Volunteer activities	28(41.8)	37(45.1)
6. Watch TV/movies	64(95.5)	80(97.6)
7. Chat with others(including face to face, using online chatting apps)	67(100)	81(98.8)
8. Listen to music/radio	50(74.6)	58(70.7)
9. Read magazines/books	55(82.1)	65(79.3)
10. Shopping (including markets/shopping malls)	64(95.5)	74(90.2)
11. Clip/paste in a scrapbook	33(49.3)	36(43.9)
12. Gardening	37(55.2)	57(69.5)
13. Take care of pets	13(19.4)	16(19.5)
14. Play instruments or sing	43(64.2)	54(65.9)
15. Go to concerts/exhibitions	41(61.2)	43(52.4)
16. Painting or calligraphy activities	17(25.4)	19(23.2)
17. Travel	54(80.6)	71(86.6)
18. Handicrafts	12(17.9)	9(11.0)
19. Play on-line games	19(28.4)	17(20.7)
20. Tai-chi/qigong	18(26.9)	21(25.6)
21. Dance	21(31.3)	31(37.8)
22. Go mountain climbing	35(52.2)	41(50.0)
23. Go for a walk	55(82.1)	69(84.1)
24. Running/jogging	6(9.0)	12(14.6)
25. Ball games	5(7.5)	9(11.0)
26. Swimming	6(9.0)	6(7.3)

27. Go to the gym or use fitness equipment	10(14.9)	19(23.2)
28. Take photographs	39(58.2)	42(51.2)
29. Lifelong learning courses or activities	59(88.1)	66(80.5)
30. Electronic devices/gadgets (i.e., cellphone, tablet CP, and computer)	60(89.6)	62(75.6)
31. Learn foreign languages	14(20.9)	16(19.5)



Table 10. Group differences in the six dimensions of the leisure participation of participants between the groups of healthy and at risk (N=149)

Dimensions: Mean(SD)	Healthy (Levels 1-2) (n=67)	Frail (Levels 3-6) (n=82)	<i>t</i>	<i>P</i> -value	95% Confidence Interval	
					Lower	Higher
Diversity	15.62(4.76)	15.93(3.95)	.417	.677	-1.13	1.74
Frequency	3.29(0.82)	3.20(1.01)	.566	.572	-.215	.388
With whom						
On one's own	0.40(0.13)	0.38(0.13)	.937	.350	-.022	.062
With nuclear family members	0.21(0.13)	0.21(0.13)	.059	.953	-.042	.045
With relatives	0.33(0.05)	0.42(0.58)	-1.11	.271	-.027	.008
With friends	0.31(0.15)	0.33(0.15)	-.721	.472	-.066	.031
Others	0.39(0.08)	0.03(0.06)	.578	.564	-.015	.028
Where						
At home	0.36(0.10)	0.37(0.11)	-.273	.785	-.040	.030
At relatives' home	0.01(0.03)	0.03(0.04)	-2.00	.091	-.025	-.000
At friend's home	0.04(0.07)	0.03(0.06)	1.343	.181	-.006	.034
Within 30 minutes	0.37(0.14)	0.35(0.16)	.956	.341	-.026	.074
More than 30 minutes	0.20(0.16)	0.22(0.14)	-.850	.397	-.070	.028
Preference	3.51(0.45)	3.44(0.41)	-.912	.363	-.205	.075
Value	3.46(0.45)	3.42(0.46)	-.645	.520	-.195	.099

* $p < .05$

Table 11. Participation rate of each leisure activity in the groups of high-education and low-education (N=149)

Activity items	n(%)	
	High-education (n=95)	Low-education (n=54)
1. Get together with friends or family	95(100)	53(98.1)
2. Social/political groups	28(29.5)	11(20.4)
3. Play chess/poker/mahjong	25(26.3)	10(18.5)
4. Religious activities	48(50.5)	42(77.8)
5. Volunteer activities	49(51.6)	16(29.6)
6. Watch TV/movies	91(95.8)	53(98.1)
7. Chat with others(including face to face, using online chatting apps)	94(98.9)	54(100)
8. Listen to music/radio	81(85.3)	27(50.0)
9. Read magazines/books	85(89.5)	35(64.8)
10. Shopping (including markets/shopping malls)	91(95.8)	47(87.0)
11. Clip/paste in a scrapbook	52(54.7)	17(31.5)
12. Gardening	66(69.5)	28(51.9)
13. Take care of pets	22(23.2)	7(13.0)
14. Play instruments or sing	66(69.5)	31(57.4)
15. Go to concerts/exhibitions	64(67.4)	20(37.0)
16. Painting or calligraphy activities	28(29.5)	8(14.8)
17. Travel	83(87.4)	42(77.8)
18. Handicrafts	15(15.8)	6(11.1)
19. Play on-line games	25(26.3)	11(20.4)
20. Tai-chi/qigong	26(27.4)	13(24.1)
21. Dance	36(37.9)	16(29.6)
22. Go mountain climbing	58(61.1)	18(33.3)
23. Go for a walk	79(83.2)	45(83.3)
24. Running/jogging	15(15.8)	3(5.6)
25. Ball games	9(9.5)	5(9.3)
26. Swimming	10(10.5)	2(3.7)
27. Go to the gym or use fitness	22(23.2)	7(13.0)

equipment		
28. Take photographs	58(61.1)	23(42.6)
29. Lifelong learning courses or activities	83(87.4)	42(77.8)
30. Electronic devices/gadgets (i.e., cellphone, tablet CP, and computer)	85(89.5)	37(68.5)
31. Learn foreign languages	25(26.3)	5(9.3)

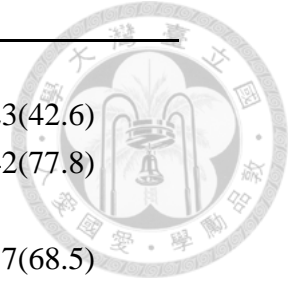


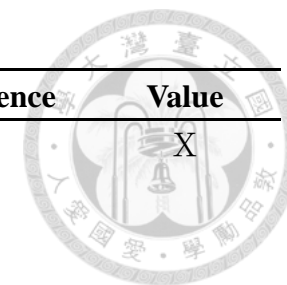
Table 12. Group differences in the six dimensions of the leisure participation between the groups of high-education and low-education (N=149)

Dimensions: Mean(SD)	High	Low	<i>t</i>	<i>P</i> -value	95% Confidence Interval	
	-education (n=95)	-education (n=54)			Lower	Higher
Diversity	16.99(3.89)	13.59(4.46)	.151	.000**	2.015	4.778
Frequency	3.52(.84)	2.75(.86)	5.356	.000**	.489	1.061
With whom						
On one's own	0.39(0.12)	0.40(0.14)	-.262	.794	-.049	.038
With nuclear family members	0.22(0.13)	0.20(0.14)	.734	.359	-.024	.066
With relatives	0.04(0.05)	0.04(0.06)	.301	.866	-.020	.017
With friends	0.32(0.15)	0.34(0.15)	.688	.458	-.069	.031
Others	0.04(0.07)	0.03(0.07)	.833	.642	-.017	.028
Where						
At home	0.37(0.09)	0.37(0.13)	.171	.865	-.037	.044
At relatives' home	0.02(0.04)	0.02(0.03)	.986	.326	-.007	.020
At friend's home	0.04(0.07)	0.03(0.05)	.774	.440	-.013	.029
Within 30 minutes	0.36(0.14)	0.36(0.17)	.089	.929	-.049	.054
More than 30 minutes	0.21(0.14)	0.23(0.16)	-.906	.421	-.071	.030
Preference	3.47(0.43)	3.48(0.43)	-.108	.914	-.153	.137
Value	3.45(0.47)	3.44(0.41)	.138	.890	-.141	.163

** $p < .01$

Appendix 1: Dimensions of leisure participation measured in literatures

Authors	Title	Diversity	Frequency	With whom	Where	Preference	Value
1. Gregory (1983)	Occupational behavior and life satisfaction among retirees.	✓	✓	X	X	✓	X
2. 何麗芳(1992)	台北市老人休閒活動與生活滿意度研究	✓	X	X	X	X	X
3. Friedland et al. (2001)	Patients with Alzheimer's disease have reduced activities in midlife compared with healthy control-group members	✓	✓	X	X	X	X
4. Scarmeas et al. (2001)	Influence of leisure activity on the incidence of Alzheimer's disease	✓	X	X	X	X	X



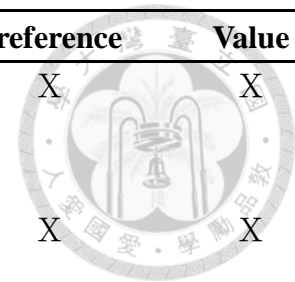
	Authors	Title	Diversity	Frequency	With whom	Where	Preference	Value
5.	Lennartsson & Silverstein (2001)	Does Engagement With Life Enhance Survival of Elderly People in Sweden? The Role of Social and Leisure Activities	X	✓	X	X	X	X
6.	Verghese et al. (2003)	Leisure activities and the risk of dementia in the elderly	X	✓	X	X	X	X
7.	Hyyppa et al. (2005)	Leisure participation predicts survival: a population-based study in Finland	X	✓	X	X	X	X
8.	Agahi et al. (2006)	Continuity of Leisure Participation From Middle Age to Old Age	✓	✓	X	X	X	X
9.	Nillson & Fisher(2006)	Evaluating leisure activities in the oldest old.	X	X	X	X	X	X



Authors	Title	Diversity	Frequency	With whom	Where	Preference	Value
10. Verghese et al. (2006)	Leisure Activities And The Risk of Amnestic Mild Cognitive Impairment In The Elderly	X	✓	X	X	X	X
11. 李維靈等人 (2007)	退休老人休閒活動 參與及其幸福感之 相關研究	X	✓	X	X	X	X
12. 陳俊宏、陳鎰明 (2008)	雲林縣獨居老人休 閒活動參與現況之 研究	X	✓	X	X	X	X
13. Chen & Fu (2008)	Leisure participation and enjoyment among the elderly: Individual characteristics and sociability	X	✓	X	X	✓	X
14. van der Meer (2008)	The sociospatial diversity in the leisure activities of older people in the Netherlands	✓	X	X	X	X	X



Authors	Title	Diversity	Frequency	With whom	Where	Preference	Value
15. Agahi & Parker(2008)	Leisure activities and mortality: does gender matter?	X	✓	X	X	X	X
16. Nummela et al. (2008)	Associations of self-rated health with different forms of leisure activities among ageing people.	X	✓	X	X	X	X
17. 林聰哲、李世昌 (2008)	南投縣老年人休閒參與、休閒利益與休閒滿意度之研究	X	✓	X	X	✓	X
18. Kielhofner (2008)	Model of Human Occupation: Theory and Application (Book) →“The modified Interest Checklist”	✓	X	X	X	X	X



Authors	Title	Diversity	Frequency	With whom	Where	Preference	Value
19. Pressman et al.(2009)	Association of Enjoyable Leisure Activities With Psychological and Physical Well-Being	X	✓	X	X	X	X
20. 李錦東、張峻嘉 (2009)	台中縣外埔鄉老農休閒偏好與休閒阻礙	X	✓	✓	X	X	X
21. 柳立偉、王嘉淳 (2009)	台灣兩大都市公立安養中心老人休閒參與、休閒動機與生活滿意度之研究	X	✓	X	X	X	X
22. 湯幸芬等人 (2010)	「老年休閒」：繪畫題材、休閒生活型態、動機與效益	✓	X	X	X	X	X
23. Minhat & Amin (2011)	Sociodemographic determinants of leisure participation among elderly in Malaysia	X	✓	X	X	X	X



Authors	Title	Diversity	Frequency	With whom	Where	Preference	Value
24. Herrera et al. (2011)	Emotional and cognitive health correlates of leisure activities in older Latino and Caucasian women.	X	✓	X	X	X	X
25. 黃淑貞(2011)	高雄市大樹區老人休閒參與其對生活滿意度調查	✓	✓	X	X	X	X
26. 盧俊吉等人 (2011)	高齡者社會支持、休閒活動與心理健康關係之研究	✓	X	X	X	X	X
27. 吳秀汝等人 (2012)	臺北縣三重市獨居老人參與休閒活動之調查研究	✓	✓	X	X	X	X
28. Iwasa et al.(2012)	Leisure activities and cognitive function in elderly community-dwelling individuals in Japan: A 5-year prospective cohort study	✓	✓	X	X	X	X



Authors	Title	Diversity	Frequency	With whom	Where	Preference	Value
29. 張俊一、許建民 (2012)	原住民老年人的休 閒參與及休閒阻礙	✓	✓	X	X	X	X
30. 陳祥慈(2012)	老年人參與休閒活 動對休閒活動參與 效益、生活品質與幸 福感之影響探討-以 臺中縣長青學苑為 例	✓	✓	✓	X	X	X
31. 莊婷婷(2013)	台灣地區老年人參 與休閒活動狀況與 影響因素之探討	✓	X	X	X	X	X
32. 李素箱等人 (2013)	臺中市中老年人休 閒參與、自我價值與 幸福感之研究	X	✓	X	X	X	X
33. Lee et al. (2014)	Leisure activity participation as predictor of quality of life in Korean urban-dwelling elderly	✓	✓	X	X	X	X

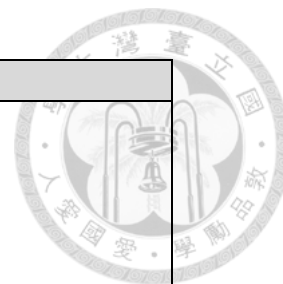


Authors	Title	Diversity	Frequency	With whom	Where	Preference	Value
34. Maselko et al.(2014)	The Contribution of Generative Leisure Activities to Cognitive Function among Sri Lankan Elderly	X	√	X	X	X	X
35. Morrow-Howell et al. (2014)	An Investigation of Activity Profiles of Older Adults.	X	X	X	X	X	X
36. Nilsson et al. (2015)	Leisure Engagement: Medical Conditions, Mobility Difficulties, and Activity Limitations—A Later Life Perspective	X	X	X	X	X	X
37. 陳肇堯(2015)	年長者休閒活動類型選擇影響因素之研究：以臺南地區為例	√	X	X	X	X	X



Appendix 2: Activity items of the LPQ

Activity items	
1.	與朋友、家人聚在一起
2.	參加社會團體、政治團體所舉辦的活動
3.	下棋打牌(包括使用電腦版)
4.	宗教活動
5.	擔任志工
6.	聊天(含與人面對面、使用手機/電話、電腦、平板電腦之聊天軟體)
7.	看電視/電影
8.	聽音樂/廣播
9.	看報章雜誌/書籍
10.	逛街購物(含購物中心、傳統市場)
11.	蒐集、剪貼報章雜誌、照片等
12.	園藝活動(含種菜)
13.	養寵物
14.	彈奏樂器/歌唱
15.	觀賞藝文表演/展覽(如音樂會、戲劇表演)
16.	藝術與書畫
17.	旅遊(包括一日遊與長途旅遊)
18.	手工藝(如裁縫拼布、織毛線、串珠、陶藝等)
19.	玩線上遊戲(如手機遊戲等)
20.	攝影、拍照
21.	太極拳/氣功等功夫
22.	跳舞類
23.	爬山健行
24.	散步
25.	跑步
26.	球類運動
27.	游泳
28.	去健身房、運動中心(含使用健身器材)
29.	參加社區大學、社區關懷據點、里民中心等單位所舉辦的活動
30.	使用 3C 產品(如：電腦、手機、平板電腦)
31.	學習外國語言



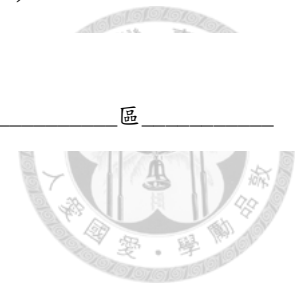
Appendix 3: Dimensions of the Leisure Participation Questionnaire

Dimensions		Ratings	
1.	有無參與(Diversity)	1	有
		2	無
2.	多久從事一次 (Frequency)	1	三個月一次
		2	兩個月一次
		3	一個月一次
		4	三周一一次
		5	兩周一一次
		6	一周一次
		7	一周 2-5 次
		8	一天一次
		9	一天多次
3.	通常跟誰一起參與 (With whom)	1	自己
		2	與父母、兄弟姊妹、配偶、(孫)子女
		3	與其他親戚
		4	與朋友
		5	其他人
4.	通常在哪從事 (Where)	1	在家
		2	在親戚家
		3	在朋友家
		4	30 分鐘內可到
		5	30 分鐘以上才可到
5.	您有多喜歡此活動 (Preference)	1	完全不喜歡
		2	有些不喜歡
		3	喜歡
		4	很喜歡
		5	非常喜歡
6.	您有多重視此活動 (Value)	1	完全不重視
		2	有些不重視
		3	重視
		4	很重視
		5	非常重視

Appendix 4: 老人休閒活動參與量表(Leisure Participation Questionnaire)

施測者：

收案地點：_____區_____



老人休閒活動參與量表

1. 填表日期：_____
2. 姓名：_____
3. 生日：_____年_____月_____日
4. 性別：男 女
5. 聯絡電話：_____
6. 教育程度：無 博士 碩士 學士 大專 高中/職 國中 國小
7. 目前居住狀況：獨居 與家人同住
8. 婚姻狀況：未婚/單身 已婚/同居 離婚/分居 喪偶 其他：_____
9. 經濟狀況：政府補助(中低收入戶) 政府補助(低收入戶) 1萬以下
1-2萬 2-3萬 3-4萬 4-5萬 5萬以上
10. 個人疾病史：

<input type="checkbox"/> 無	<input type="checkbox"/> 帕金森氏症	<input type="checkbox"/> 膽囊結石	<input type="checkbox"/> 失眠問題
<input type="checkbox"/> 心臟病	<input type="checkbox"/> 尿失禁	<input type="checkbox"/> 阻塞性肺病	<input type="checkbox"/> 憂鬱症
<input type="checkbox"/> 糖尿病	<input type="checkbox"/> 攝護腺肥大	<input type="checkbox"/> 支氣管炎	<input type="checkbox"/> 焦慮症
<input type="checkbox"/> 風濕性關節炎	<input type="checkbox"/> 胃食道逆流	<input type="checkbox"/> 肺氣腫	<input type="checkbox"/> 白內障
<input type="checkbox"/> 退化性關節炎	<input type="checkbox"/> 胃炎	<input type="checkbox"/> 氣喘	<input type="checkbox"/> 重聽
<input type="checkbox"/> 下背痛	<input type="checkbox"/> 十二指腸潰瘍	<input type="checkbox"/> 高血壓	
<input type="checkbox"/> 中風	<input type="checkbox"/> B、C型肝炎		

請先詳讀下列各項目活動，確認是否在過去3個月內從事過該活動，若有從事過請選擇“有”，並接下去圈選完成該項目活動的頻率(多久一次)、跟誰一起從事(可複選)、在哪些情境下從事(可複選)、有多喜歡該活動以及對該活動的重視程度。若未從事過該活動請選擇“沒有”，並跳過該項目的其他問題，繼續填答下一題。感謝您的填答!

題目1. 過去三個月中，您是否曾“與朋友、家人聚在一起”？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個月一次	2 兩個月一次	3 一個月一次	4 三周一次	5 兩周一次	6 一周一次	7 一周2-5次	8 一天一次	9 一天多次
通常跟誰一起參與 (可複選)	1 自己	2 與父母、兄弟、姊妹、配偶、(孫)子女	3 與其他親戚	4 與朋友	5 其他人				
通常在哪從事 (可複選)	1 在家	2 在親戚家	3 在朋友家	4 30分鐘內可到	5 30分鐘以上才可到				
您有多喜歡此活動 (單選)	1 完全不喜歡	2 有些不喜歡	3 喜歡	4 很喜歡	5 非常喜歡				
您有多重視此活動 (單選)	1 完全不重視	2 有些不重視	3 重視	4 很重視	5 非常重視				

題目2. 過去三個月中，您是否曾“參加社會團體、政治團體所舉辦的活動”？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個月一次	2 兩個月一次	3 一個月一次	4 三周一次	5 兩周一次	6 一周一次	7 一周2-5次	8 一天一次	9 一天多次
通常跟誰一起參與 (可複選)	1 自己	2 與父母、兄弟、姊妹、配偶、(孫)子女	3 與其他親戚	4 與朋友	5 其他人				
通常在哪從事 (可複選)	1 在家	2 在親戚家	3 在朋友家	4 30分鐘內可到	5 30分鐘以上才可到				
您有多喜歡此活動 (單選)	1 不喜歡	2 有些不喜歡	3 喜歡	4 很喜歡	5 非常喜歡				
您有多重視此活動 (單選)	1 完全不重視	2 有些不重視	3 重視	4 很重視	5 非常重視				

題目3. 過去三個月中，您是否曾“下棋打牌(包括使用電腦版)”？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個 月一 次	2 兩個 月一 次	3 一個 月一 次	4 三周 一次	5 兩周 一次	6 一周 一次	7 一周 2-5次	8 一天 一次	9 一天 多次
通常跟誰一起 參與(可複選)	1 自己	2 與父母、兄弟 姊妹、配偶、 (孫)子女	3 與其他親戚	4 與朋友	5 其他人				
通常在哪從事 (可複選)	1 在家	2 在親戚家	3 在朋友家	4 30分鐘內可到	5 30分鐘以上才 可到				
您有多喜歡此 活動(單選)	1 不喜歡	2 有些不喜歡	3 喜歡	4 很喜歡	5 非常喜歡				
您有多重視此 活動(單選)	1 完全不重視	2 有些不重視	3 重視	4 很重視	5 非常重視				

題目4. 過去三個月中，您是否曾參加“宗教活動”？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個 月一 次	2 兩個 月一 次	3 一個 月一 次	4 三周 一次	5 兩周 一次	6 一周 一次	7 一周 2-5次	8 一天 一次	9 一天 多次
通常跟誰一起 參與 (可複選)	1 自己	2 與父母、兄弟 姊妹、配偶、 (孫)子女	3 與其他親戚	4 與朋友	5 其他人				
通常在哪從事 (可複選)	1 在家	2 在親戚家	3 在朋友家	4 30分鐘內可到	5 30分鐘以上才 可到				
您有多喜歡此 活動 (單選)	1 不喜歡	2 有些不喜歡	3 喜歡	4 很喜歡	5 非常喜歡				
您有多重視此 活動 (單選)	1 完全不重視	2 有些不重視	3 重視	4 很重視	5 非常重視				

題目5. 過去三個月中，您是否曾“擔任志工”？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個月一次	2 兩個月一次	3 一個月一次	4 三周一次	5 兩周一次	6 一周一次	7 一周2-5次	8 一天一次	9 一天多次
通常跟誰一起參與 (可複選)	1 自己	2 與父母、兄弟姊妹、配偶、(孫)子女	3 與其他親戚	4 與朋友	5 其他人				
通常在哪從事 (可複選)	1 在家	2 在親戚家	3 在朋友家	4 30分鐘內可到	5 30分鐘以上才可到				
您有多喜歡此活動 (單選)	1 不喜歡	2 有些不喜歡	3 喜歡	4 很喜歡	5 非常喜歡				
您有多重視此活動 (單選)	1 完全不重視	2 有些不重視	3 重視	4 很重視	5 非常重視				

題目6. 過去三個月中，您是否曾“看電視/電影”？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個月一次	2 兩個月一次	3 一個月一次	4 三周一次	5 兩周一次	6 一周一次	7 一周2-5次	8 一天一次	9 一天多次
通常跟誰一起參與 (可複選)	1 自己	2 與父母、兄弟姊妹、配偶、(孫)子女	3 與其他親戚	4 與朋友	5 其他人				
通常在哪從事 (可複選)	1 在家	2 在親戚家	3 在朋友家	4 30分鐘內可到	5 30分鐘以上才可到				
您有多喜歡此活動 (單選)	1 不喜歡	2 有些不喜歡	3 喜歡	4 很喜歡	5 非常喜歡				
您有多重視此活動 (單選)	1 完全不重視	2 有些不重視	3 重視	4 很重視	5 非常重視				

題目7. 過去三個月中，您是否曾“聊天(含與人面對面、使用手機/電話、電腦、平板電腦之聊天軟體)”？ <input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個月一次	2 兩個月一次	3 一個月一次	4 三周一次	5 兩周一次	6 一周一次	7 一周2-5次	8 一天一次	9 一天多次
通常跟誰一起參與 (可複選)	1 自己	2 與父母、兄弟姊妹、配偶、(孫)子女	3 與其他親戚	4 與朋友	5 其他人				
通常在哪從事 (可複選)	1 在家	2 在親戚家	3 在朋友家	4 30分鐘內可到	5 30分鐘以上才可到				
您有多喜歡此活動 (單選)	1 不喜歡	2 有些不喜歡	3 喜歡	4 很喜歡	5 非常喜歡				
您有多重視此活動 (單選)	1 完全不重視	2 有些不重視	3 重視	4 很重視	5 非常重視				

題目8. 過去三個月中，您是否曾“聽音樂/廣播”？ <input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個月一次	2 兩個月一次	3 一個月一次	4 三周一次	5 兩周一次	6 一周一次	7 一周2-5次	8 一天一次	9 一天多次
通常跟誰一起參與 (可複選)	1 自己	2 與父母、兄弟姊妹、配偶、(孫)子女	3 與其他親戚	4 與朋友	5 其他人				
通常在哪從事 (可複選)	1 在家	2 在親戚家	3 在朋友家	4 30分鐘內可到	5 30分鐘以上才可到				
您有多喜歡此活動 (單選)	1 不喜歡	2 有些不喜歡	3 喜歡	4 很喜歡	5 非常喜歡				
您有多重視此活動 (單選)	1 完全不重視	2 有些不重視	3 重視	4 很重視	5 非常重視				

題目9. 過去三個月中，您是否曾“看報章雜誌/書籍”？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個 月一 次	2 兩個 月一 次	3 一個 月一 次	4 三周 一次	5 兩周 一次	6 一周 一次	7 一周 2-5次	8 一天 一次	9 一天 多次
通常跟誰一起 參與 (可複選)	1 自己		2 與父母、兄弟 姊妹、配偶、 (孫)子女		3 與其他親戚		4 與朋友		5 其他人
通常在哪從事 (可複選)	1 在家		2 在親戚家		3 在朋友家		4 30分鐘內可到		5 30分鐘以上才 可到
您有多喜歡此 活動 (單選)	1 不喜歡		2 有些不喜歡		3 喜歡		4 很喜歡		5 非常喜歡
您有多重視此 活動 (單選)	1 完全不重視		2 有些不重視		3 重視		4 很重視		5 非常重視

題目10. 過去三個月中，您是否曾“逛街購物(含購物中心、傳統市場)”？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個 月一 次	2 兩個 月一 次	3 一個 月一 次	4 三周 一次	5 兩周 一次	6 一周 一次	7 一周 2-5次	8 一天 一次	9 一天 多次
通常跟誰一起 參與 (可複選)	1 自己		2 與父母、兄弟 姊妹、配偶、 (孫)子女		3 與其他親戚		4 與朋友		5 其他人
通常在哪從事 (可複選)	1 在家		2 在親戚家		3 在朋友家		4 30分鐘內可到		5 30分鐘以上才 可到
您有多喜歡此 活動 (單選)	1 不喜歡		2 有些不喜歡		3 喜歡		4 很喜歡		5 非常喜歡
您有多重視此 活動 (單選)	1 完全不重視		2 有些不重視		3 重視		4 很重視		5 非常重視

題目11. 過去三個月中，您是否曾“蒐集、剪貼報章雜誌、照片等”？ <input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個月一次	2 兩個月一次	3 一個月一次	4 三周一次	5 兩周一次	6 一周一次	7 一周2-5次	8 一天一次	9 一天多次
通常跟誰一起 參與 (可複選)	1 自己	2 與父母、兄弟 姊妹、配偶、 (孫)子女	3 與其他親戚	4 與朋友	5 其他人				
通常在哪從事 (可複選)	1 在家	2 在親戚家	3 在朋友家	4 30分鐘內可到	5 30分鐘以上才可到				
您有多喜歡此 活動 (單選)	1 不喜歡	2 有些不喜歡	3 喜歡	4 很喜歡	5 非常喜歡				
您有多重視此 活動 (單選)	1 完全不重視	2 有些不重視	3 重視	4 很重視	5 非常重視				

題目12. 過去三個月中，您是否有進行“園藝活動(含種菜)”？ <input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個月一次	2 兩個月一次	3 一個月一次	4 三周一次	5 兩周一次	6 一周一次	7 一周2-5次	8 一天一次	9 一天多次
通常跟誰一起 參與 (可複選)	1 自己	2 與父母、兄弟 姊妹、配偶、 (孫)子女	3 與其他親戚	4 與朋友	5 其他人				
通常在哪從事 (可複選)	1 在家	2 在親戚家	3 在朋友家	4 30分鐘內可到	5 30分鐘以上才可到				
您有多喜歡此 活動 (單選)	1 不喜歡	2 有些不喜歡	3 喜歡	4 很喜歡	5 非常喜歡				
您有多重視此 活動 (單選)	1 完全不重視	2 有些不重視	3 重視	4 很重視	5 非常重視				

題目13. 過去三個月中，您是否有“養寵物”？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個 月一 次	2 兩個 月一 次	3 一個 月一 次	4 三周 一次	5 兩周 一次	6 一周 一次	7 一周 2-5次	8 一天 一次	9 一天 多次
通常跟誰一起 參與 (可複選)	1 自己	2 與父母、兄弟 姊妹、配偶、 (孫)子女	3 與其他親戚	4 與朋友	5 其他人				
通常在哪從事 (可複選)	1 在家	2 在親戚家	3 在朋友家	4 30分鐘內可到	5 30分鐘以上才 可到				
您有多喜歡此 活動 (單選)	1 不喜歡	2 有些不喜歡	3 喜歡	4 很喜歡	5 非常喜歡				
您有多重視此 活動 (單選)	1 完全不重視	2 有些不重視	3 重視	4 很重視	5 非常重視				

題目14. 過去三個月中，您是否曾“彈奏樂器/歌唱”？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個 月一 次	2 兩個 月一 次	3 一個 月一 次	4 三周 一次	5 兩周 一次	6 一周 一次	7 一周 2-5次	8 一天 一次	9 一天 多次
通常跟誰一起 參與 (可複選)	1 自己	2 與父母、兄弟 姊妹、配偶、 (孫)子女	3 與其他親戚	4 與朋友	5 其他人				
通常在哪從事 (可複選)	1 在家	2 在親戚家	3 在朋友家	4 30分鐘內可到	5 30分鐘以上才 可到				
您有多喜歡此 活動 (單選)	1 不喜歡	2 有些不喜歡	3 喜歡	4 很喜歡	5 非常喜歡				
您有多重視此 活動 (單選)	1 完全不重視	2 有些不重視	3 重視	4 很重視	5 非常重視				

題目15. 過去三個月中，您是否曾“觀賞藝文表演/展覽(如音樂會、戲劇表演)”？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個月一次	2 兩個月一次	3 一個月一次	4 三周一次	5 兩周一次	6 一周一次	7 一周2-5次	8 一天一次	9 一天多次
通常跟誰一起參與 (可複選)	1 自己	2 與父母、兄弟姊妹、配偶、(孫)子女			3 與其他親戚		4 與朋友	5 其他人	
通常在哪從事 (可複選)	1 在家		2 在親戚家		3 在朋友家		4 30分鐘內可到	5 30分鐘以上才可到	
您有多喜歡此活動 (單選)	1 不喜歡		2 有些不喜歡		3 喜歡		4 很喜歡	5 非常喜歡	
您有多重視此活動 (單選)	1 完全不重視		2 有些不重視		3 重視		4 很重視	5 非常重視	

題目16. 過去三個月中，您是否曾從事“藝術與書畫”活動？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個月一次	2 兩個月一次	3 一個月一次	4 三周一次	5 兩周一次	6 一周一次	7 一周2-5次	8 一天一次	9 一天多次
通常跟誰一起參與 (可複選)	1 自己	2 與父母、兄弟姊妹、配偶、(孫)子女			3 與其他親戚		4 與朋友	5 其他人	
通常在哪從事 (可複選)	1 在家		2 在親戚家		3 在朋友家		4 30分鐘內可到	5 30分鐘以上才可到	
您有多喜歡此活動 (單選)	1 不喜歡		2 有些不喜歡		3 喜歡		4 很喜歡	5 非常喜歡	
您有多重視此活動 (單選)	1 完全不重視		2 有些不重視		3 重視		4 很重視	5 非常重視	

題目17. 過去三個月中，您是否曾去“旅遊(包括一日遊與長途旅遊)”？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個 月一 次	2 兩個 月一 次	3 一個 月一 次	4 三周 一次	5 兩周 一次	6 一周 一次	7 一周 2-5次	8 一天 一次	9 一天 多次
通常跟誰一起 參與 (可複選)	1 自己	2 與父母、兄弟 姊妹、配偶、 (孫)子女	3 與其他親戚	4 與朋友	5 其他人				
通常在哪從事 (可複選)	1 在家	2 在親戚家	3 在朋友家	4 30分鐘內可到	5 30分鐘以上才 可到				
您有多喜歡此 活動 (單選)	1 不喜歡	2 有些不喜歡	3 喜歡	4 很喜歡	5 非常喜歡				
您有多重視此 活動 (單選)	1 完全不重視	2 有些不重視	3 重視	4 很重視	5 非常重視				

題目18. 過去三個月中，您是否曾製作“手工藝(如裁縫拼布、織毛線、串珠、陶藝等)”？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個 月一 次	2 兩個 月一 次	3 一個 月一 次	4 三周 一次	5 兩周 一次	6 一周 一次	7 一周 2-5次	8 一天 一次	9 一天 多次
通常跟誰一起 參與 (可複選)	1 自己	2 與父母、兄弟 姊妹、配偶、 (孫)子女	3 與其他親戚	4 與朋友	5 其他人				
通常在哪從事 (可複選)	1 在家	2 在親戚家	3 在朋友家	4 30分鐘內可到	5 30分鐘以上才 可到				
您有多喜歡此 活動 (單選)	1 不喜歡	2 有些不喜歡	3 喜歡	4 很喜歡	5 非常喜歡				
您有多重視此 活動 (單選)	1 完全不重視	2 有些不重視	3 重視	4 很重視	5 非常重視				

題目19. 過去三個月中，您是否曾“玩線上遊戲(如手機遊戲等)”？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個月一次	2 兩個月一次	3 一個月一次	4 三周一次	5 兩周一次	6 一周一次	7 一周2-5次	8 一天一次	9 一天多次
通常跟誰一起參與 (可複選)	1 自己	2 與父母、兄弟姊妹、配偶、(孫)子女	3 與其他親戚	4 與朋友	5 其他人				
通常在哪從事 (可複選)	1 在家	2 在親戚家	3 在朋友家	4 30分鐘內可到	5 30分鐘以上才可到				
您有多喜歡此活動 (單選)	1 不喜歡	2 有些不喜歡	3 喜歡	4 很喜歡	5 非常喜歡				
您有多重視此活動 (單選)	1 完全不重視	2 有些不重視	3 重視	4 很重視	5 非常重視				

題目20. 過去三個月中，您是否曾參加“太極拳/氣功等功夫”？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個月一次	2 兩個月一次	3 一個月一次	4 三周一次	5 兩周一次	6 一周一次	7 一周2-5次	8 一天一次	9 一天多次
通常跟誰一起參與 (可複選)	1 自己	2 與父母、兄弟姊妹、配偶、(孫)子女	3 與其他親戚	4 與朋友	5 其他人				
通常在哪從事 (可複選)	1 在家	2 在親戚家	3 在朋友家	4 30分鐘內可到	5 30分鐘以上才可到				
您有多喜歡此活動 (單選)	1 不喜歡	2 有些不喜歡	3 喜歡	4 很喜歡	5 非常喜歡				
您有多重視此活動 (單選)	1 完全不重視	2 有些不重視	3 重視	4 很重視	5 非常重視				

題目21. 過去三個月中，您是否曾參加“跳舞類”活動？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個 月一 次	2 兩個 月一 次	3 一個 月一 次	4 三周 一次	5 兩周 一次	6 一周 一次	7 一周 2-5次	8 一天 一次	9 一天 多次
通常跟誰一起 參與 (可複選)	1 自己		2 與父母、兄弟 姊妹、配偶、 (孫)子女		3 與其他親戚		4 與朋友		5 其他人
通常在哪從事 (可複選)	1 在家		2 在親戚家		3 在朋友家		4 30分鐘內可到		5 30分鐘以上才 可到
您有多喜歡此 活動 (單選)	1 不喜歡		2 有些不喜歡		3 喜歡		4 很喜歡		5 非常喜歡
您有多重視此 活動 (單選)	1 完全不重視		2 有些不重視		3 重視		4 很重視		5 非常重視

題目22. 過去三個月中，您是否曾去“爬山健行”？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個 月一 次	2 兩個 月一 次	3 一個 月一 次	4 三周 一次	5 兩周 一次	6 一周 一次	7 一周 2-5次	8 一天 一次	9 一天 多次
通常跟誰一起 參與 (可複選)	1 自己		2 與父母、兄弟 姊妹、配偶、 (孫)子女		3 與其他親戚		4 與朋友		5 其他人
通常在哪從事 (可複選)	1 在家		2 在親戚家		3 在朋友家		4 30分鐘內可到		5 30分鐘以上才 可到
您有多喜歡此 活動 (單選)	1 不喜歡		2 有些不喜歡		3 喜歡		4 很喜歡		5 非常喜歡
您有多重視此 活動 (單選)	1 完全不重視		2 有些不重視		3 重視		4 很重視		5 非常重視

題目23. 過去三個月中，您是否曾去“散步”？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個月一次	2 兩個月一次	3 一個月一次	4 三周一次	5 兩周一次	6 一周一次	7 一周2-5次	8 一天一次	9 一天多次
通常跟誰一起參與 (可複選)	1 自己	2 與父母、兄弟、姊妹、配偶、(孫)子女	3 與其他親戚	4 與朋友	5 其他人				
通常在哪從事 (可複選)	1 在家	2 在親戚家	3 在朋友家	4 30分鐘內可到	5 30分鐘以上才可到				
您有多喜歡此活動 (單選)	1 不喜歡	2 有些不喜歡	3 喜歡	4 很喜歡	5 非常喜歡				
您有多重視此活動 (單選)	1 完全不重視	2 有些不重視	3 重視	4 很重視	5 非常重視				

題目24. 過去三個月中，您是否曾去“跑步”？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個月一次	2 兩個月一次	3 一個月一次	4 三周一次	5 兩周一次	6 一周一次	7 一周2-5次	8 一天一次	9 一天多次
通常跟誰一起參與 (可複選)	1 自己	2 與父母、兄弟、姊妹、配偶、(孫)子女	3 與其他親戚	4 與朋友	5 其他人				
通常在哪從事 (可複選)	1 在家	2 在親戚家	3 在朋友家	4 30分鐘內可到	5 30分鐘以上才可到				
您有多喜歡此活動 (單選)	1 不喜歡	2 有些不喜歡	3 喜歡	4 很喜歡	5 非常喜歡				
您有多重視此活動 (單選)	1 完全不重視	2 有些不重視	3 重視	4 很重視	5 非常重視				

題目25. 過去三個月中，您是否曾參加“球類運動”？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個月一次	2 兩個月一次	3 一個月一次	4 三周一次	5 兩周一次	6 一周一次	7 一周2-5次	8 一天一次	9 一天多次
通常跟誰一起參與 (可複選)	1 自己		2 與父母、兄弟姊妹、配偶、(孫)子女		3 與其他親戚		4 與朋友		5 其他人
通常在哪從事 (可複選)	1 在家		2 在親戚家		3 在朋友家		4 30分鐘內可到		5 30分鐘以上才可到
您有多喜歡此活動 (單選)	1 不喜歡		2 有些不喜歡		3 喜歡		4 很喜歡		5 非常喜歡
您有多重視此活動 (單選)	1 完全不重視		2 有些不重視		3 重視		4 很重視		5 非常重視

題目26. 過去三個月中，您是否曾去“游泳”？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個月一次	2 兩個月一次	3 一個月一次	4 三周一次	5 兩周一次	6 一周一次	7 一周2-5次	8 一天一次	9 一天多次
通常跟誰一起參與 (可複選)	1 自己		2 與父母、兄弟姊妹、配偶、(孫)子女		3 與其他親戚		4 與朋友		5 其他人
通常在哪從事 (可複選)	1 在家		2 在親戚家		3 在朋友家		4 30分鐘內可到		5 30分鐘以上才可到
您有多喜歡此活動 (單選)	1 不喜歡		2 有些不喜歡		3 喜歡		4 很喜歡		5 非常喜歡
您有多重視此活動 (單選)	1 完全不重視		2 有些不重視		3 重視		4 很重視		5 非常重視

題目27. 過去三個月中，您是否有“去健身房、運動中心(含使用健身器材)”？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個月一次	2 兩個月一次	3 一個月一次	4 三周一次	5 兩周一次	6 一周一次	7 一周2-5次	8 一天一次	9 一天多次
通常跟誰一起參與 (可複選)	1 自己	2 與父母、兄弟姊妹、配偶、(孫)子女	3 與其他親戚	4 與朋友	5 其他人				
通常在哪從事 (可複選)	1 在家	2 在親戚家	3 在朋友家	4 30分鐘內可到	5 30分鐘以上才可到				
您有多喜歡此活動 (單選)	1 不喜歡	2 有些不喜歡	3 喜歡	4 很喜歡	5 非常喜歡				
您有多重視此活動 (單選)	1 完全不重視	2 有些不重視	3 重視	4 很重視	5 非常重視				

題目28. 過去三個月中，您是否曾“攝影、拍照”？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個月一次	2 兩個月一次	3 一個月一次	4 三周一次	5 兩周一次	6 一周一次	7 一周2-5次	8 一天一次	9 一天多次
通常跟誰一起參與 (可複選)	1 自己	2 與父母、兄弟姊妹、配偶、(孫)子女	3 與其他親戚	4 與朋友	5 其他人				
通常在哪從事 (可複選)	1 在家	2 在親戚家	3 在朋友家	4 30分鐘內可到	5 30分鐘以上才可到				
您有多喜歡此活動 (單選)	1 不喜歡	2 有些不喜歡	3 喜歡	4 很喜歡	5 非常喜歡				
您有多重視此活動 (單選)	1 完全不重視	2 有些不重視	3 重視	4 很重視	5 非常重視				

題目 29. 過去三個月中，您是否曾“參加社區大學、社區關懷據點、里民中心等單位所舉辦的活動”？

有(請繼續作答)

沒有(請跳下一題作答)

多久從事一次 (單選)	1 三個月一次	2 兩個月一次	3 一個月一次	4 三周一次	5 兩周一次	6 一周一次	7 一周 2-5次	8 一天一次	9 一天多次
通常跟誰一起參與 (可複選)	1 自己	2 與父母、兄弟姊妹、配偶、(孫)子女	3 與其他親戚	4 與朋友	5 其他人				
通常在哪從事 (可複選)	1 在家	2 在親戚家	3 在朋友家	4 30分鐘內可到	5 30分鐘以上才可到				
您有多喜歡此活動 (單選)	1 不喜歡	2 有些不喜歡	3 喜歡	4 很喜歡	5 非常喜歡				
您有多重視此活動 (單選)	1 完全不重視	2 有些不重視	3 重視	4 很重視	5 非常重視				

題目 30. 過去三個月中，您是否曾“使用 3C 產品(如：電腦、手機、平板電腦)？”

有(請繼續作答)

沒有(請跳下一題作答)

多久從事一次 (單選)	1 三個月一次	2 兩個月一次	3 一個月一次	4 三周一次	5 兩周一次	6 一周一次	7 一周 2-5次	8 一天一次	9 一天多次
通常跟誰一起參與 (可複選)	1 自己	2 與父母、兄弟姊妹、配偶、(孫)子女	3 與其他親戚	4 與朋友	5 其他人				
通常在哪從事 (可複選)	1 在家	2 在親戚家	3 在朋友家	4 30分鐘內可到	5 30分鐘以上才可到				
您有多喜歡此活動 (單選)	1 不喜歡	2 有些不喜歡	3 喜歡	4 很喜歡	5 非常喜歡				
您有多重視此活動 (單選)	1 完全不重視	2 有些不重視	3 重視	4 很重視	5 非常重視				

題目31. 過去三個月中，您是否曾“學習外國語言”？									
<input type="checkbox"/> 有(請繼續作答) <input type="checkbox"/> 沒有(請跳下一題作答)									
多久從事一次 (單選)	1 三個 月一 次	2 兩個 月一 次	3 一個 月一 次	4 三周 一次	5 兩周 一次	6 一周 一次	7 一周 2-5次	8 一天 一次	9 一天 多次
通常跟誰一起 參與 (可複選)	1 自己	2 與父母、兄弟 姊妹、配偶、 (孫)子女	3 與其他親戚	4 與朋友	5 其他人				
通常在哪從事 (可複選)	1 在家	2 在親戚家	3 在朋友家	4 30分鐘內可到	5 30分鐘以上才 可到				
您有多喜歡此 活動 (單選)	1 不喜歡	2 有些不喜歡	3 喜歡	4 很喜歡	5 非常喜歡				
您有多重視此 活動 (單選)	1 完全不重視	2 有些不重視	3 重視	4 很重視	5 非常重視				

題目32. 若您平時所做的活動不包括在以上活動中，請填寫此題。過去三個月中，您是否曾從事“_____”活動？									
多久從事一次 (單選)	1 三個 月一 次	2 兩個 月一 次	3 一個 月一 次	4 三周 一次	5 兩周 一次	6 一周 一次	7 一周 2-5次	8 一天 一次	9 一天 多次
通常跟誰一起 參與 (可複選)	1 自己	2 與父母、兄弟 姊妹、配偶、 (孫)子女	3 與其他親戚	4 與朋友	5 其他人				
通常在哪從事 (可複選)	1 在家	2 在親戚家	3 在朋友家	4 30分鐘內可到	5 30分鐘以上才 可到				
您有多喜歡此 活動 (單選)	1 不喜歡	2 有些不喜歡	3 喜歡	4 很喜歡	5 非常喜歡				
您有多重視此 活動 (單選)	1 完全不重視	2 有些不重視	3 重視	4 很重視	5 非常重視				

Appendix 5: 加拿大臨床衰弱量表中文面訪版 (Canadian study of health and aging clinical frailty scale (CSHA-CFS) Chinese in-person interview version)

加拿大臨床衰弱量表中文面訪版 (CSHA-CFA)			
請教您以下幾個日常生活中的活動，您是否需要別人的幫忙才能完成？			
1-否	2-是	No.	Description
<input type="checkbox"/>	<input type="checkbox"/>	ADL(1)	吃飯(用餐/進食)
<input type="checkbox"/>	<input type="checkbox"/>	ADL(2)	穿脫衣服
<input type="checkbox"/>	<input type="checkbox"/>	ADL(3)	上下床
<input type="checkbox"/>	<input type="checkbox"/>	ADL(4)	上廁所
<input type="checkbox"/>	<input type="checkbox"/>	ADL(5)	洗澡
<input type="checkbox"/>	₁ 只要 ADL(1)-(5)至少有一題答「是」且至少有一題答「否」，就跳到 IADL (1) ₂ 若 ADL(1)-(5)全答「是」，衰弱等級為第 7 級，停止詢問且排除 ₃ ADL(1)-(5)全答「否」，亦繼續詢問 IADL (1)		
加拿大臨床衰弱量表中文面訪版 (CSHA-CFA)			
1-否	2-是	No.	Description
<input type="checkbox"/>	<input type="checkbox"/>	IADL(1)	您是否需要別人的幫忙上街買菜、買東西(購物)？
<input type="checkbox"/>	<input type="checkbox"/>	IADL(2)	您是否需要別人的幫忙服用藥物？
<input type="checkbox"/>	<input type="checkbox"/>	IADL(3)	您是否需要別人的幫忙打電話處理事物？
<input type="checkbox"/>	<input type="checkbox"/>	IADL(4)	您是否需要別人的幫忙處理理財(如：到銀行辦事) 事宜？
<input type="checkbox"/>	<input type="checkbox"/>	IADL(5)	您是否需要別人的幫忙處理外出交通(如：能自行搭公車、自行開車、自行騎車)？
<input type="checkbox"/>	<input type="checkbox"/>	IADL(6)	您是否需要別人的幫忙準備三餐？
<input type="checkbox"/>	<input type="checkbox"/>	IADL(7)	您是否需要別人的幫忙做簡單的家事(如：擦桌子、洗碗、整理家裡)？
<input type="checkbox"/>	<input type="checkbox"/>	IADL(8)	您是否需要別人的幫忙處理洗衣工作？
若 IADL (1)-(8)有一題答「是」即停止，並配合 ADL 的答案決定個案的衰弱等級並邀請進入第二階段篩檢至醫院做進一步檢查：			
<input type="checkbox"/>	₁ 若 IADL 至少有一題為「是」，且 ADL 至少有一題為「是」，衰弱等級為第 6 級 ₂ 若 IADL 皆為「否」，但 ADL 至少有一項為「是」，衰弱等級為第 6* 級 ₃ 若 IADL 至少有一題為「是」，但 ADL 皆「否」，衰弱等級為第 5 級 ₄ 若 IADL 全為「否」則進入下一題篩檢		
1-否	2-是	No.	Description
<input type="checkbox"/>	<input type="checkbox"/>	02	您最近有覺得行動變慢嗎？ Yes→ ₄ <input type="checkbox"/> 衰弱等級為第 4 級邀請進入第二階段篩檢至醫院做進一步檢查
<input type="checkbox"/>	<input type="checkbox"/>	03(1)	您目前是否有慢性病在接受治療？ No→直接進入第 04 題
<input type="checkbox"/>	<input type="checkbox"/>	03(2)	那這個(些)慢性病症狀控制得好嗎？ 03 (1) 答「Yes」， 03(2) 答「No」者，→ ₄ <input type="checkbox"/> 衰弱等級為第 4 級，邀請進入第二階段篩檢至醫院做進一步檢查 03 (1) (2) 皆答「Yes」者→ ₃ <input type="checkbox"/> 衰弱等級為第 3 級，邀請進入第二階段篩檢至醫院做進一步檢查
<input type="checkbox"/>	<input type="checkbox"/>	04	您覺得您的體力是否比同年齡的人好？ No → ₂ <input type="checkbox"/> 衰弱等級為第 2 級，排除 Yes→ ₁ <input type="checkbox"/> 衰弱等級為第 1 級，排除
<input type="checkbox"/>	05	衰弱等級判定為 ₁ 第 1 級 ₂ 第 2 級 ₃ 第 3 級 ₄ 第 4 級 ₅ 第 5 級 ₆ 第 6 級 ₇ 第 6* 級 ₈ 第 7 級	