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Decision Making on Institutionalization Based on Resources, Cultural Differences and Personal Preferences

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Abstract

Singapore is ageing at a much faster rate compared to other countries, yet, little is known about Advance Care Planning (ACP) in the elderly. This discussion is based on a review of Singapore's long term elder care services, informal caregiving, advance care planning and related discussion. The survey was also conducted on 69 Singaporean respondents and suggested that filial piety might not be diminished in younger generations of Singaporean respondents. Changes to the demographics pose a challenge to the sustainability of filial piety. High age-dependent ratio translates to higher caregiver burden. With less siblings to shoulder caregiving responsibilities, Singaporeans' expression of filial piety may be altered and this is evident in the reliance on paid informal care such as foreign domestic workers (FDWs). With the support from FDWs and other professional home care services, institutionalization may then be a last resort. There are several unique factors which shape the elder care landscape through the government's "many helping hands" policy, cultural differences among the races, and the heavy reliance on FDWs to provide paid stay-in elder care. Using the case of Singapore, we argue that the decision for institutionalization cannot be easily made by rational reasons but are constrained by unique cultural factors. The decision on institutionalization should also be based on individual preferences and articulated through ACP. This paper explores the use of ACP in factoring the healthcare preferences of the elder and proposes a model of decision making regarding institutionalization should ACP be absent. (245 words)

Keywords: Caregiving, Institutionalization, Advance Care Planning, Filial Piety, Foreign Domestic Workers,



1. <u>Introduction</u>

The World Health Organisation (WHO) defines Long Term Care (LTC) as the provision of care services to help chronically ill and functionally disabled people maintain a good quality of life with the highest degree of independence, personal fulfilment and dignity by combining medical, nursing and social services.

Singapore is aging rapidly. The percentage of citizens aged 65+ is estimated to double from 12.4% in 2014 to 24.0% in 2030, rising to more than 30% in 2050 and at a much faster rate compared to Japan or the U.S. Singapore will take only 27 years to transition from an 'ageing society' in 1999 (7% seniors) to a 'super-aged society' (20% seniors) in 2026,(Tan Teck Boon, 2015) much faster than Japan, China, Germany and the United States, which took or will take 36, 32, 76 and 86 years to make that transition respectively.(East Asia Forum, 2015). As such, the large multi-generation families in Singapore with intrinsic elder care support has declined rapidly. There is now an increasing presence of dual income working couples, singles, divorcees, childless married couples and small nuclear families in Singapore, means that greater support services is needed when adult children are unavailable.

In addition, the number of semi-ambulant or non-ambulant elders in Singapore is projected to triple from 44,600 in 2010 to 132,000 in 2030¹. These elders would require assistance in their activities of daily living (ADL). Furthermore, the number of Singapore elders aged 65 and above who live alone has nearly tripled from 14,500 in 2000, to 42,100 in 2014^2 . These factors mean that the demand for long-term care will be met by non-familial means, even though the Singapore government is aware that many seniors prefer to live at home³. The Singapore government adopts the "many helping hands" approach, which comprises three tiers of assistance (self, community, state) and relies heavily on the Asian concept of filial piety to support seniors. In line with Singapore's "many helping hands" approach, the government funds Voluntary Welfare Organisations (usually set up by religious organisations or by charity groups) to provide services for long term care of elders, rather than the government being the direct provider. Elders needing long-term care services can be broadly classified under residential or nonresidential services. Institutionalization of elders can be considered as residential services that cater to seniors who are unable to care for themselves or cannot be cared for in their own homes.

Non-institutionalised and non-residential long-term care services for elders consist of:

- a. Home-based services and
- b. Center based services.

Home-based services include nursing care, personal care, home therapy, meals services and escort services.

¹ Source: Department of Statistics Consensus 2010

² Tai, J., 2015 Old and home alone in Singapore, Straits Times, published on 17 Aug 2015

³ Aging Planning office, Ministry of Health, Write up on Singapore's long-term care system, The 12 ASEAN and Japan High level officials meeting on caring societies, 21 – 23 Oct 2014

Centre-based care services cater to elders who require care services in the day while their caregivers are at work. These centers are mostly located within the community and close to the elder's home. Centre-based services include rehabilitation services, dementia care services and day care services.

Residential or institutionalized care services include nursing homes, community hospitals, chronic sick hospitals and inpatient hospice care.

The government is ramping up long term care by increasing beds in nursing homes from 10,968 in 2014 to 13,022 in 2016. Non-residential care support has also increased from 14 home care providers and 5 home palliative care providers in 2014 to 21 home care providers and 7 home palliative care providers in 2016.⁴

The government is focusing on strengthening home and community care support to help elders avoid institutionalization. This is evident in the planned 195% increase in community care places from 3,500 a day in 2011 to 6,2000 per day in 2020 and another 163% planned increase of home care places from 6,900 home care places in 2015 to 10,000 home care places in 2020.

2. <u>Literature review</u>

2.1 Institutionalization of elders appear to go against the grain of filial piety

Often, when families decide on institutionalization, there are many practical factors to consider. While upholding the individuals' values of dignity, personal fulfilment and independence are ideal, availability of resources is an important factor, and possibly an overriding factor to consider in the decision-making process leading to institutionalization.

However, in the case of Singapore, decision-making on institutionalization is not straightforward and there seems to be a tension between pragmatic considerations of costs and available resources, against the traditional Asian value of filial piety. Filial piety is a strongly internalized concept based on social expectations. It can be broadly defined as a value which seeks to honor parents, particularly in the form of showing them gratitude by taking care of them in old age.

According to a national survey conducted in Singapore in 2011, majority of the elderly population expected their children to support them and rely on the notion of filial piety as a form of tacit "social contract". In another survey conducted by the Institute of Policy Studies for Singapore Perspectives in 2018, it was found that "family" was ranked as first in line to take care of the elders, while "government" was ranked as second in line to take care of elders. There seems to be a disconnect between Singaporeans' expectations and

⁴ Chan, A., Ostbye, T., Malhotra, R. and Hu, J. (2012). Survey on Informal Caregiving: Summary Report for the Ministry of Community Development, Youth and Sports. Singapore: MCYS. Available from https://www.msf.gov.sg/publications/Pages/The-Survey-on-Informal-Caregiving.aspx

the government's concept of the multi-helping hands approach which advocates family, community, and finally, the government as the last in line for social welfare.

2.2 Changing demographics of Singapore

While institutionalization may be against the notion of filial piety and frowned upon by society, the changing demographics of Singapore may not allow familial caregivers to continue upholding the value of filial piety in the same manner as what earlier generations did in providing home-care for elderly parents by themselves.

Statistics from a report by the Social Development Division (SDD) on Long-term care of older persons in Singapore (2015) revealed that Singapore's old age dependent ratio was 4.9 in 2015, and is projected to decrease to 2.1 in 2030. There is also less intergeneration support, as three-generation households⁵ decreased from 32.6% of total households in 2000 to 23.1% in 2014. On the other hand, one-person households increased from 7.5% in 2000 to 11.9% in 2014 and nuclear families increased from 9.2% in 2000 to 17.7% in 2014.

The shift in family structure means that the caregiving burden of elders in each family will increase. The available pool of informal caregivers is set to shrink, particularly as, a substantial number of women, who forms the bulk of the informal caregivers, are in the workforce.

According to Chan et al. 2012, 60% of family caregivers are female, out of which daughters constitute a large portion of family caregivers. It is foreseeable that this pool of female caregiver will either diminish or face greater caregiver burden in juggling between caregiving and work as women become better educated and have increased participation in the work force.

Complicating matters are ethnic and cultural differences. According to the 2011 national survey of senior citizens in Singapore, 62.6% of Chinese elders (age 65 years and older), 79.6% of Malay elders and 72.9% of Indian elder are in contact with family members every day. The ethnic differences perhaps point to the differences in family living arrangements, with Malay families relatively preferring to live in intergenerational households. The survey also found that more Malays required physical assistance or were bedridden (4%) compared to Chinese and Indians. The lifestyles and diets of various ethnic groups may present different sets of caregiving challenges. These ethnic differences suggest we need to take into account ethnic differences, when designing a model for decision making on institutionalization,

2.3 Caregiver stress and burden

Ang & Maholtra 2017 found that interruptions to caregiver's work added more stress to caregivers and may worsen relationship between care recipient and caregiver due to

⁵ Three generations households are households where grandparents, adult children and grandchildren live together

feelings of "sacrificing" one's career for the care recipient. The same study also found that caregivers who are employed experience more mental stress than non-caregivers, due to the strain of juggling caregiver and work duties.

According to Chan et al 2013, if caregivers lack a conviction in filial piety, the execution of filial piety (rather than internalizing the value with conviction) due to societal expectations will result in higher caregiver stress, particularly when resources are tight. This internal conflict between what the caregiver truly desires and what the caregiver does so as not to be judged for lack of filial piety, cause breakdown of the caregiver if she grudgingly make sacrifices for caregiving.

3. <u>Methods</u>

3.1 Survey

The survey was conducted from February to April 2018 through convenience sampling using an online survey platform to understand how younger generations value filial piety. The data consists of 69 Singaporean respondents to understand how younger generations value filial piety. All respondents completed the online survey that measured the attitudes that encouraged filial piety.

3.2 Measures

Attitudes measured were caregiving preferences of elderly or chronically sick parents, in terms of familial support, outsourcing of caregiving support to FDW, institutionalization, and co-residing with elderly or sick parents.

3.3 Analysis

Univariate statistics (simple frequencies) was used to generate a profile of respondents and overall scores for variables of interest. The preference for familial caregiving, coresiding, employment of an FDW and institutionalization of elderly loved ones was ranked. An independent t-test was performed on variables with a normal distribution to test for differences in means and across two groups. An analysis of variance (ANOVA) was performed on data to test for differences between three or more groups.

The linear regression model was used to determine the univariate relationship between covariates and continuous behaviour outcome after adjusting for confounders (gender, marital status, occupation, income, education, housing, chronic conditions, and attitudes). Skewness was determined graphically using a histogram with a superimposed normal plot. The selection process begins with a univariate regression analysis of each variable. Any variables that have a significant univariate test at p-value cut-off point of 0.20 was selected as a candidate for the multivariate analysis (Bursac et al., 2008). The STATA v15 (StataCorp LP, USA) software was used for the statistical analysis, with the significance level set at P<0.05. The survey results were used to predict the sustaining power of filial piety in compelling family members to look after their elderly parents.

3.4 Results

The survey results suggest that filial piety is still a strong notion in Singapore as institutionalization of elderly parents was last in ranking of caregiving preferences. When asked if respondents would co-reside with parents if one of them were chronically ill and require caregiving, 94.2% of the respondents would. Amongst the top three most cited words for looking after their elder parents were "duty", "responsibility" and "love". These three words echoed the concept of filial piety and gratitude, reflecting the idea of "returning to our parents what they have given to us".

When asked to rank respondent's preference for caregiving, co-residing was the top choice (score of 4.23), followed by staying near parents (score of 4.17) and employing an FDW (score of 4.15). The marginal differences between the three top preferences suggests that FDW holds an almost equal ranking of caregiving preference, as compared to the other direct expressions of filial piety.



However, in view of the changing demographics, increasing caregiver's burden, and the increasing employment of FDWs, it is likely that the notion of filial piety might evolve as younger generations view FDWs to be a more filial form of caregiving than institutionalizing elderly parents.

Even though Singaporeans have a globalized outlook and are exposed to western influences, Singaporeans still retain traditional views of familism and filial piety. Singaporeans are also receptive to usage of FDWs as paid stay-at-home caregiver of their elderly parents rather than to institutionalize their elderly parents. (Tamyah, S., K., and Tan S., J., 2013).

Huang, Yeoh & Toyota (2012) described Singapore's solution to its eldercare predicament as predicated on 'othering' caregiving, where caregiving is conveniently

outsourced to the FDW. In fact, Yeoh & Huang 2010 concluded in their study that FDWs are becoming the de factor caregiver of the elderly in Singapore.

4. <u>Discussion</u>

4.1 Paid informal care - Foreign Domestic Workers (FDWs) as an alternative to institutionalization of elders

In Singapore, FDWs are mainly employed from neighboring countries (Indonesia, Philippines, Sri Lanka and Myanmar) to provide paid stay-in elder care. The survey of informal caregiving (Chan et al 2012) found that 49 percent of Singaporean families hired FDWs to provide care for their elders. Among those who required help for more than one ADL, a higher percentage of families (71%) employed an FDW. In fact, a Singapore national survey in 2011 revealed that FDWs were the third largest pool of caregivers, after spouses and adult children. The results of this study are consistent with the survey results, which reflected respondents' preferences for familial caregiving and reliance on FDW, above institutionalization.

FWDs' indispensability to the families makes them closer to the family in both emotional and pragmatic aspects. Tantzi & Skinner 2009 described FDWs as a form of "deinstitutionalization of eldercare" and a "cost containment strategy". Hiring FDWs transfers caregiving from skilled healthcare professionals to paid caregivers. FDWs should be empowered with formal caregiver training.

The benefits of hiring an FDW are multi-fold. For the government, FDWs reduces the pressure to provide institutional support. FDWs provide both instrumental and emotional support to caregivers They reduce disruptions to the normal routines of caregivers and reduce the financial strain (Chan et al. 2013) on caregivers. A mutual-support relationship can be built between caregivers and domestic helpers through trust and interdependence. FDWs are available most of the time as they are live-in helpers. They help families save cost and allow the elder to age at home, which sustains the deep-rooted Asian ideology of filial piety, albeit superficially.

In addition, there is a nursing home bed crunch and elders may have to wait for several months for a subsidized bed at a nursing home. (Tai and Chan, 2015). In Singapore, nursing home charges range between \$1200 to \$3500, while a private two-bedder in Malaysia's nursing home costs around \$900 a month. In fact, a nursing home in Johor (nearest Malaysian state to Singapore) has 40% of his residents from Singapore. Nursing home shortage and cost considerations make FDWs a more attractive option.

In 2010, there were 150,000 foreign domestic workers in Singapore (Tew and et al. 2011). This number had risen to 246,800 by December 2017. (Ministry of manpower http://www.mom.gov.sg/documents-and-publications/foreign-workforce-numbers).

Singapore's reliance on FDWs is increasing. In view of the increased demand, the government will need to review legislatures to protect FDWs and to also screen FDWs

and ensure that they are mentally sound. These measures are necessary as there are cases of FDWs being ill-treated by employees and also those (FDWs) who abused the elderly care recipients.

4.2 Individual preferences vis-à-vis family member's preferences in decision making on institutionalization

Even though the support of FDWs is an alternative to institutionalizing the or at least serve as another tier of support, before resorting to institutionalization, the decision to institutionalize an elderly loved one need not be shouldered by family members. In fact, family members may not always make decisions that are reflective of the desires of the care recipients.

A cross-sectional survey (Maholtra et al. 2015) using a discrete choice experiment on 211 patients and their informal caregivers found that caregivers are more willing than patients to pay to extend life and improve end-of-life experience. A summary of the key findings is as follow.

a. Patients are willing to pay SGD 18,570 to extend their life by one year

b. Patients are willing to pay SGD 22, 199 to avoid severe pain

c. Patients are willing to pay SGD 31,256 to die at home

d. Patients are willing to pay SGD 4051 to avoid being a burden to family and friends

e. Patients are willing to pay SGD 16,191 to receive high quality health care to extend life

f. (HOW about caregivers?)

The study showed that caregivers had a greater preference for life-sustaining treatments than patients themselves. This discrepancy suggests that clinicians should consult and respect patient's preferences as long as they have the mental capacity to do so. The results showed that advanced cancer patients prioritize pain management and home deaths highly. Instead of extending life and providing more institutionalized care, it is perhaps more important to focus on pain management, supporting home deaths and providing end-of life care at home. Institutionalization may in fact be more for reducing caregiver's burden than an execution of patient's wishes. Improving capacity for home hospice services can facilitate home deaths.

Differences in willingness to pay suggest that caregivers have to take into consideration patient preferences to age and receive treatment at home than to rely on caregiver's belief about what is best for the patient. Clinicians will usually acquiesce to caregivers who are the decision makers in many instances, however their decisions may not represent the preferences of patients.

With reference to the survey results, we learned that family members tend to support caregiving decisions that are more representative of filial piety, however not all care giving preferences of the elders are in alignment with this value. For example, caregivers

may opt to have more aggressive treatment or treatment to prolong life, because such "perseverance" in treating the patient may be deemed as being filial and not wanting to let the person go. It is also socially and ethically desirably to be seen by others that the caregivers are doing their best to seek treatment and care for the elders. It is therefore pertinent to take into account care recipient's preferences and ease the burden of decision-making via advance care planning.

4.3 Advance care planning

Advanced Care Planning (ACP) refers to a voluntary, non-legally binding discussion about future care plans between an individual, his healthcare providers and close family members, in the event that the individual becomes incapacitated and unable to make decisions. ACP may also include clarifications about the individual's wishes, values and healthcare objectives. ACP does not just deal with end-of-life, but also applies to longterm care.

ACP also includes the Advanced Medical Directive (AMD) and Lasting Power of Attorney (LPA). Under the Mental Capacity Act 2008, an individual aged 21 and above in Singapore can make advance preparation by applying for a statutory document known as the Lasting Power of Attorney (LPA). The document allows the individual (donor) to appoint a proxy (donee) or multiple proxies to make representation on behalf of the donor in the event of loss of mental capacity to make decisions pertaining to personal welfare and financial matters.

However, it seemed that social-cultural factors revolving around the family remain the biggest challenges to take-up of ACP. Locally, the Asian emphasis on collective decision-making leads to the propensity by patients to leave decision-making about end-of-life issues to their children. According to a study by Tay SY, issues pertaining to the Asian culture of collective family decision-making were the greatest barriers to ACP engagement. Lo TJ's study on patients with early cognitive impairment showed that unmarried patients were more likely to actualize ACP plans.

Another major Asian cultural factor was the aversion towards talking about death for fear that it would bring bad luck (Lo, T.J., et al 2016 & Ng, R., et al.2013). A study by (Cheong K et al 2015) broke down this lack of support into the following: patient's lack of trust in the family, family agreeing with patient that ACP was irrelevant, and family members' dismissive attitude towards patients' end-of-life plans.

Ethnicity was mentioned as a challenge in a pilot study conducted on local patients (Sim, D., et al, 2013). This study showed that Malays were less likely to discuss ACP compared to other ethnic groups. We can compare this finding against that from an earlier Malaysian study which revealed that race, ethnicity and cultural values were important factors in ACP. The majority of the Malaysian subjects, especially those with Islamic faith, believed that their views were influenced by religion (Htut, Y., K. Shahrul, and P.J. Poi, 2007).

It appears that even in advance care planning, cultural and ethnic differences influence the take up rate. As compared to western societies, death and dying is a taboo topic in many Asian cultures, which then acts as an obstacle for conversations on ACP. Factoring the culture specific challenges and unique societal contexts, we propose the following model on decision-making for institutionalization that may be suitable for Singapore.



Figure 2. Proposed decision-making model for institutionalization of chronically sick elders

5. <u>Conclusion</u>

In Singapore, the government provides acute care and establishes funding frameworks for eldercare in the community. Singapore's policies place the responsibility of eldercare on the family as the primary caregiving unit while institutional care is seen as a last resort. Unique to Singapore are the availability of FDWs and home-care services, as attractive caregiving alternatives to the two extremes of i) full familial caregiving and ii) institutionalization.

As there is no universal model for decision making on the institutionalization of elders. Various countries should factor in unique cultural values and societal norms in proposing a decision-making model that is state-specific. Ideally ACP should be more commonly used to mitigate some of the dilemma that caregivers face in decision-making on institutionalization, and to ensure that the wishes of the care recipient are respected. Sensitivity to unique cultural factors and individual preferences will then help to shape a more robust and reflective model that is more appropriate for the respective care and social landscapes.

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Facilitating Meaningful Activities and Relationships: Designing Dwellings and Communities that Improve the Quality of Life of the High-Needs Elderly

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Abstract

As the population ages, there are greater demands for housing and communities that support independent living for the high-needs elderly. This research qualitatively examines the meaningful activities and relationships of 30 residents requiring assistance in senior housing complexes in New Zealand. Using semi-structured interviews and direct observation, data was gathered on both the perceptions and spatial use of those activities which are significant contributors to quality of life (QoL) and are also greatly influenced by the design of living environments. Emergent themes for meaningful activities and relationships included a desire for: a variety of activities motivated by familiarity; keeping active/able; privacy; maintaining relationships with family friends, other residents and staff; and a connection with, and contribution to, the wider community and nature. Factors such as safety, support availability, connection and privacy, as well as the influence of impairments and personal preferences have relevance for design. The research finds that the design of personal dwellings has a significant impact on the ability of the high needs elderly to maintain their OoL. In the design of individual dwellings, spatial solutions are required to provide greater control for personal activities as well as increased flexibility for social activities within limited interior spaces. As a decline in mobility is commonplace for those with high needs, greater attention is needed to resident walkability. Improvements in QoL can be achieved both through a reorganisation of the home and through bridging the home with the wider community and in doing so, facilitating meaningful activities and relationships.

Keywords: Quality of life, High-needs elderly, Design of housing and community, Activities and relationships

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Introduction

The aging population is increasing rapidly in New Zealand, similarly to many other developed countries. In particular, the elderly with high-care needs are projected to increase at a higher rate (Te Pou - The National Centre of Mental Health Research, 2011). As people age, the propensity for diseases and impairments increases (Statistics New Zealand, 2014), and they have greater difficulties in conducting daily activities (Davey, Joux, Nana, & Arcus, 2004; Jaye et al., 2015). At some point, typically in their 70s, these difficulties prompt them to seek more suitable housing, which provides them with greater control and support (Statistics New Zealand, 2002). Some consider moving closer to their children; but most do not wish to live with family to avoid being a burden (Davey, 2006). Combined with the calls for 'ageing in place' which is promoted by the New Zealand government (Ministry of Social Development, 2001), there is increasing demand for housing and communities that enable those elderly with high-care needs to live independently.

Currently, in New Zealand, there are three main housing types which provide some levels of care and support; retirement villages, public-sector housing¹ and private-sector rental housing². Retirement villages, offering company and security as well as home maintenance, are viable options for current homeowners and the relatively well-off (Greenbrook, 2005). Rental housing for the elderly provided by the public sector, community providers and religious and charitable groups are generally affordable; however, most providers do not provide high levels of support and care for older people (Kuboshima, McIntosh, & Thomas, 2017). The demand for retirement villages has been projected to increase by 2.5 times (JLL, 2017); and the levels of homeownership among retired people are falling, which increases the demand for rental housing (Alan Johnson, Philippa Howden-Chapman, & Shamubeel Eaqub, 2018). Government initiatives are seeking to address this situation, encouraging community housing sectors to grow (New Zealand Government, 2015).

Major themes for quality of life (QoL) of the elderly with high-care needs include; independence, activities, relationships, privacy and quality of care, which are prone to be reduced as impairments increase (Hale, Barrett, & Gauld, 2010; Murphy, Shea, & Cooney, 2007; Tester, Hubbard, Downs, MacDonald, & Muephy, 2004). There is also an increasing understanding that meaningful activities and relationships of the elderly are a highly significant contributor to their QoL (Eakman, Carlson, & Clark, 2010; Kiata-Holland, 2010; Wahrendorf & Siegrist, 2010; Wright-St Clair et al., 2012). In order to provide greater QoL, the built environment should accommodate their meaningful activities and relationships, while meeting their changing requirements as levels of impairments increase.

Methods

A qualitative study was conducted of the elderly who needed assistance in daily life and were living in 13 housing complexes designed for the elderly such as retirement villages as well as public/private-sector rental housing in New Zealand. Through documentation of the housing environment, semi-structured interviews and

¹ Includes central government housing (Housing New Zealand) and local-authority housing.

² Includes community providers and religious and charitable groups.

observation of 30 elderly residents, data were gathered on both the perceptions and the spatial usage during the day-time and their perceptions. Resident participants were selected using a questionnaire which identified their eligibility for the inclusion criteria of; receiving personal care; and 70 years old or older. Ethics approval was obtained from the Human Ethics Committee of Victoria University of Wellington.

Those data relating to activities and relationships which are significant contributors to QoL and are also greatly influenced by the design of living environments are the focus of this paper. First, the resident attributes and characteristics of the settings were summarized. Next, through the analysis of interview transcripts/notes and observation notes, emergent themes for the resident QoL were coded.

Attributes of participants and features of physical environments

Participants' attributes such as age, gender, living arrangements and marital status as well as impairments and mobility aids used are summarised in Table 1 and 2.

Gender	Age group		Ethnicity		Living		Marital Status	
					arrangements			
Male	70-79	3	European/NZ	12	Alone	10	Widowed	7
(n=13)	80-89	8	Middle Eastern	1	With spouse	3	Married	4
	90-99	2					Divorced	2
							Unmarried	0
Female	70-79	3	European/NZ	16	Alone	17	Widowed	14
(n=17)	80-89	11	Asian	1	With spouse	0	Married	0
	90-99	3					Divorced	1
							Unmarried	2

Table 1: Age, gender, living arrangements and marital status

Table 2: Type of conditions/impairments stated and type of mobility aids

Type of conditions/impairments		Type of main mobility aid	s		
stated		Indoors		Outdoors	
Had stroke(s)	5	No aid	10	No aids	5
Parkinson's	2	Walking stick	2	Walking stick	5
Other neurological conditions	2	Walker frame/ trolley	14	Walker frame	13
Musculoskeletal conditions	1	Wheelchair	2	Wheelchair	4
Cardiac conditions	8			Mobility scooter	2
Pulmonary conditions	3			Bicycle	1
Diabetes, high blood pressure	8				
Urinary, Bowel conditions	4				
Spinal conditions	2				
Injured by fall(s) recently	4				
Other pain, arthritis	15				
Sight impairments	4				
Other	9				
No specific conditions	2				

Housing complexes studied included five public-sector rental housing complexes for the elderly, three private-sector housing complexes for the elderly and five retirement villages. All retirement villages had independent living units, and two contained supported living units in addition. The information on the complexes as well as the units studied is summarised in Tables 3 and 4.

Housing type	Unit size	Number
Public-sector rental housing (n=5)	10-39	3
	40-69	1
	70-99	1
Private-sector rental housing (n=3)	10-39	2
	40-69	1
Retirement village, independent living	10-39	1
units (n=5)	40-69	2
	100-149	1
	150-199	1
Retirement village, supported living units	10-39	2
(n=2)		

Table 3: Type and size of housing complexes

	Unit type		Building type		Unit Floor Area	
Public-	Bedsit A ³	2	Detached	0	30-	0
sector	Bedsit B	1	Semi-detached	3	30-50	6
rental	One-B	3	Apartment (Outdoor access)	3	50-70	0
housing	Two-B	0	Apartment (Indoor access)	0	70-90	0
units (n=6)	Two-B + Garage	0			90-110	0
	Two-B + Office + Garage	0			110-130	0
					130+	0
Private-	Bedsit A	0	Detached	0	30-	2
sector	Bedsit B	2	Semi-detached	3	30-50	3
rental	One-B	5	Apartment (Outdoor access)	2	50-70	2
housing	Two-B	0	Apartment (Indoor access)	2	70-90	0
units (n=7)	Two-B + Garage	0			90-110	0
	Two-B + Office + Garage	0			110-130	0
					130+	0
Retiremen	Bedsit A	0	Detached	2	30-	0
t village,	Bedsit B	0	Semi-detached	7	30-50	0
independe	One-B	1	Apartment (Outdoor access)	0	50-70	1
nt living	Two-B	1	Apartment (Indoor access)	2	70-90	1
units	Two-B + Garage	6			90-110	5
(n=11)	Two-B + Office + Garage	3			110-130	3
					130+	1
Retiremen	Bedsit A	0	Detached	0	30-	0
t village,	Bedsit B	0	Semi-detached	0	30-50	4
supported	One-B	6	Apartment (Outdoor access)	0	50-70	2
living units	Two-B	0	Apartment (Indoor access)	6	70-90	0
(n=6)	Two-B + Garage	0			90-110	0
	Two-B + Office + Garage	0			110-130	0
					130+	0

³ Bedsit units are divided into two types of; the bed area and the lounge being separated by the curtain (A) and otherwise (B).

Findings: meaningful activities and relationships that relate to design

Themes for meaningful activities and relationships emerging from the analysis include; four themes for activities of 'Familiarity:' 'Staying active and able,' 'Engagement in personal activities in private space' and 'Contribution'; and five themes for relationships: 'Having guests in their home,' 'Connection to other residents,' 'Connection to the on-site staff,' 'Connection to the wider community' and 'Connection to nature.'

Theme for Activities 1: Familiarity

Religious activities were important for some residents and they appreciated the ease of access to chapels when provided on site in complexes affiliated to religious groups (PR1⁴, PR3). Some retirement villages offered communion or Bible study in a communal lounge. However, a man living in public-sector housing who didn't have enough mobility to go to church prayed at home (PU6).

Crafts and needlework such as knitting, patchwork and embroidery were familiar activities for many participants (13 females and one male), though some had given it up. One woman had a special table for bobbin lace in her apartment lounge, but was conscious of untidiness; '*I go and have a look and say oh I have extra bits here* (RVS5).' Artwork was also an important activity (PR1, PR2). This activity could have been better facilitated '*if there was a room where we could leave our materials and I wouldn't worry …if I got pastel dust on the floor cause it's very hard to clean up* (PR1).' Ideally, a separate room or larger lounge could be used for the activity.

Gardens of various sizes and types suiting mobility levels were desired. Some enjoyed growing vegetables and fruits on several sections (PU3, PU4), whereas others, who couldn't manage garden beds, enjoyed gardening with pots, that didn't require much maintenance (4 participants). A resident liked to '*fill all their space with pots* [in the porch, along the fence] (RVS3).' The difficulties in gardening included tasks and postures such as kneeling for digging soil, weeding (PU4, RVS3) and just watering the pots (PR1). Storage for gardening tools was desired in an appropriate space (PU2).

Theme for Activities 2: Staying active and able

Many high-needs elderly people had a desire to maintain or improve their mobility. Walking was particularly an important activity for one-third of the respondents. One respondent explained his motivation; *'it keeps me moving. I don't want to become like some people, they spend too much time indoors and they don't get enough exercise* (PU4)' The ability to walk differed by individual impairments. Some people needed to take a rest during a walk because of pain in legs/knees and breathlessness. A woman, who liked to walk regularly, had difficulties in walking a distance of 80 m: *'I would be sitting down halfway, I'm sure. ... I can't, you know, I get too sore, and I have to stop, to let the pain go.* (RVI9)' Another woman, who felt it difficult to walk to the communal space at 22 m distance, said; *'My heart is not good at the moment, so*

⁴ Participant identifiers are used in this paper, which consist of PR, PU, RVI or RVS + number.

when I walk, I get breathless. (RVI7)' One man had two walking routes of different distances (410m and 640m), which he could choose depending on his condition (PU4).

Walking in the town entertained one participant, who passed many of his familiar venues such as shops and cafes on the way. He talked about his memories relating to each place (PR7) (Figure 1). Other features that motivated walking included; warm and dry weather (PR7, RVI2), sunny walkways (PR7), well-maintained gardens (RVS4) and having company (RVI1, RVS4).



Figure 1: Walking route of a resident in the town

Some complexes were poorly designed in terms of walkability. Residents of a big complex with villas crowdedly lined up walked to the gate of the village and then return to their house. A resident expressed frustration, '*If you want to go for a walk, you do the same route all the time really* (RVS4).' Car safety was a concern in large complexes with a long roadway. '*You get the occasional persons who don't take any notice of the speed limit and they speed through the place.... So you have to be more careful than you used to be crossing the road.* (RVI1)' Those with difficulties to do with vision had special requirements. In general, walking in darkness was not preferred (RVI10). One resident preferred to walk on the road rather than on the footpath, because '*it gives me more space to walk* (RVI11).' A speedbump on the road was a hazard for him; '... *I forgot the hump in the road, you know? And I tripped over that hump, and I fell.*'

Theme for Activities 3: Engagement in personal activities in private space

All respondents used certain types of chairs to spend most of their time in an easy posture. Only one person stayed mostly in the bed. An armchair was the most common type, which was often adjustable in the leg and back position.

Watching TV was the most common activity. Most watched TV from their chair, and a few from bed (PU4, PR5). Sitting spaces were laid out with respect to the location/direction of the TV, except for one person who didn't like watching TV (RVI8). Those who had issues with eyesight prefer to sit with their backs to the windows (PR4, RV7), because; 'I don't think I could cope with that [the opposite layout]. Because you're looking into the light all the time. (PR4) (Figure 2)'



Figure 2: Layout of the chair and TV for a person with vision impairment

Other important activities included; reading books and newspapers (3 participants); writing letters/postcards and diaries (6 participants); playing computer games (3 participants); and listening to music, radio and audio books (6 participants). Benefits of personal computer (PC) games included that *'it keeps me occupied, you know; it keeps your brain ticking over*. (PU3),' and those of listening to music included that *'It passes time quickly, and it helps get you relaxed, and feel all right* (RVI11).' Various tools for activities⁵ and furniture and fixtures to accommodate them were placed within reach of their sitting space. Particularly, level surfaces such as shelves or cupboards with multiple drawers were useful for keeping things tidy (PU3, PR1). Residents who didn't have enough level surfaces filled things on adjacent table/desk and put things on the floor (3 participants). Some activities required separate space with special furniture, such as a writing table and a PC desk. Particularly, a table was important for a resident with hemiplegia, that supported his arm during activities (PU1).

Many people liked seeing outside, particularly moving people and cars, which was often the main reason for choosing their sitting space. One resident said; 'you can see out and see what's going on ... Reminds me I'm still alive (RVI2).' An elderly couple had different preferences from each other regarding looking outside, and arranged their armchairs differently (RVI3) (Figure 3).

⁵ Tools for activities include; remote controls and a TV guide for watching TV, books, newspapers eye glasses, a magnifier, a letter opener, a lamp for reading; pens, letters, post cards, a diary and a computer for writing; a computer and a tablet for playing PC games; and CDs and a CD player for listening to music.



Figure 3: Difference in the sitting position depending on the preference for seeing outside

Some residents engaged in multiple activities and tasks. One man said; '*I can do two things at once. The ear's that way [to the TV] but mostly the eyes are looking this way [to the laptop].* (PU3)' He also liked horse racing, which required tasks of; watching TV, taking notes on a paper, and placing bets through the computer which rested on the armrest of his armchair (Figure 4).



Figure 4: Sitting space that facilitated engagement in multiple activities

Theme for Activities 4: Contribution

Many respondents had been involved with volunteer works related to their occupation/skills, religion and other interests, such as; teaching (PR1), needlework (PR1, RVS2), playing a musical instrument (RVI8), building and machinery skills (PU3, PU4), helping church and other organisations (3 residents). While health conditions prevented continuing this work, some carried on contributing just scaling down the activities. For example, one woman, who used to teach needlework, assisted other women in her personal group (RV5). Another woman wished to contribute by her patchwork; '*if I could finish it, I'll give it to the Wellington Free Ambulance to raffle or to sell or whatever they wanted to do.* (RVS2)' Communal
space was often the venue where voluntary activities occurred. One resident helped library services (RVS5), others helped in setting the tables out for dinner (RVS6) or serving meals to everyone (PR7) in their communal dining rooms.

Theme for Relationships 1: Having guests in their home

The family connection was the most important aspect of relationships. Many residents had visits once a week or more. Family/friends visits were appreciated for physical/mental support. When having guests in their home, being able to 'see who is coming (PU1, PU3)' before their arrival was important to control and welcome the visitors. Unfortunately, residents of apartment-type accommodations typically did not have views to guests approaching (6 participants). An apartment-resident who could not see the door from her sitting space said; 'I can't go to the door easily, so I just wait. The door is unlocked. (RVI7) (Figure 5)' When residents called out 'Come in!' while seated, the sound of their voice could not always be heard by guests outside of the door because of the distance or blockages by walls (PU5, RVI7).



Figure 5: Interior layout that hinders the view from the sitting space to the door

Having a lounge separate from the bedroom was preferred for greater privacy when entertaining guests (9 participants). One woman who enjoyed socialising did not have many guests because her bedsit room was '*more like a bedroom*. (PU5)' Another bedsit resident wanted a hard separation rather than their curtain (PU1).

Some participants had a large number of guests at a time in their own house, such as extended family (PR6) or personal hobby/religious groups (3 participants). A onebedroom apartment (approx. 50m²) was too small to accommodate a group of ten people; '*that is very crushed* (RVS5).' Extra chairs were put in the lounge as well as the bedroom, but the resident felt it '*untidy* (RVS5).' Common indoor/outdoor space could be used to accommodate guests and extra chairs. One woman held several soirées using the open lawn space leading out from her lounge (PU2) (Figure 6). An apartment resident used communal indoor space near their unit for potluck gettogethers (RVS4).'



Figure 6: Open space in front of the unit, which was used for hosting large number of guests

Most residents who had more than one bedroom used the second bedroom for overnight guests (8/10 participants), which was important. The spare room was used frequently (once a month or more) (RVI1, RVI4), and/or for a long period such as several weeks (RVI1, RVI7). The garage was also used to accommodate guests (RV19, RVI11). One woman parked her car out of the garage so that it could be used as a bedroom for two grandchildren, however, '*it's not insulated, so it's OK in summer but not in winter* (RVI9).' Another resident who didn't have a car furnished their garage (RVI11) (Figure 7). In contrast, there were no bedsit residents who had guests stay overnight. One-bedroom units could accommodate one or two family members or intimate friends in the bedroom (RVS4) or in the lounge (PR4, RVS6), by using an extra bed stored beside/under their bed or using a sofa bed. One woman wanted a second bedroom for her visiting son, who '*used to stay here in his cushions … on the floor* (RVS1).'



Figure 7: Layout of furniture in the garage to accommodate guests

Respondents particularly enjoyed having grandchildren/great-grandchildren visit. However, special attention was needed for children's spatial usage, because '*all these kids go mad, running around all over the place*.' The resident's space was separated and shut off from children's space, because '*they're very inquisitive* (RVI1).' There were different views on children. While some people liked to see children (3 participants), children's noise was not preferred by some (PU4).' A man with limited eyesight had to 'be very careful that I don't run into them [little children],' who were 'running and scampering along (RVI11).'

Theme for Relationships 2: Relationships to other residents

Connection to other residents was important for many participants, which contributed to a greater sense of safety. Some residents supported each other when needed or through regular visits (PU2, PR5). Encounters among residents often occurred near the unit entrance, such as in a corridor or in the porch. The view and proximity from the lounge to outside encouraged resident interaction; for example, a man, who was sitting in his lounge, found the neighbour pass in front of his unit and talked to him in the porch (PU4) (Figure 8 left).

In serviced apartments, a common lounge was used frequently by some residents. *This was a place to relax. We were close, because we felt "This is our room."* (RV3)' She used the space frequently (10-12 times a month), sitting in the same chair. The other two armchairs also had dedicated occupants (Figure 8 right).



Figure 8: Spatial organisation that encouraged resident interaction (left) and frequent use of communal space by residents (right)

While appreciating the connection, most residents valued maintaining privacy from other residents, saying; 'We're not living in each other's pocket (3 participants).' However, the unit layout with windows facing each other, particularly in close proximity, affected their privacy (3participants). One apartment resident, who had a view to a window of the neighbouring unit in close proximity, talked about the concern; '... I don't know if they really could or not but I thought, and then I used to close the [bedroom] door almost (PR1) (Figure 9 left).' A woman praised the unit layout, that was well considered for resident privacy, with the angle of and distance between houses (RVI9) (Figure 9 right).



Figure 9: Unit layout affecting privacy (left) and that with consideration in the distance and angles (right)

A level difference was effective for maintaining privacy. A man who lived in a first-floor apartment said; 'I have stood down there and looked up here to see what people could see. You can see that heater. You cannot see the settee.... So providing I'm not standing up against the window, I could stand here and nobody would see me (RVS6) (Figure 10 left).

The unit layout also had an impact on their sense of connection. One female resident, who had a kitchen window which was facing to her neighbour's window at a 6m distance, said; 'It's not close enough to worry me. I quite like having neighbours because it's a bit of company around, isn't it? ... If my neighbours on my side don't see my blinds go up in the kitchen, they know there's something wrong. That works both ways, of course, I can see them. (RVI2) (Figure 10 right)'



Figure 10: Level difference as a design solution for privacy (left) and the layout of units and windows that contribute to greater sense of connection while maintaining privacy (right)

Theme for Relationships 3: Relationships to the on-site staff

The presence of the on-site staff provided residents with a greater sense of safety. In serviced apartments, the on-site medical/care staff near resident units provided greater support and care. A resident of a serviced apartment appreciated their greater and more flexible manner of care provision, comparing to a situation before; 'when I was over in the villa by myself it wasn't possible for me to live by myself because of things I can't do. ... That's why I'm here but when I need care I get it and I can get full care. ... They'll just see whatever I need.... I just want to have as much independence as much as I can. (RVS5)'

While support from the staff was generally appreciated, the manner of the staff visits affected their privacy. In particular, a loss of privacy was experienced by residents in serviced apartments, where many residents received frequent staff visits. It was acknowledged that the staff waiting for the resident reply after ringing the doorbell or knocking before opening the door provides greater privacy for residents (RVS4); however, during the observation, no staff member waited for the resident's reply before opening the door, some even entering without a knock (RVS1). In case where a resident had a hearing impairment, a knock would not notify him of the staff arrival, particularly when not wearing hearing aids (RVS6). The front door was also problematic in some cases. The hinged door didn't shut properly with a light push of a staff member, so the door was kept half-open (RVS3, RVS4).

Theme for Relationships 4: Connection to the wider community

Many participants left their complexes for personal activities and relationships. Many lived in complexes in their former neighbourhoods and half of the participants expressed an attachment to place. Common activities outside of the complex included going to the café (12 participants), to the church (8 participants), to the club (4 participants), to the public library (PR2, RVI4) and to other social groups (PU5, PR5). One resident chose to go to the club in the town instead of a gathering held in his own complex, because; '*I've got a lot of friends who go to the club ... Still stick together, and... it's a just a change from here*. (PR7)'

While a few residents walked to the town (3 residents), most used a car (13 drove) and others used other vehicles such as a mobility scooter (PU1, RVI8), an electronic wheelchair (RVS5), an electric scooter (PU4), and a bicycle (PU3). The car access

between the gate and the unit was an issue in those cases where the complex was large. One resident complained about the confusing street system with 'so many one-way streets,' which he found 'to try to direct someone through this to find this place is very difficult. (RVI3)' Storage for vehicles and access from their unit was important. A man, who had difficulties in walking over the threshold with a small level difference at his exterior door, stored his scooter indoors, which took up large space in his bedsit (PU1). The electric wheelchair or scooter also required a storage with a power outlet to charge with (PU4, RVS5).

While the proximity to the supermarket and other facilities in town was appreciated by many residents, 'peace and quiet' and safety was important for others. A man talked about the greater safety of his complex compared to his previous house, where he 'had a burglar (RVI4).' The enclosure of the site and the locking gate or the common entrance increased the sense of safety (3 participants). One resident complained about the public access through the site; 'we have actually had sometimes kids come through and they've been on the boisterous side at night – about 10 o'clock, 11 o'clock at night (PU4).'

Theme for Relationships 5: Connection to nature

Views to nature were generally preferred by participants. Many liked views of the mountains, hills and bushes (10 participants), and some seas (PR4, PR5). The reasons for the preference related to their previous houses (RVS4, PR4) and past activities (PR2, RVI2). One woman had multi-level views. She could see the spacious green area in front of her unit, watch people moving on the road and see the country views and the mountains at a distance (Figure 11), which she loved (RVI10).



Figure 11: Multi-level views from a resident unit

Some residents mentioned they liked to see trees, shrubs and/or birds from their sitting space (4 participants). Tuis and wood pigeons, kowhai and flax were the preferred flora and fauna (4 participants). One resident talked about the importance of trees, particularly in a confined situation; '*There is a building just over the fence, and if there were not trees, I wouldn't like it.* (RVI6)' However, trees caused other residents distress, such as limitations in the view and the access to the sun (PU6,

RVS5). A resident complained about tall trees blocking access to the sun and suggested; '*smaller trees, bushes, they're more suited for this site* (PU4).' Some people fed birds on their porch or a common deck (3 participants). A woman said; '*as soon as I open my curtains, they're all sitting on the fence waiting for their breakfast* (RVS2).'

Discussions: Design considerations

Design considerations were distilled through the analysis for the QoL in regard to activities and relationships of high-needs elderly, which were categorised into three large categories of 'Personal dwellings,' 'Transitional spaces between inside and outside,' and 'Community design' (Figure 12).



Figure 12: Themes for QoL in regard to meaningful activities and relationships, and the distilled design considerations of dwellings and communities

Those elderly residents who had limited mobility spent a long time in their dwelling, and enjoyed indoor personal activities. In the design of personal dwellings, there should be careful consideration of the environment surrounding their sitting space for greater control of activities as well as providing optimal visual and sound environments. Given that having guests is valuable activities for many, there should be consideration of space that can accommodate guests and the extra furniture needed for it.

Consideration of the space to accommodate guests can be extended to the use of common area. The space leading out from the dwelling has great potential to accommodate activities, people and possessions that cannot be accommodated inside; particularly, there should be storage for mobility aids. In the design of the complex, there should be consideration in the unit layout for providing both privacy and connection among residents. While the connection to the wider community is important for elderly participants in terms of activities, relationships and familiarity, it

is not always accessible or safe enough for them. To provide greater QoL for residents, the close community can play a significant role in facilitating activities and relationships. In particular, attention should be paid to the design for greater walkability to accommodate their desire for keeping fit.

Conclusion

As the population ages, there is increasing demand for housing and communities that can accommodate the elderly with high-care needs while maintaining their QoL. This paper has clarified themes for their meaningful activities and relationships that included a desire for: a variety of activities motivated by familiarity; keeping active/able; engagement in personal activities in private dwellings; having guests (family and friends), maintaining comfortable relationships with other residents and staff; and a connection with, and contribution to, the wider community and nature. In the design, factors such as safety, support availability, connection and privacy, as well as the influence of impairments and personal preferences should be taken into account. The research finds that the design of personal dwellings has a significant impact on the ability of the high needs elderly to maintain their QoL. In the design of individual dwellings, spatial solutions are required to provide greater control for personal activities as well as increased flexibility for social activities within limited interior spaces. As a decline in mobility is commonplace for those with high needs, greater attention is needed to resident walkability. Improvements in QoL can be achieved both through a reorganisation of the home and through bridging the home with the wider community and in doing so, facilitating meaningful activities and relationships.

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East Meets West: Asian Elders' Experiences of Ageing-in-Place in a Western Country

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Abstract

"Ageing in place" is a fundamental principle in current ageing policy. With the growing phenomenon of transnational families, increasing numbers of older people from Asia have migrated in late-life to join their adult children living in Western countries; however their experience of ageing in a new environment is underexplored. Drawing on in-depth interviews with 44 Chinese, Indian and Korean elders aged 62 to 86 years who have migrated to New Zealand in later lives, this paper investigates the elders' ageing experience, in particular what is needed to enable positive ageing-in-place for this population. Contrary to traditional filial practices of intergenerational co-residency, some elders in this study are living in close proximity to their children but in separate households. Intergenerational conflict is not the only reason for the elders' pursuit of independent living. Rather, it is also a reflection of the elders' shifting expectation of filial responsibility from their children as they navigate between Eastern and Western cultures. The study suggests that Asian elders' ability to age-in-place is affected by the elders' interactions with multiple environments including housing, family, community and government resources. The majority of participants stress the importance of maintaining core Eastern values of intergenerational interdependency, while they also adopt Western ideologies of autonomy and self-reliance, and use of state welfare assistance and community resources. However, barriers to service utilization and community participation impair elders' ability to positively age in place. Findings highlight the need to ensure that ethnic elders' needs are met in policy and service design.

Keywords: Asian elders in New Zealand; ageing in place; housing choices; family relationship; community participation

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Introduction

With decreasing fertility and longer lives, the world population is getting older. This trend is going to accelerate in the coming decades. In 2015, about one in eight people worldwide was aged 60 years and over. By 2030, older people are projected to account for one in six people globally. This will rise further to one in five in 2050 (Department of Economic and Social Affairs, United Nations, 2015).

There are many countries in the world which have a much larger share of older people in their populations than the world average, and New Zealand (NZ) is one of them. In 2015, about one in five people in New Zealand were over 60 years of age. By 2030, older people are projected to make up 27 percent of the New Zealand population (Statistics New Zealand, 2017a).

With the rapid structural population transformation, there is a growing attention to the promotion of "ageing in place" as a fundamental goal in policy and practice pertaining to older people. In New Zealand, *The New Zealand Positive Ageing Strategy* (Ministry of Social Policy, 2001) emphasizes that ageing well is not only about maintaining personal health and functional independence through healthy eating and doing regular physical activity, but is also about continuing to engage in meaningful activities, being valued, and being able to make choices about where to live in later life, and to receive the support to do so. The idea of "ageing in place" is a priority goal in the *New Zealand Positive Ageing Strategy*. The principle of ageing in place is to support older people to continue to live in their own home and participate in their community for as long as possible, rather than having to move to residential aged facility earlier than needed.

However, what ageing in place might mean for older people from different cultural backgrounds who have migrated to New Zealand in later lives remains underresearched. This paper focuses on one subset of the New Zealand older population, the overseas-born Asian elders. In 2013, about one in ten people identified with an Asian ethnicity in New Zealand were over 60 years of age, with Chinese (53%), Indians (30%) and Koreans (5%) making up the majority of the older Asian population. A large proportion of Asian elders (93%) were overseas-born. Further growth in numbers and proportions of Asian older persons within the New Zealand population can be expected in the next 20 years (Statistics New Zealand, 2017b).

In Asian cultures, the most predominant value relating to the care of older people is filial piety. It prescribes the child's obligation to attend to parental needs, and to provide care and support to aged parents (Li, Hodgetts & Ho, 2010; Sung, 1998). One of the core elements of filial piety is co-residence with one's parents. However, contrary to widely held beliefs and norms, data from the 2013 Census show that only around half of Chinese, Indian and Korean elders in New Zealand lived with their children (Table 1). The proportion is less for those who had lived in New Zealand for over 10 years (47.2%) than those with a shorter residence (70.9%). This suggests that overseas-born Asian elders are more likely to co-reside with their children when they arrive; but with longer residence in New Zealand, the proportion living with their children decreases. This trend seems to align with the norms of liberal Western societies such as New Zealand, where immense value is placed on the ability of older

people to be independent and autonomous, and living independently from their children (Beswick et al., 2010; Lecovich, 2014).

	Chinese	Indian	Korean	Total Asian
Live in NZ for under 10	69.6	74.1	56.0	70.9
years				
Live in NZ for 10 or more	45.7	52.8	46.2	47.2
years				
Total, 60 years and over	49.2	57.6	47.4	51.5

Table 1: Percentages of Chinese, Indians and Koreans aged 60 years or over living with children by years of residence in New Zealand in the 2013 Census

Understanding the culture-specific needs of Asian elders as well as the factors influencing their ageing experience is crucial for supporting them to age well for longer in their communities (Office for Senior Citizens, 2015). The overall aim of this study, therefore, was to explore the ageing experiences of Chinese, Indian and Korean elders who have migrated to New Zealand in late-life and live independently from their children. The research questions were:

- What are their demographic and housing characteristics?
- What are their attitudes towards ageing and what influence their ability to age in place in a new country?
- What is needed to enable positive ageing in place for this population?

Research methods

This study used a qualitative approach using in-depth interviews and participation observation. This method uses words to explore participants' attitudes, perspectives and lived experiences in depth (Alasuutari, 2010). By doing so, underlying contextual meanings each participant ascribed to their experiences were also captured.

Research was undertaken between February 2017 and May 2018 in various neighbourhoods of Auckland, the largest city in New Zealand where two-thirds of the Asian population live. The target population was Chinese, Indians and Koreans who migrated to New Zealand in later life and were living separately from their children. Specifically, the criteria included: 60 years and over, migrated to New Zealand after 50 years of age who were living separately from their children. To recruit participants, a combination of purposive sampling strategy and snowballing technique were employed. Five key community groups (two Chinese, one Indian and two Korean agencies) with close connections to their respective ethnic communities were approached. A snowballing technique was further applied when participants encouraged others in their own networks to participate. A total of 44 participants (41 families) were recruited.

The interviews were conducted in Mandarin, Cantonese, Hindi, Korean, and/or English. Participants shared with us their motivation for migrating to NZ, housing history, current housing experiences, familial relations, community engagement, as well as their cultural values regarding housing, care and ageing. The interview data were analysed using an inductive thematic approach (Thomas, 2006). This involved categorising data under different themes to compare and contrast across families.

Participant characteristics

Table 2 gives the demographic and familial characteristics of the research participants.

	Number	Percent		Number	Percent
Gender			Age		
Male	17	38.6	60-69	9	20.5
Female	27	61.4	70-79	26	59.0
Total	44	100	80 and over	9	20.5
Country of origin			Arrival year to NZ		
China	10	22.7	1995-1999	5	11.4
India	22	50.0	2000-2009	28	63.3
Korea	12	27.3	2010-2018	11	25.0
Living			Government		
arrangement			benefits*		
Live with spouse	32	72.7	NZ pension	24	54.5
Live alone	12	27.3	Overseas pension	10	22.7
Children's location			Other	14	31.8
All children in NZ	21	47.7	Driver's licence		
One or more in NZ	17	38.6	Yes	4	9.1
All children	6	13.7	No	40	90.0
overseas					

Table 2: Demographic and familial characteristics of research participants

*Multiple answers

There were 27 female and 17 male participants. The age of the participants ranged from 62 to 86 years, and the length of their residence in New Zealand ranged from one to 20 years (at the time of the interview). Participants who had resided in New Zealand for over 10 years generally met the eligibility criteria for New Zealand pension. A total of 24 participants received New Zealand pension, of which 7 received additional governmental benefits such as disability allowance, accommodation supplement and overseas pension from their respective country of origin. Six participants who were not yet qualified for New Zealand pension received overseas pension.

Regarding general health of participants, most elders had long-term conditions such as high blood pressure and diabetes but were controlled with medication and healthy lifestyles. Many participants also reported having cataracts, asthma, arthritis and surgeries in the past for knee replacement, pacemaker insertion and shoulder ligament.

Reasons for living away from their children

All research participants migrated to New Zealand in their later life primarily to join their adult children and to look after their grandchildren. This is reflected in their living arrangements: when they initially migrated, they lived with their adult children. However, factors such as unsuitable housing, intergenerational tension, changing models of authority, fear of being a burden, and changes in the cultural expectation of

intergenerational co-residency influenced their decision to live separately from their children. At the time of interview, 32 participants lived with spouses and 12 lived alone (Table 2).

Unsuitable housing/health concerns

Many families with health conditions such as asthma and arthritis considered the house they lived with their children as unsuitable because it had too many stairs and some wanted more personal space.

My wife has arthritis so she can't climb upstairs. There the kitchen was upstairs and our room was downstairs. So three to four times a day she would have to climb the stairs. [Indian, male, aged 83]

I lived with my daughter but her house was very small – only two small rooms. I lived in one room and my grandson had to sleep in the lounge. He was in high school. I feel this was no good, so I told my daughter I wanted to move out. [Chinese, female, aged 67]

Intergenerational tension

While the primary motivator to migrate to New Zealand was to reunite with family, elders found themselves wanting independence and freedom as family tension grew in intergenerational households.

We feel inconvenient living with our daughter's family. Why? Because we have different habits. If we watched television, we distracted the kid's studies. We like singing, but we could not sing in their house – they would think we are mad! So moving out can give us freedom, and they have freedom too. [Chinese, male, aged 70]

A few participants provided examples of events surrounding changed model of authority as they navigated their role as a parent and grandparent. They spoke of confrontations and disharmony that offering advice to children and their spouses brought.

When living with your children, it's good but the way I educate and how the younger generation teaches is different, so there were frequent troubles. I would get stressed and they would also get stressed. ... My daughter would say, 'Mum, that's not how I do it'. [Korean, female, aged 70]

Accumulatively, the above factors led to elders feeling like a burden on the family as their sense of making meaningful contributions in the lives of their adult children and grandchildren decreased. This was exacerbated by lack of English proficiency and knowledge about New Zealand norms and infrastructure.

Changes in the cultural expectations of intergenerational co-residency

Asian elders' pursuit to live separately from their children should not be perceived as the result of intergenerational conflicts alone. Rather, it is a reflection of changing attitudes towards aged care in the cultural and physical context of the host country. All participants acknowledged the importance of living with extended family but also shared that this norm of co-residency is changing.

Traditionally, co-residency was the way of life. But now I don't see how that can be maintained. There are benefits to that but the downfall is that it makes each other feel uncomfortable nowadays. Society is changing and so the culture is also shifting. Personally, I think it's better to live separately rather than with extended family - it's better for both the young as well as the old [Korean, male, aged 74]

Housing tenure, satisfaction and location preferences

Housing tenure

As shown in Table 3, majority of the participants resided in rental properties including public housing (34.1%) and private rentals (36.4%), compared to elders who owned their own homes (15.9%) or lived in houses owned by their child (13.6%). Public housing is government-funded residence with specific criteria applicants must meet: have income and assets that do not exceed the set criteria, show that they have been unsuccessful in finding appropriate private rental. Once eligible, applications are prioritized on a need basis and tenancy period is guaranteed for a set period. Private rentals belong to private landlords (participants found them through agents or from landlords directly).

Housing Tenure	Number	Percent
Owner occupancy	7	15.9
Children's house	6	13.6
Public housing	15	34.1
Private landlord	16	36.4
TOTAL	44	100

Table 3: Types of housing tenure

Housing satisfaction

Participants' satisfaction with their housing varied according to types of housing tenure they resided in. In regards to a sense of tenure security, homeowners had the most sense of security compared to renters.

As Chinese, we feel better having our own home. It gives us a strong sense of security. [Chinese, male, aged 70, resident in NZ for 8 years]

Elders living in house owned by their child also had a sense of ownership/security as they received similar perceived benefits as homeowners.

We don't have any worries because it's our son's house. ... We did some modifications to the kitchen, bathroom and laundry. ... My son paid for all the modifications – it's their house. [Indian, male, aged 83, resident in NZ for 20+ years]

Although public housing is rental property, elders residing there had a stronger sense of security compared with private dwellers because their contract is permanent. As such, they did not have to worry about "being kicked out" and generally had a sense of attachment to their housing.

Because it is Housing NZ, they don't throw us out but if I was renting a house outside private, when those people want to sell their property then you have to move out. [Indian, female, aged 74, resident in NZ for 13 years]

Given the nature of their contract, private dwellers were the most likely to feel insecure compared to elders of other housing tenures.

It does not make me feel like a home because this apartment is rented and I am not really getting used to this place. [Chinese, male, aged 72, resident in NZ for 6 years]

There's uneasiness as it's not my own house, and I may have to leave against my will as I am not the landlord. [Korean, female, aged 70, resident in NZ for 4 years]

However, sense of security seemed to be compensated by the fact that renting allowed them to enjoy a sense of independence and freedom living separately from their adult children.

We have a sense of belonging because we can come when we want and we go when we want. There's a lot of freedom of that kind and I didn't realize this before... here we relax and do what we want, eat what we want when we want how we want. [Indian, female, aged 86, resident in NZ for 9 years]

Location preferences

Regardless of housing tenure, living in close proximity to amenities such as banks, post offices and supermarkets were deemed important and convenient by participants. In particular, accessible bus routes were a core aspect in informing their choices as a majority of participants (90.9%, see Table 2) did not have a driver's license. This is aided by the availability of 'Supergold Card Scheme' that provides subsidized public transportation, allowing elders to get to places without having to rely on their children.

This house is near the bus stop, shopping centre. Especially because we don't have a car, we go by bus. [Indian, male, aged 62, renter of private dwelling]

Living close to their family and community groups were additional key factors in influencing their housing choices.

It only takes me 15 minutes on the bus to where my son lives so I can go see my grandchildren when I want to or they come over. [Korean, female, aged 78, renter of public housing]

Many participants also remarked the importance of location in relation to safety.

I like this house because it's in the city and it's safe... We feel very safe. It's an apartment, it has a secure entrance so that you have a special key to enter the premises. So other people can't come so we feel secure. [Indian, male, aged 84, renter of private dwelling]

Family relationship and future plans

Current interactions with children

In this study, participants remarked that co-residency was not the only way for their children to express filial piety. Despite living separately from their children, most participants reported having regular contact with their children and grandchildren either weekly or fortnightly. Regular interaction was made through dinners, and this was facilitated by the geographic proximity to their children.

My daughter, she comes practically every day because we are on the same bus route. [Indian, female, aged 77, resident in NZ for 5 years]

Our children and grandchildren come often and can be very loud when they say "bye Grandma! bye Grandpa!". [Korean, male aged 75, resident in NZ for 12 years]

Our two daughters come very often. They get all the heavy groceries for us. Basically we do not need to buy anything. [Chinese, male, aged 70, resident in NZ for 8 years]

Such contact helps maintain positive relationships with their children. A key concept that captures such positive relationship is reciprocity wherein the elders received support from their children while also providing support to them.

I help my daughter to take care of her children... I take my grandchildren to the kindergarten. My daughter helps me a lot, such as interpretation in hospital. [Chinese, male, aged 73, resident in NZ for 6 years]

However, there were few participants who did not have regular physical contact with their children, especially those participants whose children were overseas (13.7%, see Table 2). These participants maintained contacts with their children via phone or video calls. They also spoke of seeing each other at least once a year.

Expectations of filial responsibility from their children

Participants' expectations of filial responsibility from their children varied. Most had certain expectations but were confronted by the reality of Western values (ie. rest home), fear of being a burden to their families or losing their independence.

I do expect [it] in terms of dire need. But I would like to be independent as far as possible. I wouldn't like to trouble the children. [Indian, male, aged 64]

I am not expecting my children to help to take care of me. I hope I can take care of myself, as following the Western lifestyle. [Chinese, male, aged 72]

We are happy with this [living] arrangement. Our children still look after us in the sense of having interest and checking up on us. It's easier and comfortable for everybody. [Indian, female, aged 86]

Some participants expressed that they would have expected their children to look after them in old age in their respective origin countries, but governmental benefits in New Zealand allowed them to rely on social welfare if family cannot/ does not wish to look after them for financial, emotional and physical support.

In India we don't have a social welfare system like we do here in NZ. ... Here if my daughter decides she doesn't want to look after me, I know there is social welfare to help me. [Indian, male, aged 62]

Thankfully, in New Zealand there are government benefits so I don't need to think or expect my children to take care of me. [Korean, female, aged 78]

Future plans

Many participants described that they did not want to go to rest home based on negative associations on quality of rest homes from experiences of their own, friends or family members.

No, we haven't [thought about moving into rest home] and I don't want to. I want to live with my son really. [Indian, male, aged 67]

I want to stay at home for as long as possible. But if I can't take care of myself, I will go to a rest home. [Chinese, male, aged 74]

I don't want to be a burden to my son so will probably have to consider it [moving to rest home] as I'm getting older. I'm doing the best I can to be healthy, eating healthy and exercising so I can die at home. [Korean, female, aged 74]

However, some were comfortable with the potential prospect that they may have to go to rest home - especially for those whose children are all overseas. These elders voiced that they would rather age in New Zealand where they call home (given community, friends), rather than overseas where they children are.

My son knows that I want to go to a rest home when I can't take care of myself. [Chinese, female, aged 67]

Community participation, facilitators and barriers

Community engagement

The level of community engagement is impacted by participants' health, choice of housing, living arrangement and level of family care. Living separately from their children encouraged them to be more involved in the community. As a result, most

participants had a dense network compared to when living with their children and were involved in various activities.

I go out most days, I go to senior school during the week to see my friends. I volunteer out in the parks and gardens of my neighbourhood to pick up rubbish every third Saturday of the month. [Korean, female, aged 71]

Ethnic organizations serve as a key platform in which elders gather and socialize with others. These organizations also provided a place and time for elders to listen to invited guests speakers from various health-, social- and welfare-related service providers.

I participate in a lot of community activities, including this English class organized by the Chinese New Settler Services Trust. The activities are well structured, and the teachers are excellent. I feel happy living in New Zealand. [Chinese, female aged 65]

Those who affiliated themselves with a religion tended to form networks around religious communities. Church also provided a place for elders to gather - even for those who did not associate themselves with the religion joined religious activities.

In particular, Indian elders engaged with more than merely their own ethnic community groups compared to Korean and Chinese participants. This is likely to be due to Indian elders being able to speak English more proficiently. Their knowledge of Indian culture, customs and people as well as their interest in contributing to the country they now consider home was seen to be an important part of defining their value and identity within broader society:

We visit other seniors in rest homes who are lonely. So we laugh with them, talk with them, sing with them and pray with them. ... We also help at the church. [Indian, female, aged 86]

I work for the police, in a volunteering capacity. I am a community safety ambassador. Guiding peoples in shopping, how to be safe. [Indian, male, aged 67]

I'm part of OPAG, Older People Advisory Group, which meets every two months and takes care of the needs of the older people who get injured. I try to put input in the Indian point of view or Southeast Asian point of view. [Indian, male, aged 80]

Facilitators of community participation

All of the participants referred to having a healthy lifestyle such as exercising and eating healthier as key facilitators. Many also spoke of having a positive mindset, and keeping healthy through engaging with friends and community. Additionally, governmental support and social welfare provisions allows them to have freedom and independence to participate in the community. The availability of free transport (bus) allowed them to physically attend activities and New Zealand pension enabled them to financially afford to attend the classes.

Government is empowering. It affords us independence, freedom and security. We have to thank God for bringing us to a country like this. It is such a beautiful country where we hardly pay anything for medicals and buses are free. We don't get all these facilities in India. It is very important. Back in India we wouldn't have got this [Indian, female, aged 75].

Majority of participants enthusiastically described positive relations with their communities, seeing their friends almost every day, if not daily. This was particularly pertinent for elders who had strained parent-child relationships and were receiving less support from their children, or those who did not have children living in New Zealand. Connection to community networks helps elders to feel connected to their culture, and provided a sense of community, emotional and practical support.

When I'm sick my friends will come see ... and they would bring food over. And my neighbour will clean the windows outside for me, I never ask her but she always does it for me. She'll even broom my front bit for me. [Indian, female, aged 72]

Barriers to community participation

Community participation for Koreans and Chinese meant only within their own respective ethnic communities as their English proficiency limited them from engaging with wider society. These participants mentioned that their language barrier restricted deep and engaging interactions that they wish to have with their neighbours, or with wider New Zealand society.

To overcome the English barrier, some participants recalled their efforts to learn English and get to know people of other nationalities by attending community activities at the YMCA and Auckland Council. However, they soon realized the difficulties and limitation of learning a new language which discouraged them from attending regularly and consistently.

What will elders who don't share the same language talk about? We just all sit and stand still or drink coffee for a bit and just go home. Overcoming language is the hardest. [Korean, female, aged 77]

There were also additional barriers to community participation such as how people "talk" in the community and lack of gender-appropriate activities. Financial burden (administration fee to join community groups) and lack of access to transport were additional barriers particularly for those without New Zealand pension.

[Us] males, all we can do is get together, drink and play cards [gamble] which can be quite burdensome financially. If we start mixing with females, people will talk in the Korean as it is culturally inappropriate. We don't have a place we can gather freely, that's why we can't do it ourselves. [Korean, male, aged 85]

Conclusion

The study results highlight a complex mix of factors that contribute to Asian elders' ability to age in place. These include housing choices, familial support, community

participation, government resources as well as cultural adaptation of elderly care expectations and practices. To facilitate ageing in place, housing choice plays a crucial role in improving Asian elders' quality of life and functioning. The New Zealand Positive Ageing Strategy (Ministry of Social Policy, 2001) emphasizes that the ability of elders to make choices and to exercise agency in their care and living arrangements is fundamental to positive ageing in place. Traditionally in Asian cultures, leaving ageing parents to live alone is often regarded as socially unacceptable as it implies that parents are being abandoned (Park et al., 2017; Wang 2004). Participants in this study, however, pursued independent living despite wider cultural norms of intergenerational co-residency. Despite living separately from their children, many participants in this study found comfort and meaning in their children's new acts of care including regular visits, phone calls and financial support. Not only were adult children providing support, participants also demonstrated a reciprocal relationship wherein they offered childcare assistance and traditional cooking. These findings are consistent with international research that suggests "filial piety at a distance" can enhance intergenerational relationship (Zhang, 2004; Li, Hodgetts & Ho, 2010). The practice of intergenerational interdependence despite living separately can be seen as an adjustment to practicing filial piety in a Western country. It emphasizes Asian elders' shifting expectation of filial responsibilities from their adult children, as well as the need to recognize family involvement in supporting Asian elders' choice to pursue residential independence.

Another key finding of the study is that although reunification with their children was the primary motivator for Asian elders to migrate to a Western country in their later lives, this is not the only reason for them to stay. Community members and resources surfaced as important determinants in positive ageing in place. Participants commented on their breadth and depth of meaningful relations with community members, complementing their varying levels of family support. Community connections not just provide emotional support, but are also major sources of pragmatic support including access to health and social information and filling out application forms. By actively participating in the community, Asian elders have increased their social capital, which acts as a protective factor against post-migration stressors and facilitates their positive ageing. Importantly, there are a proportion of Asian elders who have limited family support. In this case, community engagement becomes even more important. A sense of belonging and attachment to place underpins the preference for Asian elders to age in the community. The findings highlight the need to ensure that ethnic elders' needs are met in policy and service design.

Finally, participants in this study perceive the meaning of ageing in place as independence and autonomy. As mentioned earlier, making own choices is an important aspect of being independent. Participants also acknowledge that New Zealand welfare services, ranging from social housing to income support, greatly enhance their ability to attain independence, freedom and autonomy. Thus, Asian elders have embraced both Eastern (interdependence) and Western values (independence) to assist their ability to age in place.

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Mortality of the Thai Elderly: Preliminary Findings from HART Panel Survey¹

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Abstract

The paper reviews the mortality situation of the Thai elderly using the panel data from the second wave of Health, Aging, and Retirement in Thailand (HART) Project. The preliminary results of the mortality situation by variation in demographic characteristics, work status, causes of death, and heritance, debts, and insurance are explored. To reduce mortality or induce life security and healthy life expectancy, the results suggest the policy focuses on improving the socio-economic equality in regional or urban-rural development, conducting preventive health care, promoting elderly employment, strengthening family institution, and improving financial literacy of Thai people at all age groups.

Keywords: Mortality of the elderly, panel data of the Thai elderly, Thailand

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Introduction

Thailand has become an aging society since 2005 with the number of population aged 60 or over reaching approximately 7.0 million (around 10 % of the total population). Currently, the number increases approximately to 11.7 million or around 17% and it is projected to reach 23.0 million or around 35% in 2050. The life expectancy at age 60 for females is 23.1 years and for males is 20.0 years (UN, 2017). The magnitude in terms of the number of the elderly with the expected life span of longer than 20 years has led to the necessity for appropriate public policies to assist the elderly population to age actively with better quality of life. To formulate the appropriate policies scientific data at the household level are required. The scientific data at the household level of the elderly should be related to the behavioral data on aging in multidimensional aspects of their life, e.g. family and family transfers, health and cognition, employment, life expectation. The Center for Aging Society Research, National Institute of Development Administration, has conducted the national panel survey on the Health, Aging, and Retirement in Thailand (HART) since 2014. Two waves of the panel survey have been completed in 2015 and 2017, respectively. In Wave 2, the survey conducted the first exit interview for the same respondents in the previous survey, i.e., Wave 1, who died. Thus, the exit data is the base-line mortality data of the deceased respondents from the household panel.

With the availability of the base-line mortality data of the Thai elderly, this paper focuses on the preliminary findings related to the demographic characteristics, the causes of death, and the financial management of the deceased Thai elderly. It is of high hope that with more mortality data from longitudinal panel survey of the HART project as expected in 2019 (Wave 3), the rigorous analysis of mortality of the Thai elderly related to any interested issues, such as healthy life expectancy (Karcharnubarn, 2015) or obesity (Vapattanawong et.al., 2010) can be conducted. This paper is organized into 4 parts. After introduction in the first part, panel data from the Thai elderly panel survey (HART) will be briefly explained in part II. Part III the preliminary findings of mortality of the Thai elderly will be presented with the conclusion in the final part.

Panel Data from the Thai Elderly Survey, HART

The Health, Aging, and Retirement in Thailand (HART) is the first panel survey and study project on aging in Thailand. Under the Center for Aging Society Research (CASR), National Institute of Development Administration (NIDA), the project is aimed to create a panel and longitudinal data base at the household level on the aging behavior of the Thai population in multi-dimensions, i.e., demographic characteristics, family and family transfers, health and cognition, employment, income, assets and debts, and life expectation. The multi-dimension data are collected from a panel of the national representative households with one member aged 45 or older interviewed.

Realizing the importance of an aging society that Thailand would become and inspired by the Health and Retirement Study (HRS), Institute for Social Research (ISR), University of Michigan since 2007, the HART project has been initiated. Two

pilot surveys of the HART project³ with 1,500 household samples from 2 provinces were conducted in 2010 and 2011 (Anantanasuwong, et.al. 2011 and 2012). The baseline national survey of the HART project⁴ with 5,600 household samples from 2 provinces in each region and from Bangkok and Vicinity was conducted in 2015 using the paper and pencil interview (PAPI) instrument (Anantanasuwong, et.al. 2017). However, with the magnitude and complicated field survey management in conducting the longitudinal panel survey, the HART researchers decided to use the computer assisted personal interview (CAPI) instrument in Wave 2 of the national survey (Anantanasuwong, et.al. 2018). This change in interview instrument was made possible by the generous collaboration from HRS and Survey Research Center (SRC) at ISR⁵ in providing computer programs (Survey Trak, Web Trak, and Blaise), server, and laptops for the field survey⁶. The Wave 2 field survey was completed in June 2017 with many challenges from implementing the new survey instruments and management. However, the data has been compiled with the base-line data in the EXCEL files⁷.

In the Wave 2 survey, a set of data have been collected from the deceased respondents. These respondents were interviewed in the base-line or Wave 1 survey, but died in the second wave. The data on the deceased respondents were collected from the 'exit interview' with their spouse or proxy. The main questions were related to the deceased respondents on when and where they died, what kinds of contribution to their family before they died, what was the cause of death, what kind of work they did before death, how they manage their inheritance or will, and whether they left any debt burden behind.

Thus, the exit data from the second wave provide the base-line mortality information of the deceased samples. Preliminary main findings from the available data are presented in the following part.

Mortality of the Thai Elderly: Base-line Results

The Wave 2 field survey of HART completed with the response rate of 68.09% or 3,824 out of 5,616 sample interviews. Among this proportion, the number of 133

³ The HART project was funded by the National Research Commission of Thailand (NRCT) in Fiscal Year (FY) 2009 for its first or base-line pilot survey, while its second pilot survey was supported by the research fund from the Commission for Higher Education Commission (CHE) in FY 2011. The pilot household samples of 1,500 were randomly selected from Bangkok and Khon Kaen.

⁴ The national HART project were funded by NRCT in FY 2014 and FY 2016 for its Wave 1 or baseline survey and the Wave 2 survey, respectively. The household samples were randomly selected from 1-2 provinces from each regions, i.e., Chiangmai and Uttaradit from the North, Khon Kaen and Surin from the Northeast, Chanthaburi from the East, Petchabun and Singburi from the Central, Songkla and Krabi from the South, and Bangkok and Vicinity (i.e., Nonthaburi, Pathum Thani, and Samuth Prakarn). Thus, the 5,600 household samples were randomly selected from 13 provinces as the baseline national panel.

⁵ The collaboration is under the Memorandum of Understanding (MOU) for Academic and Research Cooperation between the National Institute of Development Administration and the Regents of the University of Michigan on Behalf of Its Institute for Social Research, Survey Research Center, signed in April, 2016.

⁶ Arguably, it is the first time that the computer programs and CAPI were introduced into the field survey in Thailand in collecting longitudinal panel data.

⁷ The data files currently are kept at CASR. They will be transferred to the Intelligence and Information Center (IIC), NIDA in February, 2018.

respondents (3.5%) died. The exit interviews with the spouse of the deceased or with the proxy, who was a family member, were conducted. The results from the field survey are as followed:

Demographic structure of mortality

Table 1 presents the summary of the demographic characteristics of the respondents who died in the HART Wave 2 survey. By region, the proportion of deceased respondents were highest in the northeastern region (27.82%), but it was lowest in the eastern region and in Bangkok and Vicinity (9.02% and 6.02%, respectively). The high mortality occurred in the poorest region in terms of economic growth and lowest in the richest regions. According to the Office of the National Economic and Social Development Board of Thailand (NESDB), in 2015, GDP per capita in the eastern region was the highest (432,712 Baht), seconded by that in Bangkok and Vicinity (410,617 Baht); while the lowest GDP per capita was in the northeastern region (70,906 Baht). Research on the relation between regional economic development or regional economic growth and mortality of the elderly in Thailand, or the impact of regional economic development on mortality (or in another dimension, on the healthy life expectancy) should be further encouraged.

Considering the living areas, most of the deceased respondents lived in the rural area (64.66%), while only 35.34% lived in the urban area. This different proportion may reflect that the better living conditions (e.g. more/better medical services, better transportation system, and richer cultural or better sanitary environment) in the urban can keep the elderly live longer than living in the rural area.

By age group, the proportion of deceased respondents increased according to the age, i.e. more respondents died when they were older. The proportion of the entering-old age group (45 - 59 years old) who died was 9.77%, the young-old group (60 - 69 years old) was 15.79%. For the mid-old (70 - 79 years old) and the oldest old (80 years old or over) groups were 22.56% and 51.88%, respectively.

In terms of gender, the proportion of the male deceased respondents was higher than that of the females (57.89% and 42.11%, respectively). The result is consistent with the life expectancy at 60 of the Thai males, which is shorter than that of the Thai females (20.0 years and 23.1 years, respectively) (UN, 2017:30).

Considering marital status, most of the respondents who died, were married legally or commonly without marriage registration (50.38%), followed by the deceased respondents who were widowed (42.11%). Only 6.02% were single.

For the place where the respondents died, it is noted that 61.07% of the deceased respondents died at home, followed by 38.17% at hospital. Only a very few of them died at nursing home (0.76%). The results imply the importance of family cares. Home or family institution is the main place where the Thai elderly are at the end of their life.

The final finding in this part is related to the work status of the deceased respondents before their death. From Figure 1, the proportion of the deceased respondents who did not work increased when getting older, i.e., 12.50% in the entering-old age group (45

-59), 26.67% in the young-old group (60 – 69), and 47.37% and 44.83% in the midold (70 – 79) and the oldest-old (80+) groups, respectively. For the ones who worked, most of them in every age group hold 2 jobs, both being employed and having own business (from approximately 40 - 50%). About 45% of the deceased respondents in the oldest-old age group, who worked, also hold 2 jobs. Approximately 25% of the younger age groups, especially the entering-old age and the young-old, worked as employees, while 7% to16% in every age group worked in their own business.

Demographic Characteristic	Number (persons)	%			
By region $(n = 133)$					
Bangkok & Vicinity	8	6.02			
Central	29	21.8			
East	12	9.02			
Northeast	37	27.82			
North	18	13.53			
South	29	21.8			
By living area $(n = 133)$)				
Urban	47	35.34			
Rural	86	64.66			
By age group (Years) (n =	133)				
45 - 59	13	9.77			
60 - 69	21	15.79			
70 - 79	30	22.56			
80+	69	51.88			
By gender $(n = 133)$					
Males	77	57.89			
Females	56	42.11			
By marital Status (n = 13	3)				
Married	67	50.38			
Separated	1	0.75			
Divorced	1	0.75			
Widowed	56	42.11			
Single	8	6.02			
By place of death $(n = 13)$	1*)				
Hospital	50	38.17			
Nursing home	1	0.76			
Home	80	61.07			
By working status before decease	d(n = 71*)				
Unemployed	27	38.03			
Employed	7	9.86			
Own business	8	11.27			
Both employed and own business	29	40.85			

Table 1: Demographic characteristics of the deceased respondents

Source: HART Wave 2 Survey in 2017

Note: * Excluding the 'don't know' answers

More detail study should be focused on the employment of the mid-old and the oldestold since, in general, their physical health may not be fitted for working. What are the motives or incentives for the old age groups to continue working? What kind of working conditions that suitable for the old age groups in keeping on working?



Figure 1: Work Status of the Deceased by Age Group (in %)

Causes of death by region and living area

The second information from the Wave 2 survey on the deceased respondents is related to the causes of their death. From Figure 2 the non-communicable diseases (NCD) were the main cause of death among the deceased respondents in every region. The highest proportion of the deceased respondents in the central, followed by those in the north, the south, Bangkok and Vicinity, and the northeast, died because of the NCD. The natural cause or die of old age was the second cause of death in every region. The third cause of death was accidents and it occurred only in the central and northern regions. From Table 2, the common main causes of death by type of NCD in all regions were lung diseases or emphysema, vascular diseases / heart disease / heart failure, cancer / malignant tumor, and multiple non-communicable disease. More research should be focused on the health behaviors and the causes of death of the elderly at the region level.

By the living area in Figure 3, the main cause of mortality was NCD compared to natural cause or old age. However, the death caused by NCD were higher in the urban area than in the rural (74.47% and 65.12%, respectively), while those by the natural cause/old age were lower in the urban than in the rural (23.40% and 30.23%, respectively). The proportion of death caused by accidents was slightly higher in the urban area that in the rural area (2.13% and 1.16%, respectively). In terms of NCD, multiple non-communicable disease, cancer / malignant tumor, and lung Diseases / emphysema were the common main causes of death in both urban and rural areas, while kidney diseases were more common in the urban area.



Figure 2: Causes of Death by Region (in %)

Table 2 Type of Diseases Causing Death by Region (in %)

			Region		
	Bangkok				
	&				
Cause of Death	Vicinity	Central	North	Northeast	South
Non-communicable Diseases					
(NCD)	62.50	80.95	71.05	62.16	65.52
Cancer / Malignant tumor	12.50	9.52	10.53	18.92	3.45
Diabetes / high blood sugar	0.00	4.76	0.00	0.00	3.45
Diseases of the bone / low bone					
density and osteoporosis	0.00	0.00	2.63	0.00	0.00
Hypertension / high blood pressure	0.00	4.76	0.00	5.41	0.00
Infection disease	12.50	0.00	10.53	0.00	13.79
Kidney diseases	12.50	14.29	7.89	5.41	13.79
Lung Diseases / emphysema	0.00	19.05	15.79	5.41	13.79
Vascular diseases / heart disease /					
heart failure	12.50	14.29	13.16	2.70	6.90
Multiple non-communicable					
disease	12.50	14.29	10.53	24.32	10.34
Natural cause/old age	37.50	14.29	23.68	37.84	27.59
Accidents	0.00	4.76	2.63	0.00	0.00
Others	0.00	0.00	2.63	0.00	6.90
Total (n = 133)	100.00	100.00	100.00	100.00	100.00

Source: HART Wave 2 Survey in 2017



Figure 3: Causes of Death by Living Area (in %)

Table 3: Type	of Diseases	Causing	Death by	Living A	Area (in %)
				. 0		/

Cause of Death	Urban	Rural
Non-communicable Diseases	74.47	65.12
Cancer / Malignant tumor	10.64	11.63
Diabetes / high blood sugar	0.00	2.33
Diseases of the bone / low bone density and		
osteoporosis	0.00	1.16
Hypertension / high blood pressure	2.13	2.33
Infection disease	6.38	6.98
Kidney diseases	14.89	6.98
Lung Diseases / emphysema	12.77	11.63
Vascular diseases / heart disease / heart failure	12.77	6.98
Multiple non-communicable disease	14.89	15.12
Natural cause/old age	23.40	30.23
Accidents	2.13	1.16
Others	0.00	3.49
Total (n = 133)	100.00	100.00

Source: HART Wave 2 Survey in 2017

Cause of death by age group

Considering the mortality by the age group as shown in Figure 4, NCD was the most common cause of death in all age groups (from approximately 55% to 90%). The next cause of death was the natural cause or old age for the mid-old and the oldest-old age groups (about 23% and 43%, respectively). For the young-old age and the oldest-old age groups, about 5% to 1% died because of accidents.

From Table 4, the most common type of NCD causing death for the entering-old age group (45 - 59 years old) was the disease related to heart, i.e. vascular disease/heart disease/heart failure. For the young-old and the mid-old, the most common type of NCD was cancer/malignant tumor. For the oldest old, lung diseases/emphysema was the most common type. The multiple non-communicable disease was the common

cause of death for all age group, while kidney disease should be concerned for the entering-old age group.



Figure 4: Causes of Death by Age Group (in %)

Cause of Death	Age Group (Years)				
Cause of Death	45 - 59	60 - 69	70 - 79	80+	
Non-communicable Diseases	84.62	90.48	76.67	55.07	
Cancer / Malignant tumor	0.00	28.57	20.00	4.35	
Diabetes / high blood sugar	0.00	4.76	0.00	1.45	
Diseases of the bone / low bone density and osteoporosis	0.00	0.00	3.33	0.00	
Hypertension / high blood pressure	7.69	4.76	3.33	0.00	
Infection diseases	7.69	9.52	10.00	4.35	
Kidney diseases	23.08	4.76	6.67	10.14	
Lung Diseases / emphysema	0.00	14.29	16.67	11.59	
Vascular diseases / heart disease / heart failure	30.77	4.76	3.33	8.70	
Multiple non-communicable disease	15.38	19.05	13.33	14.49	
Natural cause/old age	0.00	0.00	23.33	43.48	
Accidents	0.00	4.76	0.00	1.45	
Others	15.38	4.76	0.00	0.00	
Total (n = 133)	100.00	100.00	100.00	100.00	

Table 4: Type of Disease Causing Death by Age Group (in %)

Source: HART Wave 2 Survey in 2017

Cause of death by gender

The death from NCD was the main causes for both gender, seconded by the natural cause or old age; while a small proportion of the male respondents died from accidents as shown in Figure 5 and Table 5. The proportion of the deceased male respondents from NCD was higher than that of the female (71.43% and 64.29%,

respectively). But higher proportion of the female respondents died from the natural cause or old age. Type of death related to NCD for the male deceased respondents mostly were lung diseases / emphysema and cancer / malignant tumor. For the female deceased respondents, kidney diseases and infection disease, as well as vascular diseases / heart disease / heart failure were the main causes of death. The multiple non-communicable diseases were the common type of NCD for both gender.



Figure 5: Causes of Death by Gender (in %)

Cause of Death	Male	Female
Non-communicable disease	71.43	64.29
Cancer / Malignant tumor	14.29	7.14
Diabetes / high blood sugar	2.60	0.00
Diseases of the bone / low bone density and		
osteoporosis	0.00	1.79
Hypertension / high blood pressure	0.00	5.36
Infection disease	5.19	8.93
Kidney diseases	9.09	10.71
Lung Diseases / emphysema	15.58	7.14
Vascular diseases / heart disease / heart failure	9.09	8.93
Multiple non-communicable diseases	15.58	14.29
Natural cause/old age	24.68	32.14
Accidents	2.60	0.00
Others	1.30	3.57
Total (n = 133)	100.00	100.00

Table 5: Type of Disease Causing Death by Gender (in %)

Source: HART Wave 2 Survey in 2017

Financial management

Another topic of interest is how the deceased respondents manage their finance before death whether they left any inheritance or will for their spouse/children, had any debt to be burdened, and had any life insurance. The preliminary results from Table 6 indicates that by age group, before their death, majority of the deceased respondents in every age group had no inheritance or will left for their spouse or children (in total of 68.42%). Only 27.82% of the deceased respondents had inheritance or will left. The proportion of the deceased respondents that left inheritance or will for their spouse or children increased according to the increase in age.

In terms of debt, majority of the deceased respondents had no debt burden left behind, only 15.04% did. The proportion of having no debt of the deceased respondent increased according to their age. However, most of them (78.95%) had no life insurance, only 17.29% did have life insurance. The proportion of having life insurance seems to decrease with age. However, the high proportion of having life insurance in the oldest-old age group compared to the young-old and mid-old age groups should be noted. As shown in Table 6, 20.29% of the oldest-old group who had life insurance compared to 14.29%, and 10.00%, respectively.

Einen eiel Mene com ent	Age Group					
Financial Management	45 - 59	60 - 69	70 - 79	80+	Total	
	Inheritance/v	vill (n = 133)				
Yes (inheritance/will)	7.69	14.29	16.67	40.58	27.82	
No (inheritance/will)	76.92	85.71	80	56.52	68.42	
Don't know	15.38	0	3.33	2.9	3.76	
Debt $(n = 133)$						
Yes (debt)	38.46	33.33	13.33	5.8	15.04	
No (debt)	53.85	66.67	83.33	89.86	81.2	
Don't know	7.69	0	3.33	4.35	3.76	
	Life Insuran	ce(n = 133)				
Yes (life insurance)	23.08	14.29	10	20.29	17.29	
No (life insurance)	69.23	85.71	86.67	75.36	78.95	
Don't know	7.69	0	3.33	4.35	3.76	

Table 6: Financial Management of the Deceased Respondents by Age Group (in %)

Source: HART Wave 2 Survey in 2017

To consider the situation of financial management between genders, Table 7 shows that both genders did not leave inheritance or will for their spouse or children (71.43% of the males and 64.29% of the females). Only 27.27% of the male deceased respondents and 28.57% of the female deceased respondents did. More studies should be encouraged on the behavior of leaving inheritance or will of the elderly since it reflects their ability to save and accumulate wealth.

However, in terms of debt burden, majority of both gender left no debt behind. However, higher proportion of the male deceased respondents than the female left no debts (85.71% compared with 75.00%).

For life insurance, majority of both genders indicated no life insurance had been bought. Higher proportion of the female deceased respondents did not have life insurance (80.36% of the female deceased respondents compared to 77.92% of the male).

	Male	Female	Total
Inheritance	/will (n = 133)		
Yes (Inheritance/will)	27.27	28.57	27.82
No (Inheritance/will)	71.43	64.29	68.42
Don't know	1.30	7.14	3.76
Debt	(n = 133)		
Yes, debt	12.99	17.86	15.04
No debt	85.71	75	81.20
Don't know	1.30	7.14	3.76
Life Insura	ance $(n = 133)$		
Yes, insurance	20.78	12.5	17.29
No insurance	77.92	80.36	78.95
Don't know	1.30	7.14	3.76

Table 7: Financial Management by Gender (in %)

Source: HART Wave 2 Survey in 2017.

Policy Implication

The preliminary results with simple statistics from the mortality data of the deceased respondents from the HART survey explained above have led to some important notes for policy implication as followed:

- 1) On development for quality of life of the elderly: In terms of geographical area, the results indicate the different proportion of the respondents who died in different regions and living areas (urban and rural), i.e. the highest in the northeastern region, but the lowest in Bangkok and Vicinity and in the eastern region; and the higher in the rural area than in the urban. These differences in mortality distribution imply that more in-depth studies are required to formulate proper policies on development to reduce mortality or to induce longer healthy life expectancy of the people at the regional level and the urban-rural level.
- 2) On human resource development for healthy aging: More studies are needed to concentrate on the causes of death, especially of the entering-old age and young-old groups, who are still active and able to make contribution to the economy and the society/community. The non-communicable diseases concerning lung, heart, kidney, cancer, hypertension, and multiple noncommunicable disease should be focused as major health problems for the elderly. The preventive health policies for the young and old population are important to keep them as an active human resource pool of the country.
- 3) On employment of the elderly: More studies on the motives and incentives to work for the elderly should be encouraged in order to formulate policies that
can facilitate the elderly to keep on working according to their preference with flexible time and responsibility to secure income.

- 4) On life security for the elderly: Despite dying with no debt left behind, the majority of the elderly, especially females, left no inheritance/will for their family nor life insurance for themselves. This indicates that the elderly's life security of both gender is still at high risk. Policies concerning financial management for life security of the elderly, both males and females, are important. The financial management policies, however, should be extended to cover beyond the old age group to the young age group of both gender in order to raise their life security after retirement.
- 5) On the long-term care for the elderly: Policies to maintain and support the role of the family institution in taking care of the elderly till and towards the end of their life should be important for Thailand. The policies should be concerned not only with the elderly themselves, but also with the family members as well as social infrastructure to support the long-term care at home.

Conclusion

The paper focuses on the mortality structure of the Thai elderly using the preliminary data on the base-line exit interview from the national HART survey, Wave 2 (2017). The simple statistics indicate the different structure of death of the deceased respondents in terms of geographical region, living area, age group, and gender as well as place of death and work status before death. The causes of death were mainly from the non-communicable diseases, such as diseases concerning lung, heart, kidney, cancer, hypertension, and multiple non-communicable disease. For financial management, majority of the diseased respondents had no inheritance/will left behind, no debt burden, and no life insurance.

Thus, policy implication from the preliminary findings on the mortality of the elderly from the base-line HART exit data suggests that policies related to improving the socio-economic equality in regional or urban-rural development, conducting preventive health, promoting elderly employment, strengthening family institution, and improving financial literacy should be concentrated in order to provide the Thai elderly as well as the younger population with better life security and longer healthy life expectancy.

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High-Density Ageing-Friendly Neighbourhoods: Multi-Sensorial Perspective

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Abstract

Multi-sensorial, emotional and symbolic interactions with space are critical to our experience, use and appreciation of built environments and profoundly shape our overall sense of well-being. However, our contemporary cities are often either sensory overwhelming or sensory deprived, while design practices keep embracing values of ocularcentrism and pragmatism. In result, cities keep generating stressful conditions and inequality, instead of becoming healing, empathetic, sensitive and inclusive environments for all. The aim of this paper is to discuss the role of sensory experience in planning and designing healthier neighbourhoods in high-density contexts for all ages, beyond passive and non-integrated provision of healthcare and eldercare facilities, universal design, hygiene and safety. Focusing on, subjective multisensorial experience, overall ambience and culture-specific clues, housing neighbourhoods are seen as supportive "devices" with capacities to build up residents' physical and mental ability levels, independence and social support, sense of dignity and self-esteem, at different stages of ageing, especially due to associated declines in sensory, motor and cognitive functions with ageing. This paper outlines the initial stage of research that aims to capture and evaluate multi-sensory qualities of residential neighbourhoods from the senior residents' perspective. It summaries methods and preliminary findings of the pilot study conducted in two Singaporean high-density neighbourhoods that employed ethnographic explorations, sensory mapping, surveys and walk-along interviews to capture and analyse both quantitative and qualitative, objective and subjective, sensory data and daily rhythms of housing environments from the perspective of elderly users.

Keywords: ageing-friendly neighbourhoods, multi-sensorial experience, sensory rhythms, high-density environment

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Introduction

Bodily multi-sensorial, emotional and symbolic interactions with space are critical to our experience, use and appreciation of built environments (Holl et al., 2006; Jelic, et al., 2016; Merleau-Ponty, 1962; Pérez-Gómez, 2006). Everyday exchanges with numerous stimuli in urban settings profoundly shape our overall sense of physical, mental and social well-being. In order to foster well-being positively, physical settings need to provide a balanced and moderate degree of positive stimulation (Berlyne, 1971). However, our contemporary cities are often either sensory overwhelming or sensory deprived (Erwine, 2014), and keep eroding our perceptual sphere (Zardini, 2005), while generating stress and inequality, instead of providing healing, empathetic, sensitive and inclusive conditions for all. Instead of evoking and facilitating the existential feelings and sensations, contemporary architecture has narrowed down the sensation to vision and normalised emotions to eliminate any extreme forms such as melancholy, happiness or ecstasy (Pallasmaa, 2002). The reasons may lie in the design practices historically embracing the values of ocularcentrism and pragmatism, hygiene and standardization, while neglecting the body and the senses, and their complex subjectivities (Degen 2008; Pallasmaa 1996). Such a rationalist, functionalist and modernist approach results in spaces that discourage close physical and social encounters and can be traced since the Renaissance and the Enlightenment (Degen & Rose, 2012; Illich, 2004).

On everyday basis, human beings are deeply engaged with many routine activities, such that they often forget about their bodies and what role they play in these activities. However, this does not mean that our bodies do not react. Instead of being passive receivers, our senses are rather active seeking mechanisms that are always involved simultaneously and interdependently (Gibson, 1986). Sight may indeed be the dominant sense, but it also inevitably depends on the other senses. According to Pallasmaa (1996), vision discloses what touch already knows and the tactile sense could be described as the "unconscious of vision."

Sensory declines are common with ageing, particularly the declines in motor functions, vision, hearing and odour identification (e.g., Dillion et al., 2010; Schacht & Hawkins, 2005; Swenor et al., 2013). Sensory impairments have also been associated with cognitive declines, and they both accelerate with ageing (e.g., Crews and Campbell, 2004; Schneider & Pichora-Fuller, 2000), However, while sensory declines can have detrimental effects on daily functioning, independence and wellbeing of the elderly adults, they are often under-recognised and undertreated (e.g., Berry et al., 2004; Cacchione, 2014; Chia et al., 2006; Crews & Campbell, 2004; Kiely et al., 2013; Kim et al., 2011; Kwon et al., 2015).

Therefore, embracing sensory qualities in strategic and sensitive ways becomes even more critical when designing for ageing population. Accordingly, enriching our understanding of the spatial, perceptual, emotional and social support needs of the "new elderly" is a prerequisite for designing better neighbourhoods and fully exploit their capacities to enable more meaningful and joyful "ageing in place" and "active ageing" and enhance the overall well-being of all ages. High-density conditions pose further challenges However, while the past two decades experienced "sensory revolution" in social sciences, ethnography, anthropology, human geography and cultural studies (Howes, 2006), the empirical studies in architectural and urban design disciplines focusing on multi-sensory approach to ageing-friendly and healthsupportive neighbourhood design are scarce.

Research Scope and Objectives

The overarching aim of this paper is to discuss the role of sensory experience in planning and designing healthier and elderly-friendly neighbourhoods. The premise is that the design of ageing-supportive environment needs to go beyond mere provision of healthcare and senior services, and the basic concerns for hygiene, safety and universal design. Subjective multi-sensorial experience, overall ambience and culture-specific clues are seen as important ingredients of neighbourhood design that is supportive to all stages of ageing. Challenging and building up physical and mental ability levels is critical independence, sense of dignity and self-esteem of the elderly, and together with functional and social support substantially contribute to overall quality of life and well-being. Accordingly, the main objectives of this paper are:

- To draw greater attention to multi-sensorial aspects of urban experience, design and well-being in reference to pressures of ageing population;
- To discuss the initial stage of on-going research that explored the ways capture, analyse and visualise both quantitative and qualitative, objective and subjective, multi-sensory data and daily rhythms of housing environments from the perspective of elderly residents;
- To summarise methods and preliminary findings of the pilot study conducted in two Singaporean high-density neighbourhoods.

At this initial stage of research, the primary concerns of this paper are methodological, pertinent to documentation, analysis and visualisation of sensory data. The preliminary results are discussed mainly as illustrations of the methodological explorations and outcomes and as indicators for the direction to be taken in the subsequent phases of research. Systematic investigations of sensescapes and the seniors' embodied experiences of their neighbourhoods are needed to enrich the knowledge of these largely neglected and less tangible aspects of everyday city life and their role in shaping the physical, mental and social wellbeing of senior urban dwellers.

Ageing Population, Multi-Sensory Experience and Ageing-Friendly Design

Ageing population trends. It has been predicted that the global population aged 60 years or over will grow from 12.5% in 2017 to 20% in 2050 (UN, 2017). Similarly, by 2050, the elderly population in Asia is expected to reach 23% on average. However, such predictions are even more alarming for Singapore, where by 2030 the population aged 65 or over is predicted to rise to 27%, and to 47% by 2050 (Tan, 2017). Such estimates are comparable to Japan, the eldest society in the world today.

Sensory and cognitive decline. According to a recent study (Correia et al., 2016) conducted in the United States among over 3,000 participants above 57 years old, 94% of senior adults have at least one sensory impairment. As estimated by the World Health Organisation (2010), about 285 million of people of all ages in the world and 30% of the world population aged 65 or above have some level of visual impairment. Loss of vision is associated with the higher risk of falls, injury, and depression, lower

performance in daily activities and dissatisfaction with social life (Crews & Campbell, 2004; Kwon et al., 2015). More than 40% of adults older than 65 experience some degree of hearing decline (Cruickshanks et al., 1998; Swenor et al., 2013). People with hearing impairment are more likely to have communication difficulties and poorer self-esteem, which often leads to withdrawal from social interaction and various psychosocial problems (Ham et al., 2007). About 24% of people aged above 70 (Kern et al., 2014) and 60% of those above 80 years old show problems with smell and odour identification (Murphy et al., 2002). Over 60% of adults older than 70 show taste deficits (Welge-Lüssen, 2009). Tactile impairment also prevails among the adults aged over 55 (Wickremaratchi & Llewelyn, 2006). Finally, almost 50% of the adults aged over 80 have some degree of motor impairment (Buchman & Bennett, 2011).

It is estimated that the number of people with dementia globally will almost double by 2030 and triple by 2050 (Alzheimer's Disease International, 2014). Similar projections apply to Singapore, especially concerning population aged 65 years and above, yet with a growing number among younger adults.

Numerous studies proved the correlations between sensory, motor and cognitive functions with ageing (e.g., Crews & Campbell, 2004), including the risk of developing dementia (e.g., Lin et al., 2013; Pacala & Yueh, 2012; Panza et al. 2015), delirium (e.g., Inouye et al. 2014) and depression (e.g., Cacchione, 2011; Carabellese, et al., 1993; Ribeiro et al., 2015), among others. Moreover, the elderly with dual sensory impairment, which usually refers to both hearing and visual decline, are at a higher risk of cognitive impairment, depression and social and communicational problems than those with single sensory impairment (Caban et al., 2005; Schneider et al., 2011; Swenor et al., 2013).

Finally, sensory and cognitive declines have been proven to negatively affect almost all aspects of the seniors' daily living and the overall quality of life (Chia et al., 2006; Fischer et al., 2009; Renauld & Bédard 2013). Reduced physical activity and mobility, problems with navigation and spatial orientation (Cacchione, 2011; Haanes et al., 2014), increased risk of falls (e.g., Dillion et al., 2010; Lord & Dayhew, 2001) and difficulties in communication are some of the most common consequences of sensory and cognitive decline with ageing. Very often, such consequences further lead to lower confidence, independence and autonomy levels, decreased willingness to go out and withdrawal from the social participation (Andressen & Puggaard, 2008; Crews & Campbell, 2004; Haanes et al., 2014; Handler, 2014; Heine & Browning, 2004).

Ageing-friendly and health-supportive initiatives. Since its foundation in 1948, the World Health Organisation (WHO) has recognised the importance of interaction between physical, mental and social factors in determining health and well-being, which go beyond simply the existence and function of healthcare institutions. In 1970s and 1980s, the WHO launched a 'Health for All' movement, followed by the 'Healthy City' programme, to improve people's health globally by modifying the living conditions of physical environment and social and economic conditions of everyday life (Kenzer, 1999).

With the rising pressures of global population ageing, in the late 1990s, the WHO introduced "Active ageing" initiative to describe a "process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age" (WHO, 2002, p. 12). Six groups of active ageing determinants were proposed, namely: physical environment, social, economic, health and social services, behavioural and personal determinants, with gender and culture as common modifiers. The aim of this global initiative was to support senior residents' autonomy, independence and health for as long as possible by building up their physical and mental abilities. The initiative also aimed to combat ageism and to promote social integration and empathy.

"Ageing in place" is another concept that refers to enabling adults to grow old in their own home, and within the familiar community and environment for as long as they can and with minimal disruptions to their lives and activities (Yap, 2014). In line with this concept, in 2007, the WHO released the "Global Age-Friendly Cities: A Guide", which outlined a framework for evaluating the "age-friendliness" of an urban environment, consisting of 8 criteria. They are: outdoor spaces and buildings, transportation, housing, social participation, respect and social inclusion, civic participation and employment, communication and information and community support and health services.

In the past few decades, Singapore has embraced all the above initiatives through better provision of affordable healthcare and eldercare and elderly-friendly housing, neighbourhood upgrading programmes to implement barrier-free and universal design principles, incentives for post-retirement employment, and promotion of active lifestyles, among other efforts. The prevailing focus was on 'ageing in place', as traditionally the main source of support for the elderly in Singapore is the family. About 85% of Singaporean elderly citizens live with at least one child. However, Singapore is also experiencing a rising trend of senior citizens living alone, whose number has tripled since 2000 (Tai, 2015). With limited access to care, the elderly living alone are more vulnerable to loneliness and psychological health issues. Elderly Singaporeans who live alone are 1.7 times more likely to die prematurely than those living with friends or family (Ng, et al., 2015). Both groups had similar health conditions and physical and social activity levels. Moreover, the study showed that the elderly men are almost three times more likely to die earlier if they live alone.

Senses and enabling environments – **some aspects.** While the major health problems of the 19th century cities stem from overall poor hygiene, crowding and infectious diseases, the majority of physical and mental health issues in contemporary cities result from the sedentary lifestyle, exposure to stress and violence (Kearns et al., 2007; Perdue, 2003; WHO, 2002). Although widely assumed as negative, stress can also be understood as positive. 'Eustress' was first introduced by Hans Selye (1978) to define positive response to external stressors. Accordingly, the overall state of someone's health is defined by the degree to which an individual responds to a range of negative stressors positively.

It has been argued for a long time that well-designed and aesthetically pleasant spaces and features can hold attention, distract from stressful thoughts, trigger positive emotions, boost self-esteem and contribute to overall sense of well-being (Kolstad, 2001; Parker, 1990). The restorative effects of places on cognitive, emotional and physical functioning are well described and documented (e.g., Ulrich, 1991a, 1991b; Kaplan et al., 1989) and have led to framework concepts such as the 'biophilia hypothesis' (Wilson, 1984) and 'Attention Restoration Theory' (Kaplan et al., 1989). Ulrich's (1991a, 1991b) 'Theory of Supportive Healthcare Design' has proven that 'positive distractions' (such as nature, smiling and caring human faces, pet animals, music and culture) not only incite positive feelings but also have positive physiological manifestations in lower blood pressure and the lower production of stress hormones.

An increasing number of recent studies in neuroscience that focus on investigating the embodied experience of built environment and its impacts on emotions and wellbeing tend to confirm above (Eberhard, 2009; Jelic et al., 2016; Sternberg & Wilson, 2006). According to psycho-neuro-immunology, while negative emotions can create a misbalance of the immune system and further manifest as a physical disease, positive emotions can also have positive impact on people's overall physical and mental health. Instead of mediating,

A growing body of research suggests that various features of the physical environment are linked to physical and social activities in older adults and various health benefits (Frank & Engelke, 2005, Moudon & Lee, 2003). Studies have proven positive correlations between the everyday productive and leisure activities and the lowered risk of cognitive decline (Niti et al., 2008). Moreover, research has shown that fulfilling entertainment needs of the older people can support well-being and joyful living (Alm et al., 2009; Hossain et al., 2014).

Spending time outdoors has proven to have various physical, mental and social benefits for the elderly (Orr et al., 2016). However, the outdoor environment also pose challenges and 'dilemmas' for senior adults whose physical and social activity often depends on their 'embodied capacities' (Schwanen & Ziegler, 2011; Sugiyama & Thompson, 2007), which is one of the reasons why the older people do not spend enough time in the outdoors (Kono et al., 2004).

According to Weden et al. (2008), people's subjective perceptions of the neighbourhood qualities are the most strongly associated with their self-rated health level. Greater attention to sensorial qualities of housing neighbourhoods and subjective perception thus provides greater opportunities for designers to contribute to both physical and psychological well-being of the elderly adults.

Research Approach and Methodology

This study adopts the phenomenological approach to studying multi-sensory experience of the elderly users. Phenomenology articulates a process of constant interaction between all realms of sensory experience (detected by the eye, ear, nose, mouth, skin, tongue, skeleton and muscle) and cognition - the 'lifeworld' (the everyday world of lived experience), through which the emotional and meaningful experiences of an urban environment emerge (Merleau-Ponty, 1962; Dovey, 1999).

Of particular importance for the methodological considerations in this paper are the recent studies that focused on various approaches of capturing, measuring, evaluating, analysing and visualising sensory qualities of urban environments and subjective multi-sensory experiences (e.g., Adams et al., 2007; Degen, 2008; Degen & Rose,

2012; Naghizade & Ostadi, 2014; Pink, 2008; Rogerson & Rice, 2009). 'Sensory sliders' by Malnar and Vodvarka (2004) and sensory notation system by Lucas and Romice (2008) provide useful means for capturing subjective multi-sensory responses in an intuitive yet systematic and comparable manner, supplemented by a robust sensory vocabulary matrix. Based on socio-sensory perception and ethnographic approach, as well as in reference to Henri Lefebvre's (2004) 'rhythmanalysis', Palipane (2011) developed a multimodal mapping technique for documenting sensory experience and guide place-making practices beyond the predominant focus on visual and spatial experience.

Upon a comprehensive literature review of theories and research methods pertinent to multi-sensorial experience, health-supportive and elderly-friendly environment, the pilot stage of this study employed a combination of quantitative and qualitative methods, including ethnographic research and on-site observation, spatial mapping, surveys and walk-along interviews. The following methods and the preliminary research outcomes are discussed in this paper:

- Visual ethnography exercises;
- Sensory and activity rhythm analysis;
- Socio-perceptual surveys; and
- Walk-along interviews.

Sites – Case Studies. This research was conducted in two typical public housing neighbourhoods in Singapore, namely Clementi and Bukit Panjang neighbourhoods. More than 80% of Singaporeans live in similar neighbourhoods, which are built and operated by the Housing Development Board (HDB), and thus often referred to as "HDB neighbourhoods". Clementi neighbourhood (Figure 1) comprises two developments, one from the late 1970s and the other one built in 2013. The newer development comprises high-rise tower blocks and an elevated public space platform with various public amenities, while the older precinct consists of typical lower-rise housing slab blocks. Bukit Panjang neighbourhood (Figure 2) was built in late 1980s and resembles the older Clementi precinct.



Figure 1: Clementi neighbourhood - new precinct (left) and old precinct (right).



Figure 2: Bukit Panjang neighbourhood.

Visual ethnography exercises

The initial stage of research was facilitated through two workshops with thirty students from architecture, urban design and urban planning graduate and postgraduate programmes, as part of an elective course "City and Senses: Multi-sensory Approach to Urbanism" offered at the Department of Architecture, School of Design and Environment, National University of Singapore. The workshops primarily focused on Clementi neighbourhood and involved visual ethnography journey exercises and notations of sensory experience and body movement.

Photo-Journeys. Two photo-journeys through Clementi neighbourhood were conducted, first to capture the very first encounter with space, and the second to document sensory properties of space and student researchers' subjective multisensory experience. Photo-journeys revisited the 'serial vision' technique (Cullen, 1971), as well as the situationists' and psychogeographers' concepts of 'dérive' (Debord, 1994) and 'flâneur' (Benjamin, 1999), which both require dropping usual motives for movement and action and some level of estrangement, in other words letting one's self to be led by the environment. Before looking into perception of the elderly residents, it was crucial for the student researchers to familiarise themselves with the environment and start from their own subjective experience. Both photojourneys were envisioned as quick encounters with space, each lasting for about 20 minutes. In the first journey, teams of 3-5 students were asked to be led by the space and take 10 photos of anything they wanted, while carefully marking the path taken and the points where the photographs were made. At the end of the journey, to reflect on and verbally explain his/her experience, each student described all taken photographs using 3 keywords of his/her choice. The second journey was less spontaneous and more guided, during which students took the same path again and made another series of 10 photos, but this time documenting key sensory qualities of the neighbourhood, followed by keywords.

As synthesis, team members compiled and compared their individual photo and sensory documentations (Figure 3), which created a starting point for more in-depth discussion about perception and subjectivity as well as methods and challenges of sensory documentation and analysis.



Figure 3: Photo-journey documentation and comparison – Clementi neighbourhood (Courtesy of Fu Chong and Xu Xuan)

The second workshop focused on investigating the capacities of sensory notation charts developed by Lucas and Romice (2010) to capture the predominant sensory experiences of the same neighbourhood in a systematic and comparable manner and potentially guide design interventions (Figure 4).



Figure 4: Sensory documentation and comparison – Clementi neighbourhood (Courtesy of Felice Chap, Fu Chong, Xu Xuan and Yu Qi).

Sensory and activity rhythm analysis

In addition to visual ethnography and multi-sensory mapping, on-site observations were conducted in both neighbourhoods to document and analyse quantitative spatio-sensory data and residents' activity patterns. Observations were conducted at specific

points in the neighbourhood carefully selected based on preliminary desktop analysis of land uses and amenities in the neighbourhood, followed by the validation on site to insure that the key spots of activities are covered.

Quantitative spatio-sensory data. The sources and intensity of various sensory clues (visual, aural, tactile, smell and taste, and kinaesthetic experience) were documented using a personal multifunctional environment meter to objectively record the sound level [dB], light [lux], relative humidity [%RH] and air temperature [deg C]. Such quantitative data were supplemented by the 'subjective' information gathered using "sensory scales" or "sensory charts", to identify the levels of intensity and comfort/pleasantness of particular sensory stimuli at each point of observation. Measurements were done at 3-4 time intervals to capture the changes of sensory and ambiental qualities at different times of the day, as well as during one weekday and 1 weekend – sensory rhythms (Figure 5).



Figure 5: Sensory rhythms – Clementi neighbourhood: grey – vision; red – touch; violet – sound; yellow – smell; dark green - taste (Courtesy of Kuldeep Rabha, Mehnaj Tabassum, Li Jinyi and Nandita Nayak).

Gathering residents' activity data. A 'snap-shot' method and 'tracing' were adopted from Gehl and Svarre (2013) to observe and document transitory and stationary activities occurring in the neighbourhood (Figure 6). For a short period of time (5-10mins) the researchers counted the number of people passing by or performing

stationary activities (e.g., seating, playing, exercising, etc.) at each point of observation. Age, gender and ethnicity of public space users were also noted down, wherever possible. In addition, certain number of residents were followed to get the sense where people go.



Figure 6: Activity patterns – Clementi neighbourhood: red – dominant pedestrian paths; blue – number of passers-by; yellow – number of people engaged in stationary activities (Courtesy of Ge Fan Li, Naitik Parekh, Nurzhanat Kenenov, Phuah Lin and Ulrich Chia)

Sensory and activity rhythms. As a form of synthesis, the relationships between daily activities and sensory qualities of particular spots in the neighbourhood were further explored. Analysis and graphical representation were inspired by Henri Lefebre's 'rhythmanalysis' (2004), including also timeline and journey diagrams, mental mapping, and photo-collages, among other techniques.

Senior residents' activity patterns. Specific focus was given to where the elderly residents go and gather. Findings showed that spots the most frequently occupied by the elderly users are foodcourts and wet markets, which are also sensory the richest places in the neighbourhood (Figure 7).



Figure 7: Gathering spots – Bukit Panjang neighbourhood (Source: by authors)

Both visual ethnography and sensory and activity rhythm analyses proved to be fruitful means not only for refining methodological research directions but also for distilling critical issues pertinent to ageing-friendly neighbourhood design and informing certain design measures. Key topics that arose from these exploratory exercises include: walkability and wayfinding in reference to legibility, accessibility, physical ability and memory, quality and integration of public amenities, multigenerational interaction and social support, inclusive vs. exclusive environment in reference to universal design and ageism, place identity and emotional landscapes. Role-playing and actively engaging the elderly residents were additional means for indepth analysis of these themes.

Socio-perceptual surveys

With reference to preliminary findings from the initial phases of research, the next ongoing stage of research involves socio-sensory perception surveys conducted to gain deeper insights into elderly resident's perception, satisfaction and utilisation of particular spaces in their neighbourhoods.

At this point, a total of 154 residents in Bukit Panjang neighbourhood participated in the surveys, 84% of whom live in the area longer than 20 years (Table 1). The following analysis focuses on elderly participants only. The sample included three main categories of the elderly based on their physical ability and health condition, namely: the 'young-old' (65-74 years old) – physically and mentally fit, the 'old' (75-82 years old) – largely independent or semi-independent and semi-mobile, with some need for support from care institutions and the 'oldest-old' (82 years old and older) – dependent, with very limited mobility and highest need for medical care (Chan, 2001). Finally, the analysis also includes the so-called 'oldish' category, described by Bozovic-Stamenovic (2013) as bordering generation of "becoming old", comprising adults 50-64 years old who are mobile and active, yet with new aspirations that are largely neglected in Singaporean neighbourhood design.

Table 1: Survey participants profile – Bukit Panjang neighbourhood

AGE	Valid Sample
Adults (21-49)	21
'Oldish' (50-64)	55
Young-Old (65-74)	49
Old (75-82)	26
Oldest-Old (83 & Above)	3
Total	154

Sensory impairment and health condition. According to preliminary findings, 56% of participants reported one or more sensory impairment, among which poor vision dominates, followed by poor hearing and walking difficulties (Table 2). 18% of the participants reported poor or fairly good health condition (Table 3).

Table 2. Sensory impairment – Bukit Panjang neighbourhood

SENSORY IMPAIRMENT	Valid Sample	%
Poor vision	28	47%
Poor hearing	15	25%
Poor smell detection	1	2%
Walking difficulties	13	22%
Cognitive difficulties	0	0%
Others	2	3%

HEALTH CONDITION	Valid Sample	%
Poor	3	2%
Could be better	24	16%
Good	77	50%
Very good	30	20%
Excellent	19	12%

Table 3: Self-reported health condition – Bukit Panjang neighbourhood

Daily routine. The majority of Bukit Panjang elderly residents reported that they go out relatively frequently (Figure 8), mainly engaged in shopping, eating, meeting friends, commuting and exercising (Figure 9). However, 15% of the elderly residents go out less than once a week and 4% only few time every months.



Figure 8: How often do you go out of your home into your neighbourhood?



Figure 9: What activities do you most frequently perform within your neighbourhood (as part of your daily routine)?

Table 4: Do you agree with the following statements related to your sensory experience?

Statement	Strongly disagree	Somewh at disagree	Neither agree or disagree	Somewh at agree	Strong ly agree
This neighbourhood is overall aesthetically appealing.	0%	2%	18%	64%	16%
This neighbourhood offers good variety of areas with distinguishable ambients.	1%	3%	24%	61%	11%

Neighbourhood shows obvious signs and/or features pertinent to different cultures.	2%	5%	27%	53%	13%
This neighbourhood is often too crowded.	3%	27%	37%	26%	6%
Spaces around my home are generally clean and tidy.	3%	6%	13%	62%	17%
I often find spaces around my home smelly.	15%	38%	31%	13%	3%
I often find spaces around my home quite noisy.	15%	35%	25%	21%	4%
I feel overwhelmed and bombarded in this neighbourhood on everyday basis.	13%	42%	28%	15%	1%

The most frequented places on regular daily bases are markets and foodcourts, while the most liked areas in the neighbourhood are parks and community organisations. The most disliked areas in the neighbourhood are those near rubbish chutes, voiddecks (empty spaces underneath housing blocks) and obstructed pathways (by vehicles). In respect to sensory experience, residents find their neighbourhood clean, aesthetically appealing, with good variety of ambiances. However, a substantial number of participants expressed that their neighbourhood is often too crowded, smelly and noisy, and that they feel overwhelmed by the overall amount of environmental stimuli near their homes (Table 4).

Regarding their walking experience, residents tend to prefer sheltered pathways surrounded by greenery, but tend to avoid by rubbish chutes, messy areas and dark places. Among critical barriers to enjoyable walking experience are numerous obstacles, slippery floor, lack of companionship and fear of getting lost in the neighbourhood (Table 5).

Statement	Strongly disagree	Somewh at disagree	Neither agree or disagree	Somewh at agree	Strong ly agree
There are many obstacles to walk around this neighbourhood.	6%	40%	23%	27%	3%
Floors in this neighbourhood are slippery when it rains and I feel unsafe to walk.	8%	38%	23%	29%	3%
I hesitate to go out if there is no one accompanying or helping me.	19%	50%	16%	13%	2%
Sometimes, I can't find my way in this neighbourhood.	24%	48%	16%	10%	1%
Nature makes walking through this neighbourhood more enjoyable.	1%	3%	11%	60%	25%
I avoid passing by rubbish chutes, messy areas and dark places.	4%	32%	16%	31%	16%

Table 5: Do you agree with the following statements related to your walking experience?

I always prefer walking on sheltered	0%	30/2	12%	18%	350/2
pathways.	070	570	12/0	40/0	5570

Overall, vast majority of participants are satisfied with their lives and amenities available in their neighbourhood, including the opportunities for different generations to socialize. They find their neighbourhood well-designed for the elderly users (Table 6).

Table 6: Do you agree with the following statements related to your overall experience in this neighbourhood?

Statement	Strongly disagree	Somewh at disagree	Neither agree or disagree	Somewh at agree	Strong ly agree
Amenities in this neighbourhood provide well for my daily routine needs.	0%	0%	11%	67%	21%
There are plenty of opportunities for different generations (e.g. children and elderly) to meet.	1%	8%	18%	60%	13%
This neighbourhood is overall well- designed for the elderly users.	0%	4%	13%	68%	14%
I feel happy living in this neighbourhood.	0%	0%	6%	52%	42%

These preliminary snap-shot findings confirmed some of the issues identified in the initial stages of this research. However, they are only indicative and in in-depth analysis and data triangulation will be done upon full data collection.

Walk-along interviews

Parallel to socio-perceptual surveys, walk-along interviews (60-90mins long) are also being conducted with the residents in the neighbourhood to gather qualitative data about their sensory perception, narratives and emotional experience of the neighbourhood spaces. So far, 26 walk-along interviews were conducted in Bukit Panjang neighbourhood. This exercise includes spontaneous short walk from the resident's home to any place in the neighbourhood of his/her interest, followed by an in-depth interview. During the walk, eye-tracking glasses are used to identify critical environmental clues that catch participants' attention and shape their behavior, spatial orientation and movement (Figure 10). These first-hand recordings are supported by the researchers discreetly 'shadowing' the participants (walking a short distance behind) and noting key points in their journey, such as sudden shifts in head/eyes and body postures, change in pace, use of supporting features, such as railings, furniture, etc.



Figure 10: An example of preliminary walk-along interview documentation

Instead of Conclusion

Discussing the initial stages of an on-going study, this paper outlined different explorations of documenting, analysing and visualising multi-sensory experience in general, and from the perspective of elderly users in particular, as well as described the process of development of the methods for the future study. Visual ethnography employed in this study differs from the classical observational approach in that it allows subjects' active bodily engagements in research while capturing the profound 'unspoken' knowledge through the eves of the subjects, as also suggested in works by Pink (2007) and Bloch (1998). While incapable of recording touch, taste, smell or emotion, photo- and eye-tracking walk-along journeys showed to be fruitful mechanisms for capturing and articulating the subjective multi-sensorial and emotional encounters with the neighbourhood places in an active participatory and embodied manner. Sensory rhythm analysis also proved to be very fertile and it will remain the key means of synthesis and data triangulation. Systematic and in-depth consideration of multi-sensory experience is an alternative yet relevant and needed approach to informing meaningful, empathetic and context-specific design of ageingfriendly and healthful neighbourhoods.

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Exploring the Efficacy of Independence Index for Healthy Aging for the Services of Elders

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Abstract

This study explores the risk and reinforcement factors of successful healthy aging by interviewing managers and participants of elderly colleges and day care institutions for the disabled elderly. With a purpose to build an index of independence for the elderly, this study tries to help them to achieve the goal of taking care by themselves when facing different stages of aging process. The three elements of successful aging, lower risks of diseases and disability, high physical and mental function, and engagement with life, are applied to define the index of independence which is measured by asking questions for the elderly by four dimensions: physical condition, psychological condition, self-learning condition, and social engagement condition. Indepth interviews are conducted in this quantitative study to improve this independence index for the goal of the elderly's self-support. Through these interviews, the efficacy of the independence index is defined by how this index can help these managers to explain how their participants can fit their programs or change to other programs for the purpose of switching institutions for a successful integrated care system of the elders in a community.

Keywords: healthy aging, community and aging, elder colleges, independence index for the elderly



Introduction

Taiwan has turned from an aging society to an aged society and possibly to become a super aged society in 2026. Ministry of Health and Welfare in Taiwan started the comprehensive community care service system by identifying Tier A, B, and C last year. In general, this plan is to create a comprehensive care system that integrates medical care, LTC services, housing, prevention, and social assistance to allow local people with disability to receive the care they need. This plan is to elevate community capacity to provide LTC services and implement primary prevention programs around local street blocks. Although community is planned as preventive care for the elderly's possible disability, their plan to recruit frail elder people to their program is not successful because not enough targets to enroll their program. Therefore, primary prevention programs in local community welcome all healthy people age over 65 to enroll their program this year. This shows a significant problem that frail elder people are not willing to go out of their home to participate programs in their community. In fact, there are many levels of activities designed for the elderly who may have different levels of cognition condition. Unlike the past policy, the government included the debilitated elderly living with family for the first time, and listed prevention and delay of disability as the long-term plan. The Government has included more debilitated elderly people in the long-term policy, but it has also affected the elderly who have participated in the daycare center at their own expense.

Many institutions in Taiwan offer programs to help the elderly such as elderly college funded by Ministry of Education or others activities funded Sports Administration and Social Welfare Department. However, the frail elderly face similar problems for they are not ready to participate for specific reasons. This study aims to promote effectiveness of local programs from the perspective of community integration by exploring how to integrate the elderly day care and the various levels of senior colleges or the Evergreen Academy by designing a self-supporting independence index for the elderly from a creative and progressive perspective with a goal to increase the participation of various elderly people with different conditions. This study plans to explore what factors such as individual difference, culture, psychological and physical issues can reinforce or weaken the old people's independent support trend. After combining factors into an index, the elderly, family members, caregivers or policy designers can respond to possible changes of the index and examine specific situation faced by the elderly in advance by helping them to prepare for issues about healthy aging.

Literature Review

Studies have been examining quality of life through micro level or macro level such as income, employment, housing, education, other living and environmental circumstances, perceptions of overall quality of life, individual's experiences and values, well-being, happiness and life satisfaction (Brown, et al. 2004). Rahphael et al. (1995) provides assessments of seniors' quality of life by indicating specific areas of need among seniors by a partnership of public health workers and university researchers, working closely with seniors in the community; they suggest shifts in emphasis in program delivery. Chou et al. (2011) suggests that more attention should be directed to cognitive impairment among institutionalized elderly; in addition, the environment of long term care facilities should be properly and effectively adjusted to improve the cognitive function of their residents. Brown et al. (2004) discussed ideas of Arnold (1991) through an integrated model by assessing quality of life by emotional, behavioral, cognitive and intellectual function; social and physical functioning; and social support, life satisfaction, health perceptions, abilities to pursue interests, sexual functioning, energy and vitality and economic status. Chiu & Fu (2014) explore what influenced the evaluation of senior citizens toward the service of a care center and find that the experiences of the senior citizens toward the center varied due to the nature of the community, the organizational features of the center and systems and structures that created the service of the center. They also identify the orientation and abilities of the elders, their cognition of welfare and rights, their restricted mental states after weighing current situations and their interpretation of service providers, as factors which influenced their experiences of using a center. As self-determination is usually discussed with improved quality of life, Nota et al. (2007) indicate social abilities and opportunities to make choices as a particularly important aspect of becoming more self-determined, at least in the context of residential settings for people with intellectual disabilities. Study in Taiwan shows that almost 70% of the institutionalized elderly had cognitive impairment and residents staying in facilities more than two years had poor orientation to place (Lu et al. 2011). Lu and other authors suggests that more and closer attention should be directed to cognitive impairment among institutionalized elderly.

Avoiding disease, engagement with life, and maintaining high cognitive and physical function are discussed in Rowe and Kahn's model of successful aging (Rowe & Kahn, 1997). More scholars propose strengthening the model with more factors such as positive spirituality.

Rowe and Kahn's Model of Successful Aging Revisited: Positive Spirituality—The Forgotten Factor



By Crowther, Parker, et al, The Gerontologist Vol. 42, No. 5, 613-620, 2002

Based on WHO (2002), active aging is the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age. However, culture, which surrounds all individuals and populations, shapes the way in which we age because it influences all of the other determinants of active aging. (WHO, 2002) More ideas about aging are discussed such as productive aging, healthy aging. More scholars discussed about the needs to help the elderly participate in

associations, get age-appropriate replacements for past roles, develop more stable and positive self-concepts, lead to greater life satisfaction, supported active participation and integration (Havighurst, 1963). For example, elder adults show consistency in their activities, personalities, and relationships although they are different in physical, mental conditions or social status. Identity continuity theory is more widely applicable than identity crisis theory in explaining the relationship between retirement and leisure participation (Atchley, 1971). Other scholars propose disengagement theory to explain how the elderly will withdraw from society inevitably (Cumming and Henry, 1961). They mention disengagement is effected by the individual, prompted by either ego changes, organizational imperatives. WHO (2002) identify the three pillars of a policy framework for active aging as participation, health, and security.



THE THREE PILARS OF A POLICY FRAMEWORK FOR ACTIVE AGEING (WHO, 2002)

As WHO mentioned supportive environments are required to "make the healthy choices the easy choices (2002); however, the cultural norm in Asia values the idea that families living together as aging. More welfare technology for the elderly are discussed such as transportation, communication, the care giver, productive workplace. In Taiwan, Ministry of health and welfare identify missions and goals of LTC 2.0 to set up missions as person-centered, community based, and continuum of care. One of its goal is to use upstream prevention to delay disability.



Method

After problems of successful aging for the disabled elderly are identified, this study conducted in-depth interviews to explore what are the risk and reinforcement factors of successful healthy aging. Managers and participants of elderly colleges and day care institutions for the disabled elderly are interviewed. With a purpose to build a self-support index of independence for the elderly, this study tries to help them to achieve the goal of taking care by themselves when facing different stages of aging process.

The three elements of successful aging, lower risks of diseases and disability, high physical and mental function, and engagement with life, are applied to define the index of independence which is measured by asking questions for the elderly by four dimensions: physical condition, psychological condition, self-learning condition, and social engagement condition. In-depth interviews are conducted in this quantitative study to improve this independence index for the goal of the elderly's self-support. Through these interviews, the efficacy of the independence index is defined by how this index can help these managers to explain how their participants can fit their programs or change to other programs for the purpose of switching institutions for a successful integrated care system of the elders in a community.

Research Questions:

- 1. What are the risk and reinforcement factors to build a self-support index of independence for the frail elder people?
- 2. How to build this index to help the elderly and institutions to achieve the goal of raising awareness of the elderly to obtain help from their communities when facing different stages of aging process?

	Physical condition	Psychological condition	Engagement Condition	Self Learning Condition
Policy makers	 bondages Tolerances	ConfidenceMotivation	• Benefits of engagement	Choices of learning
Family members	of mistakes • The	to be independent	• Approaches to make	• Technological support
The elderly	elderly's independen	 Iolerance of different 	connectionEngagement	Supportive care for self
Care	ce	opinions	with other	learning
centers	• Traffic	• Warm Relationship	institutionsFriendship circle	 Encourageme nt of Learning process

Questions are asked about four conditions such as physical, psychological, engagement, and self-learning conditions. Each person is interviewed about 20-30 minutes. Fifteen people interviewed in this study. They are one director of local health center, five staff working for community preventive care and programs to prevent or delay disability, one activity designer, four teachers and staff of the elderly college, one elder person who attends to day care center, three family members of the elderly.

Results

After interviews, this study proposes a self-support independent index to participate in community activities. Two group factors are found. One is the reinforcement factors to strengthen the elderly to participate local activities: happy experience, family support, accompanying partners, interactive motivation (activity design), platform/system design, non-expert language used in activities, higher level of needs in Maslow's model, a sense of belonging. The other is risk factors: stereotypical thinking about aging institutions (the negative view of the long term care institution), the definition of the traditional filial piety by the elder, the low trust of the elder, the low self-confidence of the elder, the unfriendly environment, the low demand requirements of the elder, communication access with the family.

After two group factors are collected form a test for an individual. The number of enhancement factors (8) is deducted from the number of risk factors (8) in a person's test. If the number is zero, it indicates that although the elderly's environment is not conducive to his or her independence of participation in the long-term community activities, the autonomy direction may change to a negative trend. If the subtraction is +8, it means that the current environment and community long-term activities of the elder are quite favorable. If the number is -8, the elderly is quite unfavorable to for him or her to participate in these activities and may cause adverse effects on his or her body and mind. In this condition, family and policy makers should get more involvement.

Conclusion

The study found that last year the government hoped to identify debilitated elderly people and help them to participate in activities to prevent or delay disability. The results were not smooth and the government could find fewer people to participate. Therefore, in this year, the policy is revised to design activities to prevent or delay disability. The result shows that the debilitated elderly are not easy to find, and the screening process is hard to implemented. The elderly, their family members, policy makers, program workers could possibly get more ideas about why the elderly want or do not want to participate in governmental elder programs by applying this index designed in this study.

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Active Ageing and Quality of Life of Rural Elderly Women

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Abstract

Ageing is an inevitable change in the life span of an individual. India's old age population has increased from 19 million in 1947 to 100 million in the 21st century. According to the United Nations World Population ageing reports that the Grey population has immensely increased from 9.2% in 1990 to 11.7 % in 2013, and it's expected to triple by the year 2050 growing from 737 million to over 2 billion persons 60 years of age and older. Some regions of the world will experience rapid population aging. Ageing, a period of physical, mental and social decline brings a host of challenges to the individual and the family, Hence requires special attention at all levels, the micro, mezzo and the macro levels of the society. The recent concept of healthy aging, Positive ageing and successful aging are used to help people to adapt to the demands of ageing and also to change their negative attitude towards aging. The study on Active ageing and quality of life of the rural elderly women aimed to understand the level of active ageing among the rural elderly women and its impact on the quality of life. 330 elderly women from 12 villages of Sriperumbudur associated with the mobile medical care of Help Age India were interviewed using census method. The study revealed the following findings; 73.6 percent were between 60 and 70 years and 26.4 percent of the respondents were between 70 and 75 years. All the three major religious groups were represented, 85.5 percent were Hindus. Majority of the respondents 73.3 percent had no education. It was interesting to know that majority of the respondents were self reliant (83.94 percent) and also took care of them by themselves (activities of daily living) without any support from their families. 76.9 percent of the senior women worked based on their competencies, 75.5 percent of them were involved in plenty of activities everyday including their occupation and household chores, which enabled them to be physically active. The chi square values that, there is a significant association between the overall active ageing score, religion & number of members in the family. The variables like age, occupation, income marital status, age at marriage, number of children in the family and Socio -economic Status were not significantly associated with the overall active aging score. The p-value 0.032 showed that Social network and being self-reliant are significantly associated. The study shows that most women enjoyed freedom and Independence in their families which are positive indicators of Active ageing.

Keywords: Active ageing, Quality of life, Self reliant, Successful ageing, Independence and freedom

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Introduction

Population ageing is one of the most significant global trends of the 21st century. Grey populations are becoming a major concern of the globe. An increase in life expectancy at birth and a decrease in fertility rates have caused demographic shifts all over the World. The most remarkable factor is that the less and least developed nations are ageing than the fastest most of the developed countries of the world. Presently, an approximate of 11 percent of the world's population is 60 plus years of age.

The latest Census report 2011 the total population of India is estimates that 1.21 billion & the age group of sixty plus is 98 million. The number is expected to swell to 143 million by 2021, with 51% being women. 10 percent live in Tamilnadu alone. It is also estimated that 75 % of the elderly live in rural areas out of which 48.2% are women-55% are widows. The dependency ratio in the rural areas is 12.5% and 10.3 % in urban areas. In the rural areas 67% are dependent on others. It is found that 6.7% of them are confined to bed or Home. The number of elders living alone was 6 and 8 percent in the urban and rural areas.

Old age in the life span is characterized by certain physical & Psychological changes, the effects of these changes determine to a larger extent how elder men and women will make good or poor social adjustments. Ageing refers to the decline in the functional capacity of the organ of the human body, which occurs mostly due to physiological transformation, which brings a host of challenges for the elderly. The traditional Indian society and the age-old joint family system have been playing an authoritarian and significant role in safeguarding the social and economic security of the elderly people in the country. They were playing active and important roles in the working of traditional village, caste Panchayats settling most of the disputes among the people. This condition changed due to industrialization, urbanization, modernization and pattern of employment of both men and women. However, with the rapid changes in the social scenario and the emerging prevalence of nuclear family set-ups in India in recent years signifies that elderly people are likely to be exposed to emotional, physical and financial insecurity in the years to come. This draws the attention of Governments, voluntary organizations to evolve policies to protect the grey population and also cater to their needs. Interest in quality of life and maintaining independence among older people has been fuelled by policy concerns to reduce public expenditure on pension, health and social welfare provisions. The assumed future compression of morbidity and disability in to a shorter period of life with greater, healthy or disability free life expectancy is leading to more positive perspectives of healthy aging as normal.

It is found that all though women live longer than men they age differently in physical, social, emotional and physiological processes. Ageing females are expected to have different problems than ageing men worldwide. Women being a disadvantaged and vulnerable group of the society, host a set of challenges growing old in a Patricidal society like India.

Conceptual framework

Active Aging focuses on optimizing opportunities for Health, Participation and security in order to enhance quality of life as people age (WHO). Active ageing helps people to realize their potential for Physical, social, and mental well being throughout the life course and to participate in society while providing them with adequate protection, care and security when they need. The word active refers to continuing participation in social, economic, cultural and civic affairs. Active ageing also increases life expectancy and prevents the rate of disability in old age. This concept is based on the activity theory put forth by Havighurst. This theory contends that there is a positive correlation between activity and mental and social adjustment.

Older people who retire from work, Ill or live with disabilities can remain active contributors to their families, Peers, community & nations. Active aging extends healthy expectancy and quality of life for all people as they age. Active aging takes place within the context of friends, work associates, neighbors and family members. Interdependence and intergenerational solidarity are important tenets of active aging. Autonomy and managing their lives on their own, having meaningful activities in daily life that keep them busy, makes them proud that they are independent and not a burden to others. Being active enhances the self confidence, self esteem and independence which in turn help to prevent cognitive decline.

Studies have indentified these seven factors as indicators of active ageing

- 1. Being self reliant
- 2. Being actively engaged in society
- 3. Developing Spiritual wisdom
- 4. Building up financial security
- 5. Maintaining a healthy life style
- 6. Engaging in active learning
- 7. Strengthening family ties.

Rationale and the Significance of the Study: In the past ageing was not a serious issue and society did not give it priority but was dealt as a natural phenomenon. Family members were for the care & management of the old. Unfortunately today the traditional system of holistic care for members in the family has been replaced by Individual freedom, gratification of one's needs and wealth accumulation. This transition is observed even in Villages, where elders experience Empty Nest Syndrome when children leave away their parents in the native villages and settle down in cities.

Many older people end up neither living alone nor living with their friends. Most Elder women in villages enjoy a poor quality of life in terms of food, shelter and health. Economic insecurity is one of the most threatening issues found to be the highest among the elderly women followed by those who live in nuclear families. Being self reliant and financially independent enhances the confidence of elders specially women which is indentified as one of the factors of active aging. Studies show that staying active promotes well being in elders and there is association between life satisfaction in the old in not only health related issues but also psychological and socioeconomic factors. Successful aging equals active aging.

Activity can be physical or intellectual in nature, but mainly refers to maintaining active roles in society. To maintain a positive self-image, the older person must develop new interests, hobbies, roles, and relationships to replace those that are diminished or lost in late life.

Activity is preferable to inactivity because it facilitates well-being on multiple levels. Because of improved general health and prosperity in the older population, remaining active is more feasible. The activity theory is applicable for a stable, post-industrial society, which offers its older members many opportunities for meaningful participation. Active aging leads to longer life expectancy, good cognition and prevents the rate of disability.

This study aims to understand the process of active ageing and the factors that influence the quality of life among elderly women living in rural areas. The knowledge gained from this study would lead the path to further research in this area and also to help in framing policies and services through Nongovernmental organizations for the welfare of the Grey Population.

Literature review

Biological theories, Social theories of ageing, successful ageing models were reviewed for the study. There are three major social theories of ageing which have been of relevance to research on quality of life in older age the disengagement theory, activity theory and continuity theory.

The biological theories of ageing deal with the intrinsic or genetic theories and the extrinsic or non genetic theories the intrinsic theories maintain that the process of ageing is the result of internal biological mechanisms and processes like cellular changes and changes in balance between the genes. The extrinsic theories propose that ageing occurs as a result of environmental factors acting on the organism, such as lack of exercise, stress, trauma, diet, drug use and disease. It is true that both factors have a role in ageing.

The Disengagement theory (1961) holds that ageing is an inevitable ,mutual, withdrawal or disengagement resulting in decreased interaction between the ageing person and the others in the social system he or she belongs to. It is considered normal and natural for an older person to withdraw from the society. In contrast, Havighurst (1968) developed the Activity theory stating that ageing is associated with remaining active it is held that the basic personality, attitudes and behaviors' remain constant throughout the life span of a person. It states that most people in old age continue with their roles established earlier because they continue to have the same needs and values. Successful ageing equals to active ageing, activity can be physical or intellectual in nature but mainly refers to maintaining active roles in the society. To maintain self image older people should

develop new interest, hobbies, roles and relationships to replace those that are diminished or lost in late life. This theory proposes that older people should continue a middle aged lifestyle, denying the limitations of old age as long as possible. Activity is preferable to inactivity because it facilitates well-being on multiple levels. Due to improved general health and prosperity in the older population, remaining active is more feasible now than when this theory was first proposed by Havighurst nearly six decades ago. This theory is applicable for a stable, post industrial society, which offers its older members many opportunities for its meaningful participation.

The proposed continuity theory says that in the process of becoming an adult, the individual develops habits, commitments, preferences and a host of other dispositions that become their personality. As a person grows older he attempts to maintain his habits, association and preferences. The word continuity means old age is not a separate period of life, but a continuation of many patterns set earlier. By understanding how roles are continued in to old age one can understand how roles are gained and lost, certain roles are lost due to inability or change of circumstances, while role gains are new roles which individuals learn as they age. Individuals make adaptations to enable them to feel the continuity between the past and the present, which preserves their psychological well-being.

Social system theories of Ageing

More realistic are some of the theories of ageing within the social system, such as social exchange theory, modernization theory and age stratification theory as they recognize the economic and political forces that have led to the inequality and ageism experienced by older people ,and which can detract from their Quality of life .but have been criticized for their a historicism – the implicit assumption of a linear progression from primitive to modern society – and the failure to recognize the diversity of social structures in the developed world.

Sub culture theory: according to this theory, the elderly will have strong attachments towards people of their age and they will form subculture among themselves. Rose et al (1965) suggested few trends that increase the likelihood of elders forming such sub cultures: increase in elderly population, improved health among elderly, elderly suffering from chronic diseases and self-segregating patterns like moving in to old age homes or being left alone when children migrate in search of jobs.

Modernization Theory; with the emergence of new technology, which under-mined the status of older people through the emphasis on education, rather than older adults passing on knowledge and skills, older adults lost their place of prestige and power within the social system (Burgess 1960)

Successful ageing model: Rowe and Kahn's 91987) successful aging model came up with three criteria for successful ageing

- Reduction of disease and disability
- Maintenance of high cognitive and physical functioning
- Active engagement in life.

It would be by the choices and efforts of individuals and is not dependent on choice factor. Though this model emphasizes the need to work in later stages of life, certain illness, physical and economic disadvantages could be accumulated due to external factors by the aged person. Stephen Post (2003) proposed that spirituality to be included in Rowe and Kahn's model as it the fundamental need that is affirming and nurturing self and others. In Indian culture spirituality has a pivotal role in the lives of many people. Any model without spiritual dimension would be incomplete as the propensity towards religion is quite higher among the Public.

Social health, social networks, support and activity

The ability of the individual to sustain relationship with family members as well as friends has been established to have a positive effect on health and well being among the aged (Litwin 2001) Social interactions provide an opportunity for elders to interact with peers, to get to know their problems and ways to cope with age related issues. It also provides an opportunity for them to support each other in terms of physical and emotional support.

Vivian et al (2009) has done a research on the efficacy of social activity on elderly with depression, in a secondary data of a large community in France. The result indicated that social activity reduced the risk of late life depression and also the symptoms over the two years follow up. Kalavar et al (2008) in his study on interpersonal relationships of elderly in old age homes focused on interpersonal relationships and social network and how they maintain it ,as it has the potential to influence physical as well as their mental health. A study results from a National survey of quality of life based on 999 people aged 65 or more years living in Britain, produced both qualitative and quantitative data. The main themes that emerged were having good relationships, help and support living in a home and neighborhood that is perceived to give pleasure, feeling if safety, access to facilities and services including transport, hobbies and leisure activities as well as maintaining social activities and retaining a role in the society, having a positive psychological outlook and acceptance of circumstances which cannot be changed. The respondents have also expressed the need to enjoy good health and mobility, having enough money, to meet basic needs to participate in society, to enjoy life and to retain one's independence and control over life. The results have implications for public policy and supplement the growing body of knowledge on the composition and measurement of quality of life in older age. (Zahava Gabriel & Ann Bowling 2004).

Active Ageing

The World Health Organization has defined the term. "Active ageing as the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age." Active ageing applies to both individuals and population groups. It

helps people to realize their potential for physical, social, and mental well being throughout the life course and to participate in society according to their needs, desires and capacities, while providing them with adequate protection, security and care when they require assistance. The word "active" refers to continuing participation in social, economic, cultural, spiritual and civic affairs, not just the ability to be physically active or to participate in the labour force.

The active ageing approach is based on the recognition of the human rights of older people and the United Nations Principles Active ageing depends on a variety of influences or "determinants" that surround individuals, families and nations. Aging is not only a population phenomenon but also an individual reality and experience. Biogerontologists state that while a 25% of the ways individuals' age is accounted by genetics, 75% are due to environmental conditions, including those behavioral events who select external conditions. Therefore, at individual level, Aging is a long process across the individual life span governed not only by age and genes but by the interactions between socio-environmental conditions with personal and behavioral events. Thus, Aging is not an at random phenomenon: the individual is an agent of his/her own Aging process, and the capacity for Aging well-healthy and active-comes, in a certain extent, from decisions taken by individuals themselves as well as his or her behavioral repertoires learnt across the life span. From an evidence-based point of view, it has been during the last decades of the Twentieth century, with, the so-called "new paradigm" in the field of research on Aging and in a broad sense in the science of gerontology: a positive view. Thus this study aims to understand the factors contributing to active ageing and Quality of life of elderly women living in rural communities.

Methodology

Data was collected in 12 villages of Sriperumbudur, Tamil nadu, India who are associated with the Non Governmental Organisation, Help Age India through the mobile Medical unit. Census method was adopted where the whole population was studied and the respondents were between the ages of 60 & 75. The researcher used an Interview Schedule and an active ageing Scale for collection of data from the respondents. The researcher used the Descriptive –Diagnostic research Design for the study. The data was analyzed using Statistical Tests.

S.No	Name of the Villages	No. of Elderly people
1.	Molasur	40
2.	Araneri	28
3.	Selaiyanur	34
4.	Kunnam	58
5.	Athivakkam	16
6.	Alapakkam	32
7.	Sogandi	13
8.	Eichoor	18
9.	Thirumangalam	10
10.	Santhavellur	9
11.	Sengadu	36
12.	Sooramanikuppam	8

Main Findings of the Study

The study revealed the following findings. Majority of the respondents were early old aged. All the three major religious groups were represented, 85.5percent were Hindus. Majority of the respondents 73.3percent of the older women had no education. Educated women are also considered in decision making of the family. About 62.7percent of the respondents were involved in some Occupation for their living out of which 57.3percent of the respondents worked for the 100days work scheme.

84.42 percent of the respondents had no source of income. Majority of the older widows were deprived of widow pension. Old age pension is the only source of income for most elderly women to meet their basic needs such as food, clothing and shelter. Most elders depend on their pension than the financial support from their children. About 30.6 percent of the respondents were self employed. Out of which 29.1percent earned Rs.1000 0.9 percent of the respondents earned Rs. 3000 and, 0.3percent of the respondents earned Rs.200and 2000 respectively through self employed .Majority of the respondents did not suffer from any of the major illnesses.

Quality of life

When asked about their quality of life, 60.3 percent of them agreed that they were satisfied with their life over all. There was significant association between the number of family members and the quality of life of the senior women. The more in the number of family members the better was their quality of life. Family relationships play a vital role in enhancing the quality of life of the elders. Positive relationships between family members especially in-laws shows better quality of life experienced by the respondents. There is also significant association between elderly women attending social groups, clubs and entertainments and the quality of life. Results obviously showed that Social network enhanced the quality of life of the older women.

Active Ageing

When the active ageing scale was administered, it showed interesting results that majority of the respondents were independent and self reliant (83.94 percent) and 82.73 percent of them took care of them by themselves (activities of daily living) without any support from family 76.9 percent of the senior women worked based on their competencies,75.5 percent of them were involved in plenty of activities everyday including their occupation and household chores, which enabled them to be physically active. In this study it is surprising to learn that most women enjoyed freedom and Independence in their family which is a positive indicator of active ageing. The respondents showed low scores in areas of growing spiritual wisdom, being socially active, maintaining healthy life style, building up financial security, engaging in active learning and strengthening family ties.

The chi square values showed significant association between the overall active ageing score, religion & number of members in the family. The demographic variables like age, occupation, income marital status, age at marriage, number of children in the family and socio-economic Status were not significantly associated with the overall active aging score.

The p-value 0.032 shows the social network and being self-reliant are significantly associated. The data showed that the higher the social participation encourages the elderly to become a self-reliant people. Active social network instills hope for the elder population and motivates them to be active when they compare themselves with people of their age.

Conclusion

Population ageing is a global trend and brings with it its own demands and challenges. It is the right time to address and plan Programmes and policies to meet the needs of the elderly to ensure them a secured world. This study provides an insight on how active ageing enhances the quality of life of elderly women living in rural Communities. Elder women living in villages experienced moderate level of active ageing and quality of life but still there are areas like financial insecurity, health Insurance, engaging in active learning, managing loneliness and neglect by family members, social support and leisure activities need special attention. This challenge takes its pathway to be dealt in all levels of Intervention the Individual, family and the society. Families should work out plans to help their elder parents to ensure successful and productive ageing. Only active or successful ageing can enhance and enrich the Quality of life of the elderly. This study recommends to the Indian Government to address to the specified needs of the rural elderly women, plan and implement Programmes at all levels to support the older population. An active ageing model is also evolved to attain better quality of life.

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