

A photograph of three elderly individuals, two men and one woman, sitting and playing ukuleles. They are all wearing glasses and smiling. The image is overlaid with a semi-transparent red filter. The title text is positioned in the upper left area of the image.

Design for Ageing Gracefully

Rethinking Health & Wellness
for the Elderly: Public Services

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Research, insights, personas developed by



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Foreword

By 2030, Singapore will experience a profound shift in its age demographics with the elderly population increasing by three times. This calls for a radical change in perspective on how care can be better delivered to the elderly.

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The DesignSingapore Council's Asian Insights and Design Innovation (AIDI) programme embarked on a Rethinking Health and Wellness for the Elderly project to look into developing design solutions that better meet the needs of the elderly in Singapore. This project brings together designers and stakeholders in the healthcare and social service sectors to go through the human-centred design thinking process to innovate and improve healthcare services for the elderly. Various themes explored include empowering the elderly to be proactive in caring for their health and designing a safe and supportive environment that contributes to their physical and psychological wellness.

The project started by conducting a design ethnography study through interviews and shadowing – to gather deep qualitative insights into the habits and behaviours of the elderly. From the observations, we learned about how the elderly think, act and feel towards managing their health at home and their needs and wants. We can now begin to design for behavioural change and to explore solutions like ageing-in-place, peer-to-peer support and community platforms to solve some of the elderly healthcare issues. In this publication, we illustrate the design thinking process through a selection of user insights, personas and design concepts.

We hope that this project will help designers, public service agencies and enterprises gain a better understanding of the attitudes and mindset of the elderly. We encourage the stakeholders to tap into this rich database resource, explore collaborations and be inspired to innovate and design relevant solutions for our ageing population.

Jeffrey Ho
Executive Director
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Executive Summary

The “Design for Ageing Gracefully” project rethinks health and wellness public services for the elderly. Ethnographic research with elderly Singaporeans and their caregivers identified trends and gaps in people’s experiences of the current healthcare system.

The project highlights opportunities for design-driven innovation in Singapore public healthcare, with the aim to better support a rapidly ageing society. This booklet contains key research themes; eight personas; and initial service concepts.

Theme

Challenges to coping

Searching for a new normal

Rationale

Some participants feel that despite trying hard, they have trouble accessing care.

The elderly struggle with services in a system that is not tailored to individuals.

Challenge

How might an efficient system be aware of and responsive to people’s social needs and behaviours?

How might we ensure that all people in the Singaporean society are given options that help them to bridge the gap between their own methods and strategies, and the healthcare system?

Guidelines

- Educate the younger generation about the benefits of forward-planning.
- Address obstacles to mobility throughout the healthcare process.
- Remind the elderly of the importance of home-cooked meals for greater nutritional awareness.
- Address the public image of ageing and the elderly.
- Increase the accessibility of social networks through cross-cultural integration.
- Develop software, hardware and technology-service delivery tailored to the elderly.

- Provide a new definition on the meaning of ageing.
- Consider the duality of forces, city life and nature, in contemporary architecture and urban planning.
- Use elderly-friendly ergonomic design to increase decision-making freedom.
- Activities for the elderly need to provide meaningful experiences.
- Enable collective caregiving within the community.

The insights have been grouped into five themes. For each theme, we found a recognisable challenge for the current healthcare system. To address each of these challenges, we devised five to six experience design guidelines.

This project is commissioned by DesignSingapore and in collaboration with the Ministry of Health, Ageing Planning Office, which will be considering the insights yielded as part of the ongoing Action Plan for Successful Ageing.

Cultural nuances

Elderly people try to use current services in ways that fit into their own lifestyles and cultural preferences.

How might a monolithic healthcare system respond flexibly and appropriately to different cultural needs?

Ensure that initial patient experiences with the healthcare system are positive, to create a good outlook towards future interactions.

Match healthcare treatment offerings more closely to the elderly's expectations of the treatment received.

Address users in a personalised way, with standardised processes taking a more silent, backstage role.

Match care support closely to identified care needs.

Design healthcare touchpoints to be culturally adequate and age appropriate, to reduce negative stigmas associated with accessing care.

Caregivers and external aids

Each of these issues also impact caregivers in their attempts to meet the needs of the elderly they care for.

How might volunteer and informal care be integrated more tightly into the system, so that they complement each other as parts of a holistic healthcare offer?

Provide better social support and respite for caregivers through systemic service development.

Improve employment experience and relationships between families and domestic workers.

Match healthcare system requirements to social service and volunteer group initiatives.

Recognise technological aids for caregivers.

Secure caregivers' well-being through advanced monitoring and stress-management solutions.

Provide better knowledge transfer from medical staff to caregivers.

Having a robust retirement plan

The elderly's limited education impacted their full understanding of policies, reducing their use and benefit of support and subsidies.

How might we encourage the elderly to create an actionable and robust retirement plan, taking into consideration changes in policy?

Foster a change in people's mindset about retirement. All Singaporeans must have clarity on why it is important to plan for a financial future.

Foster efforts to make people more aware of financial aid schemes, to reduce existing mental confusion.

Provide financial saving opportunities for people in individualistic employment.

Foster a change in the perception of work, with existing skills valued and transmitted to younger generations.

Personas

Design-led innovation is based on in-depth knowledge and understanding of users. The personas offer a guide to people's attitudes and drivers.

1 The ceaseless breadwinner Sole income earners for their household; highly reactive; don't plan strategically; find doctors' advice unsuited to their lives.

2 The isolated elderly Have low mobility; feel they are a burden on family; care strongly about appearing well; highly reactive.

3 The decelerating retiree Organised; highly educated; don't plan for retirement; efficiency and convenience focused.

4 The engaged elderly Able to assess own ability level; optimistic and spiritual; see nursing homes as a way to stay independent; feel lonely.

5 The unequipped volunteer Committed to community involvement and volunteering; find it hard to say no to requests; feel they can't help enough.

6 The ageing go-getter Make an effort to maintain healthy lifestyle with limited budget; plan for the future; know how retirement funds work.

7 The overwhelmed caregiver Devote time and energy to caring for sick family members; have little time for themselves; can be stressed and depressed.

8 The spiritual believer Put faith at the centre of life; critical about mainstream medical practices; rely on traditional healing methods.

Service concepts

Initial service concepts were developed in Singapore with stakeholders from the public healthcare system, targeted to each of the research themes.

1.1 Kopi and toast Mobile cafe in HDB void decks, run by volunteer "senior navigators".

1.2 Doctors on the move A mobile TCM and traditional healthcare clinic that makes rounds amongst HDB blocks linking existing community facilities.

1.3 Simply Subsidy An integrated data management system to facilitate and unite processes for different aid agencies/Ministries in Singapore.

2 Meaningful data selection My story: enable patient-centric data selection processes. Track and monitor significant events in family life.

3.1 Walk with Granny Pairing young students with the elderly for everyday activities e.g. local walk, MRT ride, supermarket shopping.

3.2 Kampong exchange Match active & isolated elders and volunteers via a social media platform.

4.1 One heart, many hands Coordinated care agency, integrating bottom-up and top-down approaches.

4.2 Rehab with wellness Incorporate alternative medicine and holistic approach with rehab services.

4.3 Neighbour to neighbour Encourage people in neighbourhoods to look out for each other by creating connecting points and activities.

5.1 Care for carers Create a training programme to support caregivers dealing with abuse.

5.2 Sayang Help caregivers with emotional and social support in taking care of the elderly.

5.3 Care pathway Best practice approaches to care journeys, to inform caregivers of next steps, decisions to be made, support needed and risks.

Next steps

Next steps aim at the realisation of innovations that consider the experience design guidelines, and drive towards a holistic, people-centred healthcare system.



Ageing is a deeply cultural issue. It impacts our social fabric and the systems and structures that make up our cities, our governments and our world. It comes with many challenges:

How might we make daily life an inclusive one for elderly citizens?

How might ethnography and design help to address current and future challenges for a better life for the elderly?

How might we ensure that the elderly have seamless access to healthcare and services that address their needs, and are treated with dignity?

How might we help the elderly pursue active and healthy lifestyles?

What emerging trends and practices can inspire innovative services for the elderly?

User experience design consultancy Experientia carried out an extensive research and analysis project for DesignSingapore Council, including a workshop with participating public agencies and services from the Singapore healthcare system.

This booklet presents the team's first thoughts on how Singapore can address these questions in its public health sector.

Statistics in brief*

Some key facts and figures on Singapore's ageing population.



General statistics at a glance

Total population	5,399,200
Resident population	3,844,800
Citizens	3,313,500
Permanent residents	531,200



Elderly by flat type (2013 and 2018)

3 room	89,037	31.2%
1 room	13,413	4.7%
2 room	14,839	5.2%
Other	168,085	58.9%
Total	285,374	100%
Total 2013**	353,180	
Total 2018**	420,986	



Resident population by age grouping

65 and over	10.5%
Males	49.2%
Females	50.8%



Life expectancy at age 65

Males	+10.8
Females	+22.0



Resident population by ethnicity

Chinese	74.2%
Malay	13.3%
Indian	9.1%
Other	3.3%



Resident population by religion (2010)

Buddhism	33.3%
Christianity	18.3%
Islam	14.7%
Taoism	10.9%
Hinduism	5.1%
Other religions	0.7%
No religion	17.0%



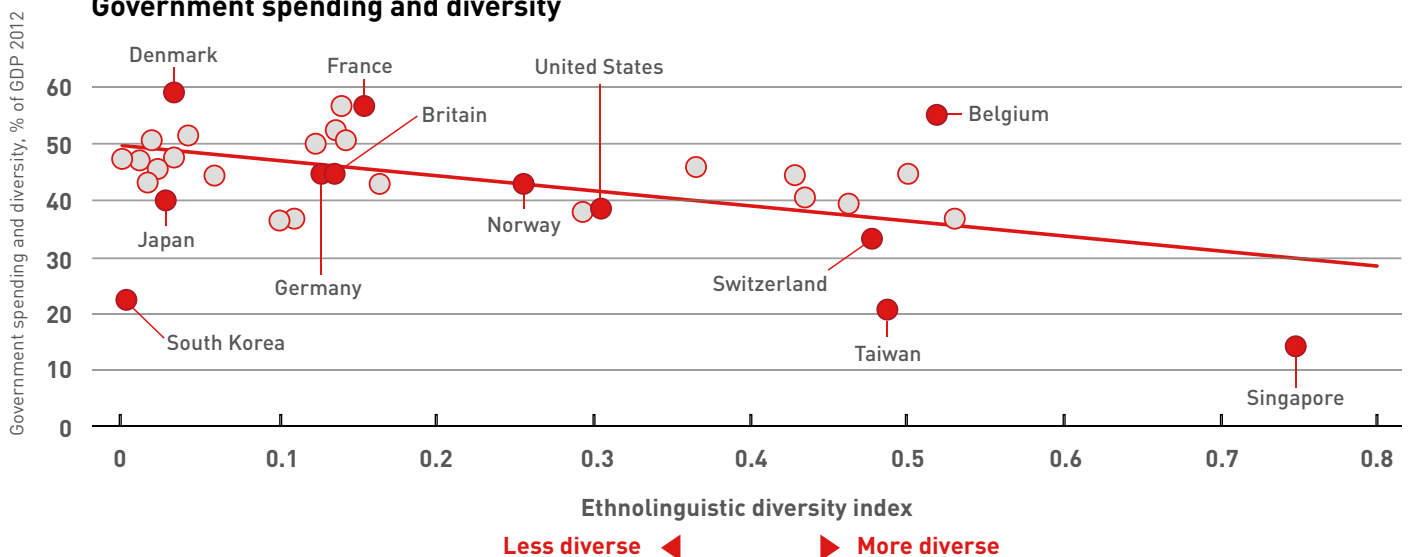
Labour force participation

Rate of residents aged 65 and over	23.8%
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* Data from 2013 Source "Singapore social statistics in brief" 2014 Ministry of social and family development ** Estimated

Statistics in brief

Government spending and diversity



Source "The political economy of linguistic cleavages.", K. Desmet, I. Ortuño-Ortín, R. Wacziarg

Brief

The “Design for Ageing Gracefully” project explored current healthcare experiences of the ageing population in Singapore, to identify trends, behaviours and gaps in the interaction between elderly people and the healthcare system. The project seeks to identify opportunity areas for design-driven innovation in the Singaporean public healthcare space, to help Singapore create the ideal conditions to support a rapidly ageing society.

What’s inside?

This document contains the main insights from the “Design for Ageing Gracefully” project, based on extensive ethnographic research with elderly people, caregivers and social workers about their experiences with the Singapore public healthcare system.

The project included an extensive field work section. We carried out ethnographic research, interviewing and shadowing elderly users of the healthcare system and their caregivers, and observing their experiences.

The research analysis insights are presented as **themes, challenges and experience design guidelines**, with supporting quotes from the research participants. These can be used by healthcare agencies and services to develop ways to improve or innovate the design of services aimed at elderly people, using a human-centred design process.

Eight personas offer representations of the participants. It’s important to remember that although these personas are fictional, they are based on the major characteristics and stories of the people we interviewed, and they highlight their common attitudes, emotions, behaviours and beliefs about healthcare. As part of a people-centred design process, personas help to ensure that innovation and new service offers are firmly based on real people’s needs and behaviours.

We have also included examples of several other **maps and models** that were produced during the analysis process, as a demonstration of the user experience analysis and design methodology.

Global trends in elderly healthcare services are broadly presented here, as a benchmark of how the challenges of ageing societies are being dealt with worldwide.

Finally, the booklet offers the results of the workshop held in Singapore with the DesignSingapore Council and several public healthcare agencies. The initial **service concepts** presented here can be the inspiration for possible innovations for the Singapore healthcare sector, and be a general guide to the sector’s opportunity spaces.

Participants



Stella P1
53, Chinese
Flight attendant



Eric P2
68, Chinese
Stress management
consultant



Leah P3
74, Chinese
Homemaker



Justin P4
78, Indian
Security guard



Patsy P5
62, Chinese
Homemaker



Kevin P6
57, Chinese
Electronics
dealer



Zamrud P7
67, Malay
Caterer



Ang P8
56, Chinese
Gardener



Olivia P9
60, Chinese
Florist owner



Jessica P10
40, Chinese
Administrator



Jade P11
60, Chinese
Seamstress



Vincent P12
58, Chinese
Engineer



Amy P13
58, Chinese
Secretary



Marina P14
55, Malay/Dutch
Cleaner



Suzanne P15
90, Chinese
Collector



Henry P16
70, Chinese
Pastry chef



Yvonne P17
75, Chinese
Bank clerk



Joe P18
55, Chinese
Librarian



Heidi P19
57, Chinese
Therapist



Mary P20
54, Chinese
Personal assistant



Yaakob P21
67, Malay
Barber



Lotis P22
58, Indian
Teacher and healer



Koh Jie P23
74, Chinese
Salesman and bus driver



Dara P24
45, Malay
Social worker

The value of UX: the user experience design process

Putting people first in healthcare systems

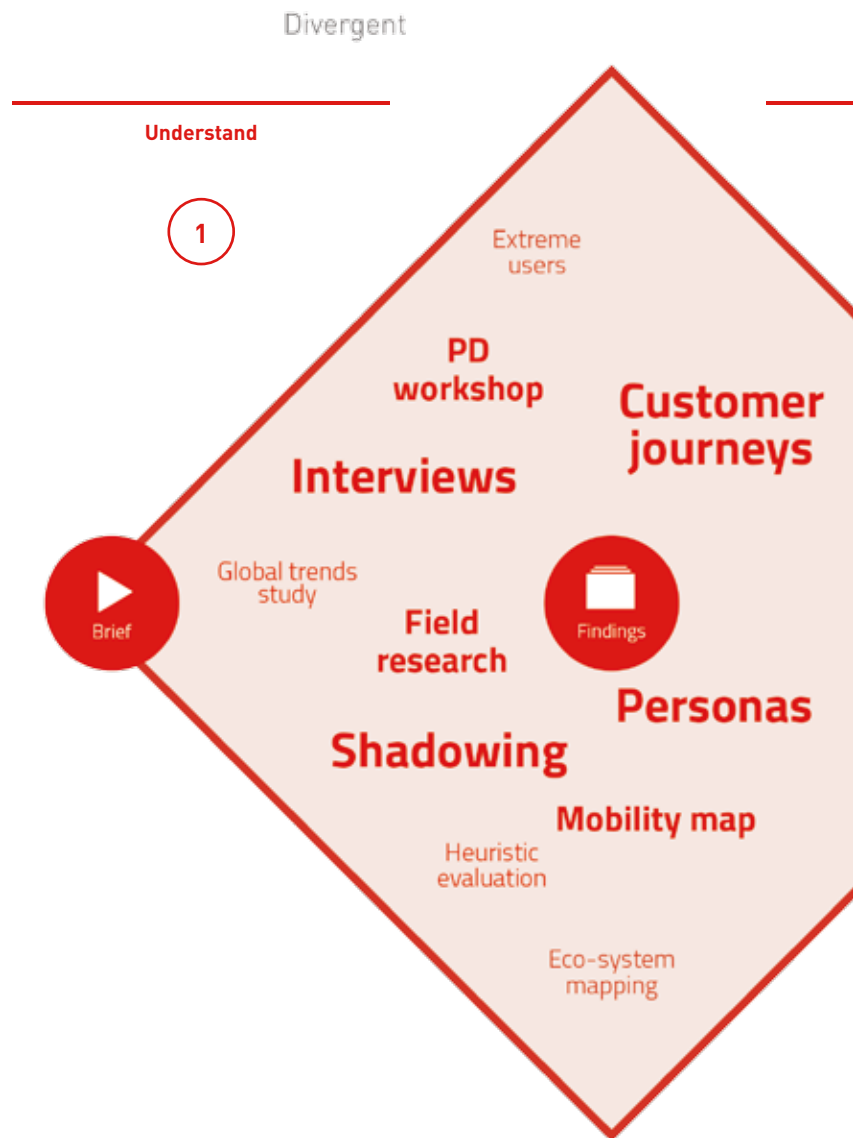
- 1 Discover / understand**

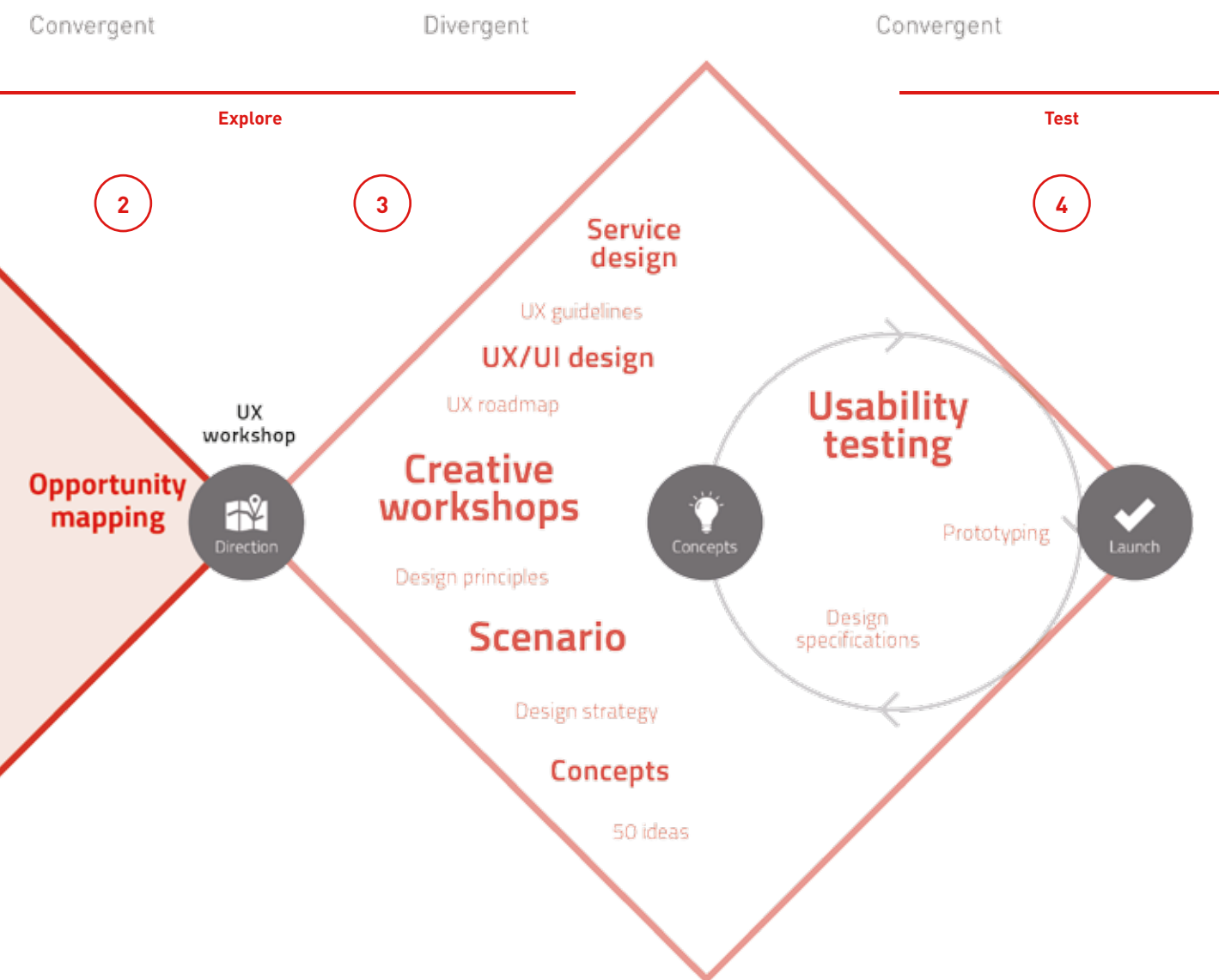
The first diagram quarter focuses on information gathering: a global trends study, in-depth field research of contextual interviews with elderly Singaporeans, shadowing on health-related activities, and a participatory design workshop.
- 2 Define / understand**

In the second quarter, the diamond narrows down to a point, representing the definition stage. The researchers develop models of the findings that help to define the underlying insights, and align the discovered needs with the project objectives.
- 3 Design / explore**

The third quarter shows the development of design-led solutions for the opportunities identified. This again broadens the process, as many ideas are generated.
- 4 Develop / test**

In the fourth quarter, the best concepts are selected, and the diamond narrows to a point again. The best ideas can then be iterated and tested in the market. These last two quarters of the diagram could become part of a future design-led innovation process.





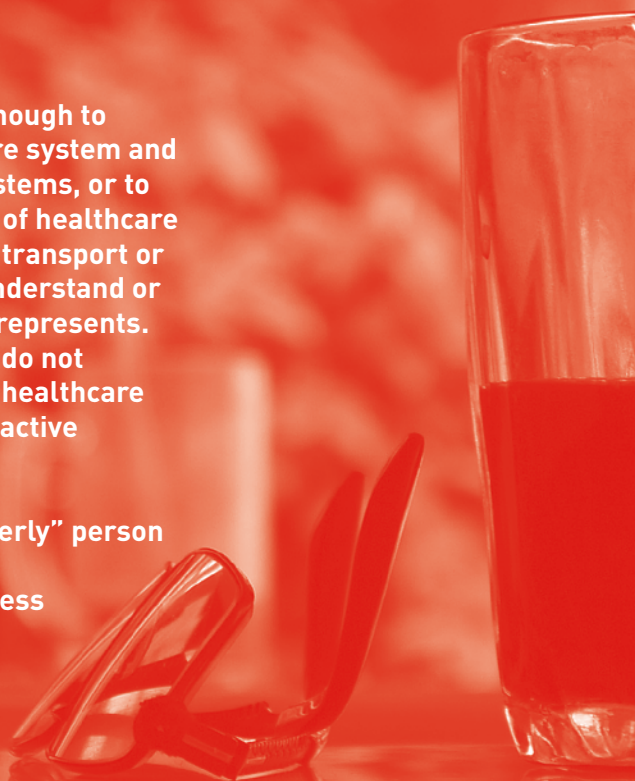
User experience design is an iterative process that deals with people's behaviours, attitudes, and emotions in relevant contexts. Design thinking moves from insights (Understand) and idea generation (Explore) to testing and implementation (Test), to create a better fit between services and users.

Challenges to coping

"I try my best, but I'm still having trouble."

These individual coping strategies are not enough to successfully take advantage of the healthcare system and make sense of its interactions with other systems, or to mentally organise the elderly's experiences of healthcare and its interactions with other systems, like transport or housing. Neither do the strategies help to understand or believe in the values the healthcare system represents. As these strategies tend to be reactive, they do not necessarily help the elderly to deal with the healthcare system, and don't drive change for more proactive behaviours.

- › Challenges in creating an identity as an "elderly" person
- › Challenges in bridging East and West
- › Challenges in reducing boredom and loneliness
- › Challenges in redefining friends and family
- › Challenges with technology
- › Managing finances



Challenges in creating an identity as an “elderly” person

Seniors experience mental and emotional distress when the differences between their expectations about themselves and the realities can’t be further ignored or avoided. This affects their health, well-being and mental stability negatively.

Managing illness

Many participants are extremely reluctant to use prescribed aids such as walkers and walking sticks — especially when their lack of mobility is related to a specific debilitating event. In these extreme situations, the elderly don’t want to remember the trauma they went through, and see the tool as reinforcing it. They replace “official” tools with more commonplace items, so that neighbours, family or friends will still think highly of them.

“ The walking stick is troublesome. I will use it when I meet my doctor.”

Zamrud, 67, caterer

Trying to exercise choice

Arguments with caregivers, family members and domestic workers arise when senior citizens are no longer able to exercise choice or independence in the ways they used to, for example, preparing coffee, or adding salt to their meal.

“ I can’t trust him to remember to shut off the stove, so I try to watch over him when he makes coffee, which of course makes us argue.”

Daughter of Justin, 78, security guard

Difficulties with mobility

Being able to walk or move effectively is closely related to freedom of choice and empowerment.

It’s no surprise that seniors develop various workarounds to maintain their mobility, sometimes with unsatisfactory results. However, the majority of participants organise life around transport, instead of using transport to support their life, for a variety of reasons:

- Limited operating hours. Certain shuttle buses are not available between 12pm-2pm on Saturdays, and so participants strategically plan their activities around shuttle times. P1
- Avoiding steps. Some participants only choose the transportation means closest to their home, and plan routes to avoid steps and overpasses – even if this means going the long way. P7, P20, P4, P11

Perceived safety

- In rainy weather, most participants will take a taxi when seeking care, despite the expense. Buses are seen as less safe in the rain because the floor inside is wet. P2, P4, P8, P14, P20
- Many participants feel that bus drivers are reckless and dangerous drivers: they don’t pull up close to the curb, they stop too briefly or make turns too quickly.
- Buses are perceived as less safe than the MRT, but participants value being able to look outside.
- In many cases, “seeing life pass by” is entertainment. P2, P4, P7, P13

“ [The] bus is more dangerous, it’s always very shaky.”

Justin, 78, security guard



Accessibility

Because of the discomfort and inconvenience of public transport, participants and their caregivers prefer private MaxiCab services or reserve ambulance services if they can afford the service, because these guarantee safety and punctuality. P6, P14

- Not all buses are wheelchair accessible. Even those that are, don't provide wheelchair-bound passengers with adequate security measures beyond the wheelchair's own brakes.
- Without a caregiver to aid the passenger, this means that wheelchairs can move and slide inside the bus, making the elderly uncomfortable, worried, and at risk of injury. P20, P16
- In one case, a participant decided to take a long walk to the MRT in the rain. This option wasn't based on cost — it was because she couldn't lift her wheelchair-bound mother into a taxi on her own.

Challenges in bridging East and West

Sometimes participants can't create their own strategies to approach the "Western" healthcare system, or their approaches don't work as intended. The elderly then often distance themselves from the healthcare experience, because they can't form a mental picture of the healthcare system and its associated parts, and they can't understand and take its values on board.

Delaying treatment

Some participants want to describe what is wrong with themselves concretely before they visit the doctor, in order to use the limited time the doctor gives them effectively. Because of this, they delay seeking treatment while they try to figure out what their symptoms are. But once at the doctor's, they may still find the same scripted questions and impersonal treatment they were hoping to avoid. P14, P2

"I didn't go to the doctor right away because I want to understand what is actually happening to me."

Marina, 55, cleaner

“Missing” schemes/subsidies

Many participants assume that government schemes, subsidies and services are typically publicised on TV or newspapers, and they don't find out about it because they don't usually use these kinds of media. Participants frequently rely on more traditional forms of information sharing, such as word-of-mouth. Therefore they often miss schemes or subsidies in the moment it would have been helpful for them.
P9, P4, P11, P1, P18

“The government didn't announce changes of schemes on a big scale, so sometimes we got information here and there from someone.”

Joe, 55, librarian

Limitations in accessing nature to exercise

- Free exercise sessions available at the botanic gardens are popular with those who can reach them. They provide senior citizens with opportunities to socialise, be immersed in nature and to build healthier habits. The classes start before public transport is running, meaning that participation is a luxury limited to those who have their own transportation, or who are lucky enough to live close by. (Sessions start between 4-5am, public transport starts at 6am.)
P3, P13, P2
- For others, low mobility limits their ability to participate in exercise. The participants who can't walk to the nearest exercise corners or park classes sometimes adapt exercises that they see others do, even if their doctor hasn't recommended exercise.

Resisting intervention

Existing corporate responsibility programmes aim to improve the quality of life for low-income seniors. However, some resist the interventions, out of a desire to maintain autonomy or a fear that it could challenge lifestyle or habits. P10 described an elderly woman she assists, who decorated her home with souvenirs from community centre-hosted parties. The corporate responsibility programme would have repainted her home, but she feared she would have to trash her proudly earned decorations and therefore she rejected the help.

“This is my home and I would like to keep these as decoration, nobody has the right to take them away from me.”

Elderly woman cared for by Jessica, 40, administrator

Nutrition

In Western countries there is a trend of self-cooking single meals, but meal-based traditions within the Malay, Tamil and Chinese cultures often yield family-sized meals. The younger of the pioneer-generation find it difficult to modify these heritage-rich recipes to single-serve portions. Instead they eat cheap hawker meals, regardless of the nutritional value. There is a feeling that hawker meals, and recipes with traditional ingredients, must be healthy. Except for two participants, the interviewees assume that high cholesterol or high-blood pressure are hereditary, and not related to nutrition. They see unhealthy food as “fast food,” (i.e. foreign restaurant chains) not the reliable and tasty hawker centres. The ingredients are so much a part of the participants' cultural fabric that most believe there is no need for healthier replacements. P2, P5, P1, P8, P23

“Cooking is too difficult for one person.”

Eric, 68, stress management consultant

Social norms

Although HDB housing blocks are culturally mixed, we have observed limited engagement amongst direct neighbours of different ethnicities. Some participants had contact with their neighbours, of which some had friends who were of different ethnicities. Those who did had formed these relationships over decades. This suggests a tendency towards an inclination into ethnic or language groups. It suggests that it may be difficult to overcome cultural divides: although two different cultures may be living next door to each other, it does not necessarily mean that they interact or learn to overcome their differences.

- P5 says that people steal her old newspapers, and she thinks her neighbours are noisy.
- P7 dislikes his neighbours because they always look in when they pass by his flat. Also when the neighbours wash their floors, his house floods — he thinks his neighbours are inconsiderate.

Challenges in reducing boredom and loneliness

Some participants are unable to effectively avoid the boredom of having a lot of free time. Lack of resources, conflict with expectations, and reduced motivation due to long-term lack of mental stimulation all pose challenges to reducing boredom and loneliness, and can lead to depression, illness and in some cases a pessimistic attitude towards life and ageing.

Lack of skill-building

Some participants seemed unable to evaluate their previous or existing abilities. Without anyone to support them in this process, they are left with fewer appropriate options to spend their time. In many cases this turns into sitting in front of the TV for hours on end, idling around hawker centres or taking public transportation without a final destination around Singapore.

- P2 takes the bus to the airport once a week to “see life go by”.
- P3 feels a need to avoid gambling, excessive shopping, travelling, things she used to do.
- P3 P4, and P8 are all challenged by gambling to different degrees.

Limited activities

Day care centres

Some senior citizens are urged to attend day care centres, even though it's not an attractive option for many participants. Existing programmes seem to “force” seniors into interacting with strangers, and most participants interviewed avoid them.

“ Why go to a place to be forced to socialise with strangers?”

Koh Jie, 75, salesman/bus driver

Nursing homes

Activities for nursing home residents were described to us as generally structured, with little adaptation for individuals or their cognitive abilities, in a one-size fits all approach. We observed two seniors placed at the same table for an activity, but one was much more highly functional than the other. During our observation, both people sat without talking and our participant noted that this was one reason she felt lonely and isolated, despite being surrounded by people. P7, P15, P6

Challenges in redefining friends and family

Family

Family is redefined by ageing and changing life stages, as the children shift their focus from parents to their own spouses and children. Connections with parents become strained when parents fall ill, because in many cases, families have not planned for this eventuality.

Unexpected caregivers

When children become caregivers, their caregiving techniques and decisions can cause arguments, since the elderly still see themselves as the head of the family. Accepting the shift in roles is mentally and emotionally difficult for both parties. P4

“ Suddenly she was just redundant... So, from then on, we had to make a decision that someone has to care for her at home.”

Kevin, 57, electronics dealer



Unexpected financial demands

Some participants said they would rather turn to extended family for assistance than the government. Arguments over which child should be financially responsible for sharing their savings to cover medical expenses or caring for the parent can be so devastating that family ties are completely broken.

Friendships

The elderly frequently lose friends to old age or illness, leaving them with an ever-decreasing social circle. Some participants successfully widened their contacts with old co-workers or classmates, but this is especially difficult for people who didn't have stable employment or study opportunities in the past.

Elderly with existing friends

Trust in friends is high: even healthcare/alternative medicine suggestions are passed through friends. Mobility is an important factor in friendships, since participants rely on public transport to meet friends.

Elderly with decreasing circle

For these participants, superficial and passing engagement is achieved at the hawker centres or nearby wet markets, but these interactions are mostly extended to elderly of the same ethnic or language group.

“ I have ex-colleagues who are Indians and Malays. But after retirement we don't contact [each other] so much anymore.”

Yvonne, 75, bank clerk

As time goes on, if the elderly rely solely on existing friends, their social circles will decrease.

Challenges with technology

About half the participants interviewed, either due to lack of knowhow or advanced age, could not effectively use technology, like newer TV sets, to ease their boredom. The hardware or the interface design made it difficult for the elderly to change the channels, read GPS directions or make a call. Additionally, technology is seen as detached and not tailored to individuals: SMS healthcare communication was seen as impersonal; a GPS instruction to turn right didn't give the participant enough distance to react. These frustrations illustrate how the devices seniors are using have been designed for other age ranges and don't have hardware, software and delivery that considers elderly needs.

- P13 & P9 bought phablets so they could read WhatsApp messages better but don't actively use their phablets well: both have problems with features such as turning off alarms.
- P11 can't change TV channels because the remote is too complicated. She asks her husband with dementia to help.
- P3, P9 and P14 have problems with GPS, managing phone calls in the car, and safety hazards.
- P2, P4 and P5 find healthcare communications via SMS are convenient but detached.

Managing finances

The participants tend to manage their finances and their financial challenges on their own. Some difficulties are offset by subsidies, but many experience general confusion about subsidies and financial aid.

Family as a support

The majority of participants cope with their financial demands by relying on family and life-long friends. Often, participants feel more comfortable turning to their close friends for financial support than speaking to unfamiliar social workers. Financial support may simply take the form of recommendations on financial planning, or may be the lending of money.

- P15 and P2 would rather borrow money from friends than talk to social workers.
- P1, P9, P10, P17, P19 and P23 bought insurance because their friends recommended it.

"If you don't work, you don't eat. But family is different, if he doesn't eat, I'll suffer."

Daughter of Justin, 78, security guard

Downgrading

A majority of participants said they would downgrade their apartment, regardless of its emotional significance, in order to manage finances and pay for additional healthcare expenses. For one participant in an HDB-1 flat, downgrading meant checking into a nursing home. Participants all agreed that one should only look for subsidies and government help after exhausting one's own resources – the sentiment of trying to avoid or do without the system seems to value independence and saving face, even if it means losing the familiar surroundings of the home. P1, P6



"I'd rather ask friends for help than approach the social services and they will investigate my background. It's kind of embarrassing."

Eric, 68, stress management consultant



Challenge 1

How might an efficient system be aware of and responsive to people's social needs and behaviours?

The elderly's reactive strategies to healthcare (and its interrelated systems) are often unsuccessful. Many of these strategies are ultimately less about managing ageing than about avoiding or misusing healthcare services and schemes. To inspire a more hands-on and social approach amongst the elderly, healthcare policies should focus on creating proactive and preventive policies, that can become part of daily life and what it means to age. This involves looking at transportation, mobility, nutrition, technology and community services.

Recommendation

Planning for the current and future ageing population involves behavioural change at all life stages: reducing reactive elderly strategies through empowering proactivity.

Experience design guidelines

- 1 **Educate the younger generation about the benefits of forward-planning.**
Intergenerational activities between schools and care centres could help young people gain more insight into all life-stages and planning for retirement. Such schemes could help reduce the need for unreliable and potentially traumatic retirement “plans” such as downgrading housing and/or relying on one family member to continue working.
- 2 **Address obstacles to mobility throughout the healthcare process.**
Healthcare experiences begin before people reach their place of care. To improve the elderly’s healthcare experience, the elements of the healthcare system require detailed reassessment to increase safe and independent mobility.
- 3 **Remind the elderly of the importance of home-cooked meals for greater nutritional awareness.**
The elderly often require encouragement to cook for themselves instead of eating hawker centre meals, which may not be directed towards mindful eating or adequate nutrition. Asia’s culinary culture of eating with family and friends could help create community social interaction to include the elderly.
- 4 **Address the public image of ageing and the elderly.**
Intergenerational products, services and experiences could foster empathy and understanding about the elderly’s needs among Singapore’s youth. In this way, the elderly’s isolation would decrease and they can develop a greater sense of confidence and acceptance to use mobility aids, medicine and care support.
- 5 **Increase the accessibility of social networks through cross-cultural integration.**
Schemes to encourage neighbourly integration must move beyond assigning different cultures to neighbouring flats if they aim to overcome pre-existing prejudices. Stakeholder workshop participants spotted a missed opportunity to connect isolated housewives and senior citizens who spend most of their day inside HDB flats, and to break down the metaphorical walls between neighbours of different ethnicities.
- 6 **Develop software, hardware and technology-service delivery tailored to the elderly.**
The lack of technological knowledge amongst the elderly affects their quality of life, due to Singapore’s rapid implementation of ICT solutions. ICT could be used to better connect seniors and provide better monitoring for the elderly staying alone. Age-appropriate tools should make it easier to read type on screen, operate remote controls, and set devices and apps to languages other than English.

Searching for a new normal

"Despite my age,
I have to try it my way."

The participants conclude that the current healthcare system has a top-down "one-size-fits-all" approach that makes no room for the subtleties of the bottom-up methods Singaporeans have used to deal with past political and social instability. This effectively shuts a large part of them out of the system, so they create their own coping strategies for health and lifestyle management.

- › Creating an identity as an "elderly" person
- › Searching for lifestyle harmony
- › Reducing boredom
- › Decreasing loneliness

Creating an identity as an “elderly” person

For many elderly, feeling unrepresented in the healthcare system has repercussions for many aspects of their lives, not necessarily tied to healthcare, but certainly impacting their health. Many participants struggle with understanding who they are, and what value they provide, now that they have retired. They construct strategies to define their new place in society.

Managing ageing

- All the Chinese participants interviewed, and many others, spoke about the importance of appearance and “face”. This included physical appearance, but also the unseen and metaphorical (such as family relationships). Many seniors felt conflict about their obviously deteriorating stamina, strength and ability, because appearance is one way to show respectability. To counter this, many of them acted in ways to accept or deny ageing. P1, P7, P2, P15, P13, P11

“If I use the walker, everyone will know just how sick I really am. I need to look healthy.”

Zamrud, 67, caterer

Restructuring the calendar

Once people stop working, every day becomes similar. To add meaning to their days, more motivated seniors look for ways to build interactions, structure and routine.

- P9 structures her week according to the schedule of her volunteering in charitable and social-agenda promoting clubs.
- P23 sweeps the church every morning and has breakfast with other volunteers daily, to give his weekdays rhythm and structure.
- P2 tries to accomplish all outside tasks/chores before Sunday, which is the most crowded “outside” day.

“I go to church and help them sweep the floor. Every Monday to Friday.”

Koh Jie, 74, salesman/bus driver

Exercising choice where available

For the elderly living in their own homes, ageing takes away the freedom previously taken for granted. Restrictions in motor skills and cognitive abilities shock many seniors, as they are constantly confronted with things they can’t do anymore. Many take pride in the things they still can do and hold on to the few available freedoms in decision-making. Greatly facilitated by financial subsidies, these experiences create momentary empowerment that affirm senior’s autonomy, value and place in the world.

- P4 takes pride in still making his own coffee, and having 2 different kinds to choose from, which he buys with his own money (provided by social assistance).
- P15 and P13 enjoy using their money to buy food outside of the limited nursing home choices. They use money left over from subsidies once expenses are paid.
- P6 appreciates the senior citizen discount provided once a week at the cinema and takes pride in using it to keep up with pop culture.
- P1 makes the effort to go get lunch at a seafood restaurant to “feel good” and break up her daily routine.

For the elderly who are institutionalised, having a choice was more important than the choice itself. The participants clearly feel that those moments when they can exercise choice leads to more mental well-being and happiness than other more controlled environments.

- Within the most “freedom granting” nursing home, participants were able to wear their own clothes and make up their own daily schedule (and were proud of it). This was a strong contrast to another nursing home, where participants wore uniforms and had fixed hours to do certain tasks. P15 vs P6
- Although the menu at the Buddhist nursing home features two different meal types (one for vegetarians) it really only provides one daily common choice which repeats weekly. Participants felt that the lack of choice took away a very simple form of control: to actively choose meals.

Redefining friends and family

The elderly often strengthen their relationships with friends and family as they age, although it can happen in unexpected ways. Children may be seen less frequently, as offspring become parents themselves, with their own responsibilities and expenses. At the same time, friendships increase in importance as people age, with trust deepening over time. The elderly start to change the way they behave about and with their friends.

- Start going to fitness classes because they are urged by a friend. P1, P3

“ [I get health advice from my friends because] my friends know me better than doctors.”

Ang, 56, gardener

- Buy insurance packets (trust in additional forms of income) because of friend’s suggestions. P1, P9, P10, P17, P19, P23
- P23 saves money for friends who may need to buy food.

Searching for lifestyle harmony

Many of the challenges the elderly experience when turning to the healthcare system are caused by a lack of common cultural ground. Many participants try to connect the “old” traditional ways of thinking with the “new” Western approach to healing. They do this on their own, outside of the medical establishment. For most participants, taking care of one’s health is a process that involves many beliefs like Taoism, alternative medicine, and feng shui. Being healthy is not just about seeking medical care, but about aligning different parts of life harmoniously.



Alternative medicine

Certain participants have reduced the long-term usage of Western medicines by turning to alternative therapies, feeling that Western medicine treats immediate symptoms, and alternative medicine underpins long-term healing. Many who combine both therapies believe that by creating a long-term relationship with an alternative medicine practitioner (so that they don't ask the Western "scripted" questions that so often frustrate them) they're able to heal more thoroughly, because they are not only receiving care for an ailment but for their spirit/soul. P22, P13, P2, P19

- P2 uses a treatment for eczema (medication to remove immediate rash), with natural herbs to treat the skin long-term.
- Alternative medicine - P1, P2, P4, P5, P7, P8, P11, P13, P19, P22.

*"You must know the root,
where the pain comes from...
I feel spiritual [healing] is
the only thing that can help."*

Lotis, 58, teacher/healer

The importance of "nature" and "green"

More than half of participants liked to stay close to foliage and plants – through small gardens visible from their HDB flats, or plants outside of the home. This increases their satisfaction and general disposition. P2, P4, P6, P5

- For most HDB dwellers, being able to "see green" outside of their gated windows provides much needed respite, and participants try to keep plants outside of their HDB flats if they don't have a garden or see foliage from their windows.
- Seniors appreciate the twisting streets and pathways within HDB blocks, especially if they are dense with foliage. P10



Reducing boredom

Many elderly have a lot of spare time that, without activity, can lead to critical boredom. The majority of interviewees agree that to stay healthy, it's vital to keep occupied. For most, this means occupying the body and mind, and they actively look for ways to do so.

Adapting old work habits

Well-established work habits do not disappear once people reach retirement age. Most participants believe that to keep their mind healthy and prevent diseases (such as dementia) they must keep parts of their pre-retirement schedules active. Many don't feel that keeping a busy schedule in old age could have potential negative impacts on their health and well-being. P7, P22, P6, P9

- P5 goes to hawker centres and buys groceries to keep herself busy.
- P4 tries to exercise daily in the mornings like he used to.
- P9 takes on management roles since she used to be a high-level manager.
- P15 uses old skills (dexterity with making rubber at a factory) to perform minute, intricate tasks at the nursing home.

Developing new work habits

A high number of participants believe that not working is directly tied to a decrease in physical and mental well-being. Many therefore see high value in taking up part time jobs. Not only will the work keep them physically occupied, but they'll be able to increase their limited-monthly income while actively being useful to society. P22, P21, P1, P2, P12, P18, P19

- P9 helped her brother launch a business.
- P2 does odd jobs to keep occupied.
- P23 began volunteering at a church to contribute to his community, now it reaffirms a sense of valuable contribution to society.
- P14 took a job at McDonald's to increase exercise and help her sleep better.

"I work for McDonald's, six o'clock until eleven... I got money for that. I don't need to waste time."

Marina, 55, cleaner

Seeking meaningful engagement

Some participants, especially those who cannot work or adapt old habits, need to make an extra effort to avoid boredom and look for alternative ways to engage with the world. For a minimal number of participants, this is directly related to continuing old pastimes. P2, P1, P3, P6, P10, P12, P14

- P11 watches people exercise to copy the movements at home as she believes exercise will keep her fit and stimulated, despite her diagnosis of terminal cancer.
- P2, P10, P9, P12 use WhatsApp to organise meetings with old classmates.
- P23, P10 participate in community socialisation opportunities.
- P10 took an extra job to be out of the house and meet new people outside of volunteers.
- P12 dedicates much time to developing personal interests/hobbies to pass the time.

Technology to keep occupied

Most seniors turn to technology to prevent boredom, although the devices and apps used tend to vary depending on income. P1, P3, P12, P2, P10

Importance of WhatsApp

Some participants relied on family and friends to keep them occupied via WhatsApp. Sending family videos, exchanging photos and getting tailored content from friends and family was quite popular amongst some. P3, P9

Other communication apps

Some seniors used Viber or Skype (on a desktop) for overseas calls, but there didn't seem to be a great liking for these apps. Seniors who do communicate with family or friends overseas seem to mostly make long distance calls, rather than using apps on their tablets or TVs.

Tablets and smartphones

Higher income brackets (HDB-3 and above) and the under-60 age group show a more advanced usage of technology than their pioneer-generation parents, or lower-income peers. They have found that tablets and smartphones keep them updated and in touch with the outside world. P1, P3, P6, P9, P10, P12, P13, P14, P16, P18, P19, P20, P24

Public devices

Lower-income participants like being able to use the computers at the library free of charge. Even if they have computers at home, some struggle to pay for Internet. Going to the library also becomes a social opportunity. P2, P12, P18

- Tech purchases and usage are methods to alleviate boredom.
- Many participants consider healthcare communication via SMS to be convenient but impersonal. They prefer talking in person. P2, P4, P5

Reducing loneliness

When people stop working, voluntarily or due to illness, they become isolated. They no longer access public transportation at rush-hour, meet colleagues, or run errands in densely populated and active areas of the city. Even when they live with others, participants can spend large parts of their day alone – which they know is not good for their well-being. Therefore, many of them actively pursue the social opportunities they feel are most appropriate.

Seeking activities

In HDB blocks, community centres provide daily activity and meal programmes with quite successful levels of attendance. The elderly can choose whether to attend or not. This level of autonomy is a way for senior citizens to show their ties and loyalty to the group. Relationships at the community centres grow organically and over time, occurring willingly between neighbours, and successfully bridging cultural boundaries. P10, P23, P5, P13, P14

- P10 Henderson Aged Reach-out Programme: Widely attended volunteer-run programmes, such as communal breakfast and exercise.

Seniors engage in relatively organic discussions and spontaneous interactions. Volunteers plan activities with set starting and ending times, but seniors are free to participate as they like, choosing whom to interact with. This spontaneity is very different from day care centres, where activities are interrupted so that those who must take transportation can be picked up and dropped off.

Creating a support circle

For others, daily activities are less important than constructing a support circle for times of need. Knowing there are people to help relieves much of the mental load caused by isolation and loneliness.

- P15 made sure to befriend neighbours so that when she wasn't feeling well, her neighbours could help her with food shopping.
- Many elderly rely on the volunteers at community centres to note their absence at daily events like breakfast or exercise time, and check up on them. This of course places additional responsibility on volunteers. (P23, P10, P24)
- P2 makes sure to speak to people at the hawker centre so that if he's not seen often, someone will check up on him.
- P9 rented out a room in her HDB to ensure that "someone" will be around to help in case of illness.

*"Living alone isn't good,
that's why I moved here."*

Suzanne, 90, collector

Challenge 2

How might we ensure that all Singaporeans are given options that help them to bridge the gap between their own methods and strategies, and the healthcare system?

Despite attempts to ease the elderly's financial and emotional hardships, they still often feel that the system wasn't made for them and devise their own ways to fill the gap. By incorporating important cultural traditions into homes, contexts and daily routines, we can actually take a more balanced approach to healthcare becoming a greater personal responsibility.

Recommendation

Product, environment and service design must originate from the elderly's perspective.

Experience design guidelines

- 1 **Provide a new definition on the meaning of ageing.**

The values of appearance and “face”, combined with mainstream messages that good health is related to youth and athleticism, don’t help to prepare ageing people for physical decline. A new definition of ageing – where ageing means being able to look at our accomplishments, and value our trajectory and current life stage – needs to be communicated and reinforced. As Singapore’s ageing population increases, products and services for ageing should exude pride and respect, and be celebrated through the meaningful growth of initiatives (such as the Pioneer card) and media communication to provide recognition and empowerment.
- 2 **Consider the duality of forces, city life and nature, in contemporary architecture and urban planning.**

Improving the existing built environment to be elderly friendly and creating desirable elderly-friendly homes means injecting nature’s elements into the urban fabric. Many participants already viewed “green” as an antidote to urban lifestyles. Bringing the outside environment into the home by incorporating metaphors of nature within interior spaces could improve satisfaction and sense of well-being.
- 3 **Use elderly-friendly ergonomic design to increase decision-making freedom.**

Ergonomic home solutions for restrictions in motor skills and cognitive abilities should be developed so that the elderly can maximise their choices in daily tasks. The stakeholders we spoke with felt that the HIP (Home Improvement Programme) currently takes too long to be useful. Implementing solutions early in the ageing process can create homes that “age” with people. This would decrease accidents at home, encourage personal and social independence and alleviate caregiver worries.
- 4 **Activities for the elderly need to provide meaningful experiences.**

Centres with activities for the elderly need to account for the wide cultural and cognitive diversity within the elderly age group. During the research, stakeholders expressed that “the elderly in day care centres are made to do activities, but there’s a lack of recreation when admitted to hospitals.” Day care centres and nursing homes need guidance on reducing overlapping activities and on how to design meaningful activities for the elderly.
- 5 **Enable collective caregiving within the community.**

Fostering cooperation and support among groups can provide a community safety net, reducing the burden on formal healthcare services. Constructing a support circle that can be present in times of need is important, as it can relieve much of the mental load caused by isolation and loneliness.

Cultural nuances

“The healthcare system wasn’t made for me.”

Participants who experienced the system first-hand, or on behalf of parents, family or friends, feel that the system isn’t made for senior citizens and that there is a large rift between elderly people’s cultural and belief systems and the current “Western” approach to healthcare.

- › Inattention to traditional beliefs
- › Varying socioeconomic backgrounds and education levels
- › Exclusion of alternative medicine
- › Differences in treatment approach
- › Oversights in additional costs



Inattention to traditional beliefs

During the pre-independence era, religious beliefs like Taoism provided a familiar and steady constant, despite political or social upheaval. Participants are challenged by finding a compromise between their religious beliefs and traditions and today's healthcare system.

Health and karma

Some participants experience mental and emotional discomfort because their health has suffered despite them fulfilling their religious obligations. They find it hard to understand and accept their diagnosis, and sometimes do not follow through on treatments. Instead they pray, meditate, make offerings, or honour deities for a cure.

- P1, P11, P7 were advised to give their daughters away (or knew similar stories), and feel that it negatively affected their karma; P3 cleans the home altar daily, as she believes honouring the dead will bring good karma.

"I don't understand how can I have sickness and good karma at the same time."

Lotis, 58, teacher/healer

Varying socioeconomic backgrounds and education levels

Socioeconomic factors and lack of educational, employment or development opportunities impact the elderly when seeking care. Some participants blame themselves for not understanding the healthcare system and how to use it. As a result, they decide that the parts of the system they don't understand are unnecessary or "not for them." Their shame turns into a general reluctance to use the healthcare system. In reality, the system needs to be designed to fit better with people's education or culture.

- Low income and lowly educated participants believe that technology is for highly educated people. They find the technology for patients to use in clinics and hospitals to be foreign and intimidating. It looks advanced (because of the hardware, and because many have English instructions taped on them). The interfaces don't clearly communicate that language support is available (and sometimes it's not).
P7, P13, P14, P5, P2
- The elderly's reluctance to use the available technology places a greater demand on healthcare staff, because they must support the tasks that the machines are intended to do (e.g. check-in).



Healthcare equipment

Attitudes instilled by upbringing and education can also affect how participants see healthcare tools. Many participants don't want to use what they see as tools for the "rich". They feel more at ease sitting down to rest when tired than using a walker or a wheelchair. P16, P4, P7

"Those days only the rich people used wheelchairs. Sick rich people had a wheelchair, but the poor people didn't bother."

Justin, 78, security guard

Written documentation

Many elderly do not speak English, but polyclinics and hospitals use English-language paper documentation (e.g. for medical stats, medical history cards, invoices and prescriptions). This reinforces the feeling that not speaking English is the participants' own personal lack. P18, P6, P20, P17, P23

Verbal communication

Non-English speaking seniors have to work out strategies for language support when seeking care. Senior citizens ask neighbours, family or friends to accompany them to translate. Others go out of their way to find someone who speaks their language at the clinic or hospital, often walking long distances to find dialect-speaking nurses or increasing their waiting time in order to see a doctor who may speak their dialect. These strategies ultimately create disillusionment, a sense of displacement and the feeling the system is "not for them". P7, P18, P20

In cases of hospitalisation, families must sometimes ask their maids to stay by the bedside due to a lack of dialect-speaking medical staff. In these cases families must pay extra transportation and meal costs for the maid. P20

"She [the maid] learns very fast and she speaks very good Hokkien. That's the only dialect that my mother can speak."

Amy, 58, secretary

Hospital signage

Hospitals have senior-friendly signage (large numbers on doors, arrows on the floor, etc.) but many participants described some sort of disorientation and confusion in hospitals and between different hospitals. Even within one hospital, processes can change from one department to the next. Some participants find it difficult to differentiate between public and private hospitals, leading them to believe it's their fault they don't understand.

"I am also confused. I don't know whether it's public or private or whatever."

Joe, 55, librarian



Exclusion of alternative medicine

The majority of interviewees have a holistic view of healthcare that includes body, mind, and soul. If medical practitioners do not acknowledge the relevance of alternative medicine for a participant, it leaves them feeling as if their long-established beliefs are wrong and causes great mental distress, because they can't bridge the "old" and "new" ways. This makes them take on a defensive approach not with doctors, but with the system; if doctors shun their beliefs, they will shun the healthcare system.

"One-size-fits-all" approach

Many participants believe that medical practitioners are trained to treat the body as standard and objective, which contradicts their belief that all people are different, and their treatment should be too. The participants feel that doctors often opt for standardised treatments or a "one-size-fits-all" approach that only considers one element of their illness, which directly clashes with their belief system. Over the long term, they develop a sense of not belonging to the system, and turn to it only as a last resource.

"Why bother explaining to doctors what's wrong if they will only give you the same solution they give everyone else?"

Suzanne, 90, collector

Exploring natural remedies

- All participants have a strong mental model of natural herbs, plants and food as optimal tools for health, with most believing in natural ways to treat an illness. Western (pharmaceutical) medicines are seen as being made from chemicals, which are toxic (even if some of the ingredients are derived from natural substances).
P22, P2, P4, P12, P1, P2, P15, P12, P14, P8, P19
- From senior citizens viewpoints, the fact that medical professionals exclude herbs, plants and other natural resources for healing deeply embeds a distrust of medicine and doctors.

- To cope with this distrust, they use avoidance techniques, like lying to medical professionals or simply telling "Western-trained" doctors what they want to hear.
- Some elderly fail to tell doctors about medication side-effects for fear of further medication and a continuation of the same detached treatment. P8
- Some elderly auto-regulate their treatment and adjust their prescriptions as they see fit.
P11, P14, P20, P3, P8
- At times the elderly deliberately tell the doctors what they believe doctors want to hear.
P15, P11, P7, P8

"Medications are made of chemicals, and can't be taken long-term."

Eric, 68, stress management consultant

Symptoms may not equal cause

Participants felt that the symptoms of an illness do not necessarily indicate the disease. The root of the illness might be related to life circumstances and mental and spiritual well-being. Many participants feel that doctors immediately prescribe medicine, instead of investigating the cause of the illness further, which conflicts with their holistic ideas. They then feel that their beliefs are possibly considered irrelevant in the current system.

- Many elderly resort to prescribing themselves with medication/alternative cures that better connect with their expectations.
P14, P4, P2, P12

Lifestyle impact on health

Senior citizens are aware that lifestyle changes can greatly improve a medical condition, but they are disappointed when doctors don't prescribe lifestyle changes as a way to minimise the use of Western medication. P19, P2, P12

- Many elderly are afraid of expressing their hesitations to take pharmaceutical treatment, or their healthcare desires, because they are afraid that the doctor may disregard them or not approve.



Differences in treatment approach

There is a wide gap between the elderly's expectations of treatment and the treatment they receive. Many participants interviewed feel that the healthcare system doesn't value the doctor-patient relationship. They assume that the system has been founded on ideals that are important to other people – not to them.

First impressions linger

Most elderly do agree that over the years doctors and nurses have improved in their approach, but dissatisfactory patient-doctor experiences in the past have negatively shaped their current attitudes.

Lack of “personal touch”

Many participants believe that the healthcare system has not evaluated them as complex and dynamic individuals, but just as patients. Medical practitioners cannot form lasting bonds with patients, because they rotate amongst clinics and hospitals. Constantly seeing a new doctor leads to “scripted” questions that don't fit how they believe healthcare should be.

*“ I didn't want to operate.
The doctor told me not to come
back to him if I don't want to operate.”*

Lotis, 58, teacher/healer

“ I know better than doctors about my body.”

Marina, 55, cleaner

Short visits & long waiting times

Long waiting times for short visits greatly influence participants' belief that the current healthcare system does not address lifestyle and holistic considerations, as their experience is one of inconvenience and discomfort. Most elderly conclude that doctors care more about speeding through the long patient list and being efficient, than about systematically treating illnesses. This makes many people feel that medical practitioners should only be seen as a last resort.

*“ It's not the doctor's fault, it's their
training. They don't understand
that we need a personal touch,
but there's an alternative.”*

Eric, 68, stress management consultant

Oversights in additional costs

Current government subsidies help seniors and their families offset medical costs. However, these subsidies don't cover some ancillary expenses. Senior citizens and their families perceive these oversights as proof that the healthcare system doesn't understand them or their needs.

Transportation costs

Government subsidies don't cover transportation costs incurred by relatives once senior citizens are hospitalised or in rehabilitation. If they use public transport, families have limited time to visit and may miss visiting hours if they take public transport. In some cases, visitors are elderly themselves and due to inclement weather, mobility problems, etc. may have to take taxis at their own expense.

P4, P7, P20, P1, P6, P8, P16, P11, P19, P22

Buying medical equipment

Often when the elderly are discharged from hospital, families or caregivers find they suddenly need medical equipment to continue care at home without disruptions. A few participants interviewed bought the medical equipment directly at the hospital store, because they only found out what they would need as their loved one was being discharged. The lack of time and the immediate need leads to additional costs incurred, that may or may not be covered by subsidies. P6, P18, P20

Additional expenses to exercise choices

In hospital or rehab, seniors find the institutional food is not what they are used to eating, adding to the idea that the healthcare system is foreign. To make sure that their loved ones eat, some families purchase food outside of the hospital, since the available meals don't regard cultural and personal food preferences (noodles vs porridge). (P20, P4, P13) This cost is not covered by existing government schemes or subsidies. (P4, P7, P20) While she was a patient herself, P7 resorted to cooking in a rehabilitation centre because she noticed that the available food was unappealing and unfamiliar to many, and neither she nor other patients were eating adequately.



Challenge 3

How might a monolithic healthcare system respond flexibly and appropriately to different cultural needs?

Many elderly do not have the financial ability to cover their medical expenses, prevent diseases or find the cures they feel they need, leading them to turn away from the system in general. To overcome this rift, it's crucial to move forward with a clear understanding of what the elderly expect from healthcare, and then modify existing processes and procedures accordingly. Doctors and healthcare workers, beyond being medically capable, must be enabled to speak to patients about medical care, using culturally appropriate mannerisms and terms.

Recommendation

The value of Singapore's healthcare offering should be made tangible through a people-centred approach that seeks to meet people's needs and expectations.

Experience design guidelines

- 1 **Ensure that initial patient experiences with the healthcare system are positive, to create a good outlook toward future interactions.**

People's first impressions of the healthcare system affect future interactions. Improved communication between healthcare providers and patients will create more trust and adherence to the system. First experiences should seem effortless and efficient, with no repetitive processes and with current touchpoints improved.
- 2 **Match healthcare's treatment offerings more closely to the elderly's expectations of the treatment received.**

Both participants and stakeholders expect the healthcare system to acknowledge cultural grounds, and offer variation and choice. A more holistic and tailored approach (e.g. as seen at Khoo Teck Puat Hospital) could provide immense value to lower income, subsidised individuals. By meeting the elderly's expectations for treatment, it can facilitate an increase in medical adherence.
- 3 **Address users in a personalised way, with standardised processes taking a more silent, backstage role.**

Standardised processes that reduce variance and guarantee patient safety should move into the background. Instead it is important to highlight the underlying causes of illnesses, not just symptoms and diagnosis. This will help the elderly perceive doctors as supporters. The better relationship and more personalised approach will help strengthen the sense that individual healthcare responsibility matters.
- 4 **Match care support closely to identified care needs.**

Most participants believe that health includes mental and spiritual well-being. Care should include lifestyle and nutritional recommendations to fulfil the elderly's desires to reduce reliance on Western medication and to increase their adoption of preventive care. This will also reduce the cost of care for the State.
- 5 **Design healthcare touchpoints to be culturally adequate and age appropriate, to reduce negative stigmas associated with accessing care.**

Pharmaceutical packaging, signs, invoices and prescriptions in a standard language and font reduces costs and simplifies procedures. But these solutions don't make adequate concessions for the elderly's education or culture. To empower the elderly's approach to health, medical signage, packaging, communication and technology should be designed with their needs and abilities in mind.

Caregivers and external aids

"My supporters also struggle with the system."

Supporters — social workers, caregivers, family, domestic employees, friends and even neighbours — find their life disrupted by elderly peoples' attitudes to healthcare. They are caught between the elderly's struggles and the way the system is implemented, making them feel like they're fighting an uphill battle. Dissatisfied, supporters may also create workaround strategies, since the "system isn't for them". Caregiver communities need more support in order to extend their role as mediators between the healthcare system and the people they care for, otherwise they simply reinforce the existing cultural barriers and resource limitations.

- › Caregiver challenges
- › Lifestyle
- › Seeking support
- › Volunteer and social work challenges

Caregiver challenges

For family members who become caregivers, having responsibility for someone else's health and well-being is disruptive and they often receive little gratitude. Caregiving has overwhelmed all the participants we interviewed. Caregivers have to make lifestyle changes and face challenges in offering care that are currently not well-supported by the healthcare system. The lack of support, lack of access to information and tools to practise good caring techniques and increase the elderly's trust in the system results in caregivers continuing their parent's cycle of avoiding the system. Currently, caregivers create their own strategies to deal with healthcare's existing gaps. The following challenges were important for the majority of caregivers interviewed, as their mental and physical health steadily deteriorated over time. P14, P2, P20, P13

Lifestyle

Changing family balance (external network):

Family problems arise between the elderly and their offspring when siblings must decide which one will care for their ageing parent. Family dynamics in which there is an established "favourite child" was raised by several participants. Most often the "favourite" child isn't the one delegated with the most responsibility, causing jealousy, insecurity and a deep sense of being wronged. These feelings cause misunderstanding and miscommunication, and has led to legal battles between offspring. Additionally, women, particularly unmarried women, bear the brunt of the responsibility. P7, P14, P13, P19, P20

"I am not my mother's favourite daughter. My sister is the one. I am not her favourite daughter because I am very rough and I am very firm."

Marina, 55, cleaner

Changing family balance (internal nucleus):

Caring for a parent influences the caregivers' own family balance, because it reduces their time with their own spouses and children. The caring routine or unexpected emergencies (elderly falling or in hospital) take precedence, with the caregiver feeling solely responsible for their inefficient time-management or inability to delegate caregiving responsibilities. P11, P5, P14, P6, P20

"Saturday used to be the only day my husband and I would go to the movies, and I didn't cook. Now Saturdays I take care of my mother. My husband says he understands, but I miss him."

Marina, 55, cleaner

Time-management

Balancing time demands begin to fray family relationships, as caregivers slowly lose their grip over their direct family's needs. They try to make up for this by spending less time on personal leisure, to make time for additional tasks like cleaning the elderly's home. One caregiver told us that she spent her only free time to cry when she was in the bathroom.

Technology

Despite experiencing some challenges with hardware (such as needing a phablet to be able to read better and make calls) in general, caregivers employ a wide range of apps to help in time management. Apps for bus schedules, reminders and the calendar were widely used.

Managing stress

Caregivers don't have an outlet for stress management. A deep sense of guilt and worry for the elderly clouds relaxation time, such as massage or meeting with friends. They don't have many opportunities to speak about their stress, or they are presented to people of a similar or lesser expertise level and so the advice received is usually unhelpful. Stress management techniques involve "downgrading" one's own job/employment position, hiring part-time help or taking on a part-time job as a "de-stressing" physical activity.

"I took a job at McDonald's because my mind was too busy to rest; in this way, I'll certainly be tired enough to sleep."

Marina, 55, cleaner

"I had to downgrade jobs to have less responsibility at work."

Amy, 58, secretary

Seeking support

Caregiving is subjective

People care for the elderly in varying ways, some by sending their loved one to a nursing home, or by taking on all the responsibility of delivering care. While there is no right or wrong way to care, there is also currently no strategic planning aid or support to understand how to best fit caregiving into life.

Learning caregiving techniques

Most caregivers said that they learnt caregiving techniques by watching nurses and physicians while the elderly were hospitalised or under care. Initially they felt discomfort as the nursing staff were rarely able to teach them. During time stretched situations, caregivers would search for websites for information on training programmes or services while they were on the go. However, the sites which they found were not adapted for mobile. There is an undercurrent of self-doubt even in caregivers who have been responsible for a senior citizen for years, as they didn't receive positive initial reinforcement. P1, P4, P7, P13, P14, P20, P24



Searching for caregiving equipment

Caregivers actively search for information on what equipment to purchase. A lot of research time is invested in finding the best prices. Caregivers go to multiple shops, make calls, etc. to find the most appropriate supplies. This is initially an involved effort, before new habits develop: caregivers develop loyalty and trust with their points of commerce – not with the brands they are using. P4, P13, P6, P16, P24, P20

Less than optimal purchasing decisions

Sometimes caregivers have to compromise on choice. For example, some wanted to buy goods at wholesale quantities (like diapers) but weren't certain it was a good option. The likely death of the elderly inhibits caregivers from making 3-6 month purchases that can't be returned. P13

Need for quick decisions

During high-stress times, such as when an elderly person is being released from the hospital, caregivers don't have the time to invest in researching options and prices, and tend to rely on the hospital's supply, even if it's beyond their financial reach. P13, P20, P4

Programme availability

Caregivers are aware that there are training or support programmes, but participants complain that they don't have the time or freedom to attend them. Some use websites to try to plan ahead of time for workshops they feel may be useful, but when the time comes, they are mostly unable to attend – they cannot leave the elderly alone. P20

Hiring domestic help

Some caregivers hire domestic help, but find themselves facing additional challenges on top of their existing load. Hiring a quality domestic aid who has experience with the elderly is outside of most people's budgets. So most families choose to hire a less-experienced domestic worker and pay for some medical training. After this investment and emotional engagement, caregivers feel obliged to keep the domestic helper even if trouble arises. P13

- In one case, a caregiver was aware that the domestic helper scolded her mother and didn't report accidents at home. Finding another employee was out of the question as the helper and the mother already had a relationship and the domestic helper had learnt her mother's dialect.
- Caregivers are also not confident dealing with the employer/employee relationship. Some believe that "allowing" their domestic employees to have too much outside influence will increase untrustworthy behaviour. This is partly due to prejudices concerning the domestic help's country of origin. P17, P13

Volunteer and social worker challenges

Volunteers and social workers share caregivers' time problems, but their challenges are different, as they are not engaging in a full-time caring position for one individual.

Little work-life balance

As observed during the research, both volunteers and social workers experience stress in managing and accomplishing their responsibilities. For both groups, taking care of the elderly is a passion, and leaving "work" at work is virtually impossible. We saw very little division between personal and professional: volunteers and social workers use their personal devices to manage professional and personal tasks after work hours. P9, P10, P24

"I need to coordinate with other organisations so mainly we all communicate on the group chat WhatsApp."

Jessica, 40, administrator

Insufficient tools

Surprisingly, both the volunteer and social worker interviewed lacked equipment for effective task-management. The social worker was using software that was complex enough to require training, while the volunteer did not even have access to a photocopier. For both, interfacing with difficult software and a lack of equipment led to time-intensive workarounds.

- P10 takes pictures of docs to send to colleagues via WhatsApp.
- P24 uses WhatsApp to discuss work-related issues with colleagues.
- P24 can only access the means assessment system from certain offices within the hospital.

Communication support

Both groups have few opportunities to discuss their issues or challenges in a private context. While supervisors and a hierarchical structure provide vertical support, these outlets are not focused on the emotional effects of volunteering or social work. The interviewees tried to manage the disillusion of not helping enough or the elderly's resistance to help by devoting more time to their work, perceiving that more effort would bring about better results. The end effects, while momentarily satisfactory, don't provide long-term relief as they are unable to deeply impact the elderly's response to the system (Themes 3+4).



Healthcare — volunteering disconnect

Particularly for the volunteers interviewed, there is little connection between volunteering initiatives and healthcare gaps. For example, one volunteer-based organisation selected health-drive themes according to what the director perceived was needed. As eye health was of concern to the director, eye health drives were done two years in a row. The volunteers also had no way of ensuring that the elderly followed up beyond the original engagement.

"[The] decision of programmes chosen depends on every year's president."

Olivia, 60, florist owner



Challenge 4

How might volunteer and informal care be integrated more tightly into the system, so that they complement each other as parts of a holistic healthcare offer?

The elderly's first touchpoint, before accessing most other services and programmes, is usually volunteer caregivers and social workers. These people can support the elderly to understand the value offering of the Ministries, but first that value offering has to reach them. Volunteer and support groups must be seen as one cohesive body. They must receive products, services and experiences that unite them and acknowledge their 360-degree of caring: mental and emotional well-being, balancing personal and community responsibilities and managing stress effectively.

Recommendation

Volunteer, formal and informal care groups need to be seen as a single body, with interrelated parts that complement each other.

Experience design guidelines

— 1 **Provide better social support and respite for caregivers through systemic service development.**

Service opportunities for caregivers must recognise that many didn't expect to be caregivers and may not at first have realised that they were. Existing services, training courses and workshops should ensure that caregivers can maintain their sense of identity. Legal recognition of their role (much like new mothers) will help many to continue work.

— 2 **Improve employment experience and relationships between families and domestic workers.**

Lack of choice and visibility of the domestic workers' employment system often results in inadequate matching of workers and families. Better training and cultural education should be provided to domestic workers, so they adapt better to their new environments and build trusting care relationships.

— 3 **Match healthcare system requirements to social service and volunteer group initiatives.**

Communication and networking among these groups would significantly improve resource efficiency. The current lack of connection between volunteering initiatives and healthcare system requirements results in some initiatives being repetitive and some fields being entirely overlooked.

— 4 **Recognise technological aids for caregivers.**

ICT subsidies and technology literacy training should be provided to increase ICT usage by the elderly. Tech literacy training could begin in hospitals, with medical institutions providing shareable devices and use instructions – leading to beneficial app recommendations and possibly helping practitioners forge a better relationship with patients.

— 5 **Secure caregivers' well-being through advanced monitoring and stress-management solutions.**

Caregivers require effective stress management tools, which could be provided through remote monitoring products and services. If caregivers can monitor from a distance, they can delegate responsibility to other family members and/or domestic workers. Stress-management solutions should be tailored to fit in little moments of downtime.

— 6 **Provide better knowledge transfer from medical staff to caregivers.**

Many caregivers have no training in providing care. Dietary and exercise choices are often based on advice from friends or unreliable online media sources. Reliable information to help caregivers understand the best techniques could increase their confidence, sense of usefulness and satisfaction and ensure the elderly receive the best options.

Having a robust retirement plan

"In Singapore you have to work; you can't retire."

For many participants with lower education levels or who have always worked jobs with low income levels, retirement can seem fraught with difficulty. This may be due to low levels of savings for retirement, or to a lack of awareness of financial instruments they could or should be accessing. As a consequence, many of these people see a future in which they will always need to work.

- › Lower educational levels translates to fewer opportunities
- › Low paying jobs translates to low retirement savings
- › Difficulties in planning for retirement

Lower educational levels translates to fewer opportunities

Many of those in less privileged financial situations had to prioritise work over school. Due to these family circumstances, they had little or no opportunities for formal education. This inevitably limited their job opportunities, restricting their ability to move up the socio-economic ladder.

- As many of the industries from early Singapore have since left, very few participants could still find opportunities to use their existing skills.
P7, P11, P15

“ I worked for many years in the factory (rubber industry), and after 9 years he closed the factory.”
Suzanne, 90, collector

- Some from the older pioneer generation* did not acquire highly-paid work skills, and never felt financially stable enough to contribute strongly to their retirement savings. P11 , P23

*“ I had two children and needed to pay for their tuition fees, there is not much money left. And since my husband contributed to CPF**, I didn't. ”*
Jade, 60, seamstress

Low paying jobs translates to low retirement savings

Many participants had low-earning jobs in their working lives, and felt lucky to have had jobs at all. This impacted their ability to put away money into their retirement funds.

- Housewives did not actively contribute to the household retirement funds. For these participants, planning for the future meant raising a family, to support them in times of need. P3, P5, P7
- In the early post-independence period, many participants prioritised basic needs over retirement or healthcare planning. Many live for the day and do not plan for unexpected expenses or events like illnesses. P4, P5, P7, P11, P15

“ Illness can come at any time, so why plan?”

Patsy, 62, homemaker

“ It doesn't matter what I did, in the end cancer chose me.”

Jade, 60, seamstress

* The pioneer generation are Singaporean citizens who: were born before 1950, were aged 65+ in 2014; and obtained Singaporean citizenship before 1987.
pioneers.sg/en-sg/Pages/Overview.aspx

** For more on CPF, see:
mycpf.cpf.gov.sg

Difficulties in planning for retirement

Lack of awareness of financial assistance schemes

- Several participants described finding out about available financial schemes too late (For example, after an incident had occurred or after a purchase had been made). P4, P13, P18
- Some participants were unsure which services were provided by which ministries/agencies. Some experienced surprise or bewilderment when they received invoices or made/received payments, even when these were in their favour. P17, P18

“ It was too late to apply for financial aid; I just didn't know it existed.”

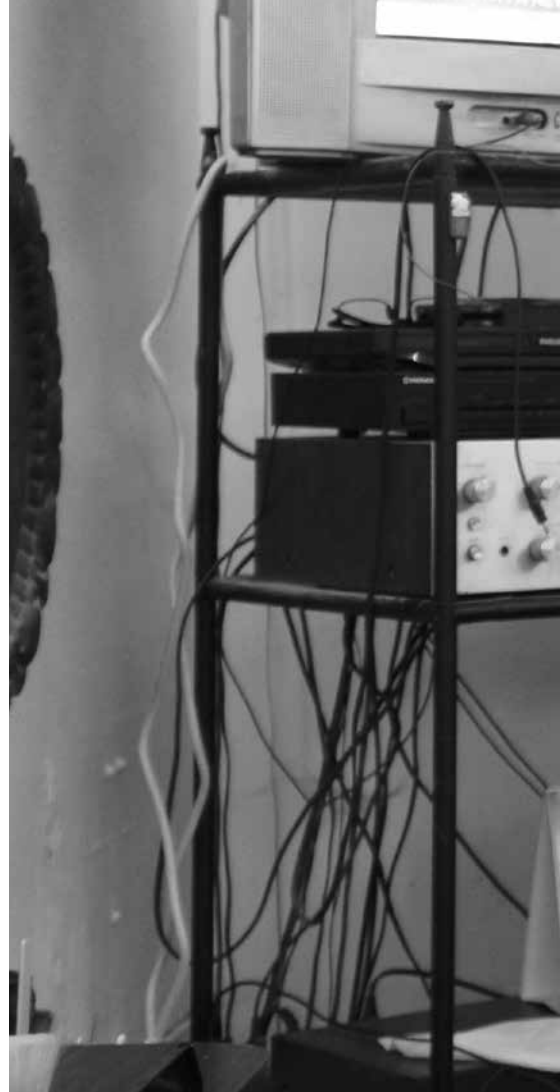
Justin, 78, security guard

Uninformed about the mechanisms of retirement funds

- Some participants, who have the know-how and job stability, feel assured that they have contributed sufficiently towards a robust retirement plan. P6, P12, P17
- However, others with confused ideas of how the retirement funds work, disregarded planning and contributions and consequently were unsure if they had enough to retire. Similarly, low-income earners, who had low or no contribution from their employers towards the retirement fund, were uncertain if their personal contributions would help them to accumulate enough to meet the minimum sum for retirement. P5, P7, P21, P22
- Consequently, seniors with low salaries and low education levels felt that retirement funds can only benefit others who understand the system and have made consistent substantial contributions over the years.

*“ I don't have regular CPF** contributions, my wife will start working when I can't anymore.”*

Yaakob, 67, barber





Delaying retirement

- Uncertain of the adequacy of their retirement funds in view of rising costs of living, many elderly choose to continue working to be able to live sufficiently into their old age. P1, P8, P14, P18

"I planned for the future and things changed, so we can only focus on today."

Joe, 55, librarian

Challenge 5

How might we encourage the elderly to create an actionable and robust retirement plan, taking into consideration changes in policy?

Elderly who are struggling to get along often also have poor English skills, due to a lack of education early on and throughout their lives. This results in them not having the appropriate resources to find out about policies and changes in a proactive way. To provide for a rapidly ageing society it is important to support the elderly to be financially independent in retirement regardless of their education and language levels.

Recommendation

A change in mindset related to work and planning of retirement should be supported by clarity of financial schemes and valuing existing skills.

Experience design guidelines

- 1 **Foster a change in people's mindset about retirement, so that all Singaporeans have greater clarity on why it is important to take personal responsibility in planning for a financial future.**
Singapore's infrastructure must grow fast enough to accommodate the rapidly ageing population. To facilitate this, the importance of future financial planning must be communicated to all citizens.
- 2 **Foster efforts to make people more aware of financial aid schemes, to reduce existing mental confusion.**
At present, our research suggests that many seniors and their caregivers are not sure which services are provided by which ministries/agencies, or what kind of financial aid schemes are available. Progressions in financial assistance could be communicated in a simple and clear fashion, via information centres that are easily accessible for the elderly.
- 3 **Provide financial savings opportunities for people in individualistic employment.**
Individualistic employment and educational paths must be encouraged in order to support Singapore's diversity. Financial savings opportunities for freelancers/consultants, alternative medicine practitioners, independent/freelance employees, singles and women could be developed accordingly.
- 4 **Foster a change in the perception of work, with existing skills valued and transmitted to younger generations.**
Senior citizens (who helped the country rise to economic and political prowess) have many skills that could be used today. These skills could once again help Singapore grow and improve, through skills sharing and transmission to Singapore's youth.

Persona modelling

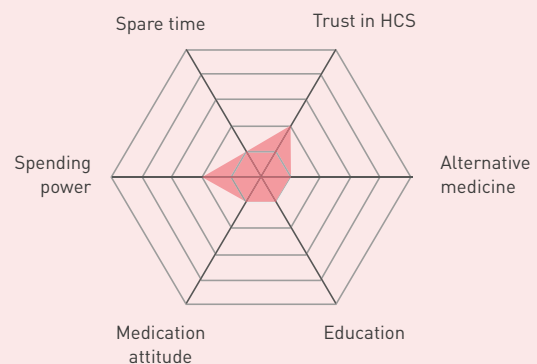
What are personas?

Personas are hypothetical archetypes that represent a user segment, following field research. Personas identify users' key traits: behaviours, motivations, expectations and goals and bring users to life by giving them names, personalities and often a photo.

From the field research, we developed eight personas that are based on the real characteristics of the participants we interviewed. They can be used as a reference point when designing service and product concepts for elderly Singaporeans. Personas help ensure that concepts stay rooted in identified needs and respond to demonstrated behaviours. The participants have been clustered according to how well they represent the characteristics along the two axes, which were used to frame the subsequent personas. Participants ranged from using services in a way that was more individual focused, to using them in ways that were more community oriented. Their attitudes to health and healthcare ranged from proactively exploring and addressing their needs to reactively responding to what they were told.

Spider-web diagrams

These show the defining features of each persona for certain elements. The pink outline represents how strongly the persona represents each element, on a scale of 0 (none at all) to 5 (strongly). They are Trust in the healthcare system (HCS), trust in and the use of Alternative medicine, level of Education, Medication attitude in terms of taking medicine and following the doctor's advice, Spending power and Spare time. They were based on an analysis of the corresponding participants.

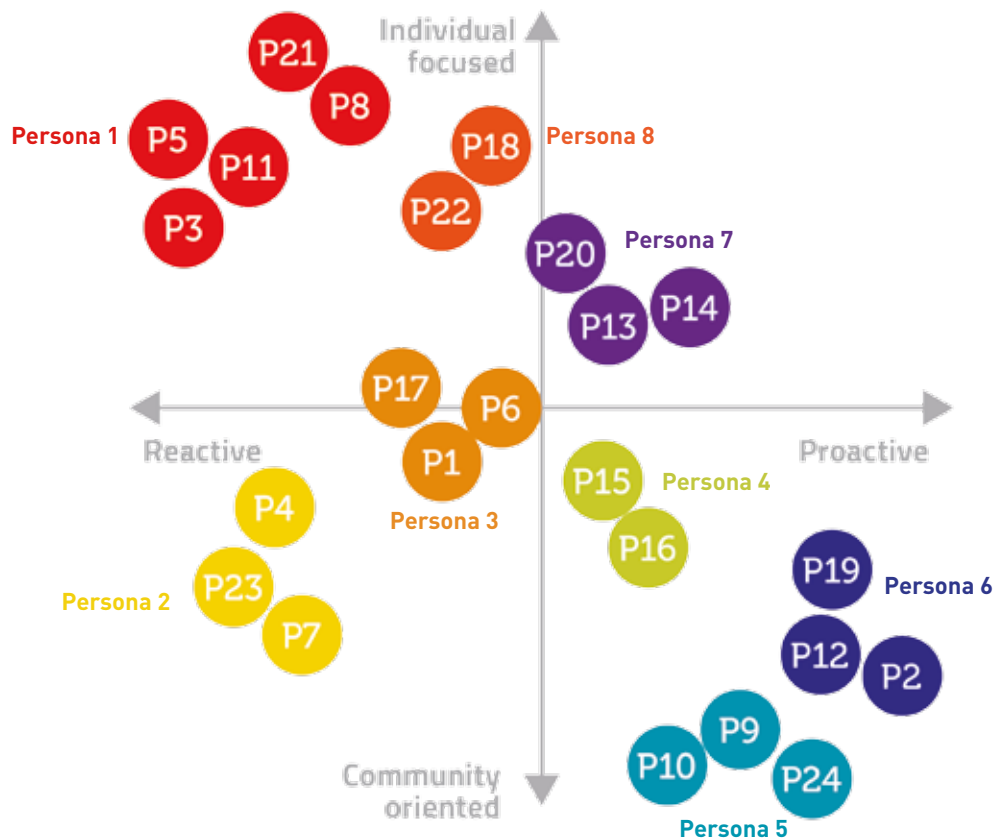


Reactive

Act in response to stimuli rather than creating or controlling it. Will respond to information that seems relevant to them but will not search for it.

Proactive

Identify and attempt to prevent potential problems by looking for information and solutions that may be relevant to them.



Community-oriented

Attempt to build ties and work closely with people with shared common interests.

Individual-focused

Focused on own interests, or that of immediate family, without outwardly looking to build a network of community ties.

Persona 1 The ceaseless breadwinner



*"I don't have the luxury
of planning for retirement."*

Name
Jingguo

Age
64

Ethnicity
Chinese

Languages
**Mandarin
Hakka**

Housing type
Rents HDB 1-Room flat

Subsidies
Rent subsidies

Retirement status
**Working;
No retirement fund**

Ceaseless breadwinners

- are sole income earners for their household,
- don't think about their socio-economic and health status,
- believe doctors are just for emergencies,
- find doctors' advice doesn't fit their daily realities,
- are highly reactive: focused on getting through each day, with little strategic future planning.

Health and medical attitudes

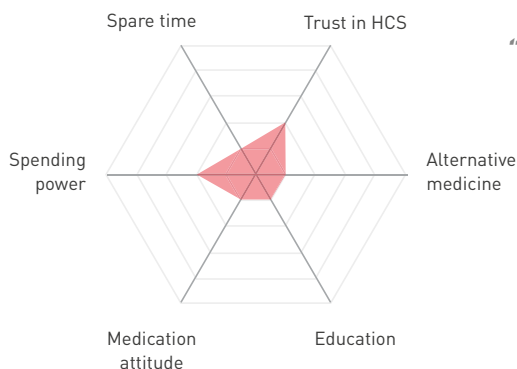
- neglects health due to time and financial constraints.
- doesn't understand the consequences of his lifestyle for his health.

"I can't afford to follow the doctor's advice; I have to keep working."

Barriers and limitations

- doesn't consider the possibility of being eligible for subsidies and services.

"I've always worked informally; I don't have any savings."



Could be happier with

- pension schemes for freelancers and informal workers.
- informal education and advice on how to make his future more secure.

Aspires to

- provide for his family with future security of earnings.

Persona 2 The isolated elderly



"I feel like I am a burden on my family."

Name
Ahmad

Age
75

Ethnicity
Malay

Languages
**Malay,
a little English**

Housing type
Rents HDB 2-Room flat

Retirement status
Retired

Isolated elderlies

- have low mobility and find it difficult to leave their houses,
- don't want to be a burden on children and family members,
- care about appearances and do not like to use equipment that reveals how frail they are,
- are highly reactive, and when problems or needs occur they don't like asking for help or seeking alternatives.

Barriers and limitations

- chooses safest route over most convenient route.
- mobility assistance equipment is not covered by subsidies.

"I'm afraid of falling again."

Could be happier with

- a more meaningful role in the community.
- better alternatives and access to care and treatment.

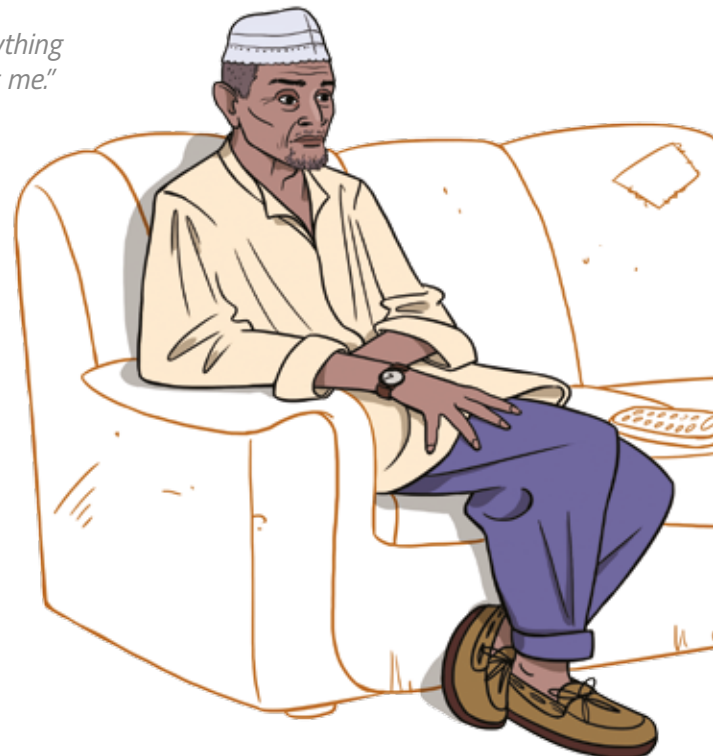
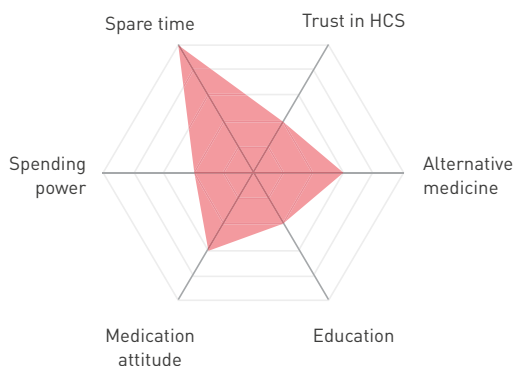
Health and medical attitudes

- prefers to limit his lifestyle than seem like an old man.
- the day centre activities make him feel elderly.

"I don't do everything the doctor tells me."

Aspires to

- live as independently as possible, minimizing the burden on his family.



Persona 3
The decelerating retiree



"I want to enjoy life without worrying too much about getting old."



Name
Rachel

Age
58

Ethnicity
Chinese

Languages
Mandarin
English
Cantonese

Housing type
Owns HDB 4-room flat

Retirement status
Semi-retired

- Decelerating retirees**
- are organised and highly educated,
 - are not too concerned about planning for retirement,
 - are concerned about who will care for them when they are old,
 - are efficiency and convenience focused, wanting good results fast.

- Health and medical attitudes**
- wants to use the fastest methods to get better.
 - feels guilty about having put her mother in a nursing home.

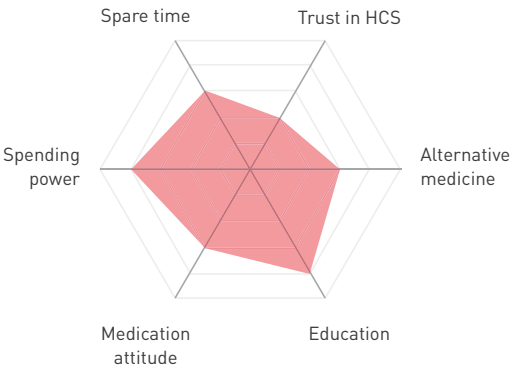
"Exercising keeps me fit; I don't want to stop because of an injury."

- Barriers and limitations**
- goes for the easiest option instead of looking for the best solution.

"I can't do all this with easy solutions."

- Could be happier with**
- retirement solutions and plans that avoid major downgrading effects.
 - affordable nursing homes that allow the elderly to maintain their lifestyle preferences.

- Aspires to**
- live life without experiencing the limits of ageing.



Persona 4

The engaged elderly



"A good day is when I have someone to talk to."

Name

Xiuying

Age

78

Ethnicity

Chinese

Languages

**Mandarin,
a little English**

Housing type

Nursing home

Subsidies

\$300

Retirement status

**Retired;
no retirement fund**

The engaged elderly

- are self-aware and able to assess their own ability level,
- are optimistic and spiritual; faith is a big part of their lives,
- believe nursing homes are a way to keep their independence without becoming a burden to neighbours and friends,
- feel lonely, as many other inhabitants have cognitive impairments,
- lack meaningful social activity in their lives.

Health and medical attitudes

- distrusts doctors because of previous bad experiences.
- has tried to get better treatment with no success.

"The GP doesn't know how to treat my knee and specialists don't come to the nursing home."

Barriers and limitations

- communication issues regarding her subsidies and nursing home payment due to low language skills.
- the nursing home system lacks a personalised assessment of abilities and needs.

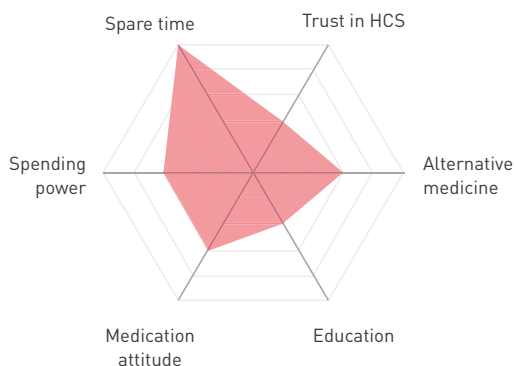
"I don't feel this is the perfect environment for me, but it's the best I could find."

Could be happier with

- a more personalised system, where treatment options and personal company fit her abilities and care needs.

Aspires to

- be as independent as possible, and surround herself with good company.



Persona 5

The unequipped volunteer



"I'm not the kind of person who stays at home all day."

Name

Li Ling

Age

52

Ethnicity

Chinese

Languages

Mandarin

Hokkien

English

Housing type

Rents HDB 2-room flat

Retirement status

Retired

Unequipped volunteers

- are committed to community involvement and self-development through volunteer opportunities,
- are highly organised and plan out their time to balance work and volunteering; they find it hard to say no to requests,
- are often asked about government policies and healthcare by elderly people,
- often have a sense of not being able to do enough, and feeling inadequate.

Health and medical attitudes

- feels yoga and massage are helpful for stress relief.
- believes volunteering keeps her active.

"I wish there was a better process for retired people accessing healthcare."

Barriers and limitations

- unstructured systems mean volunteer group efforts are not coordinated.
- admin work for volunteer efforts interferes with private life.

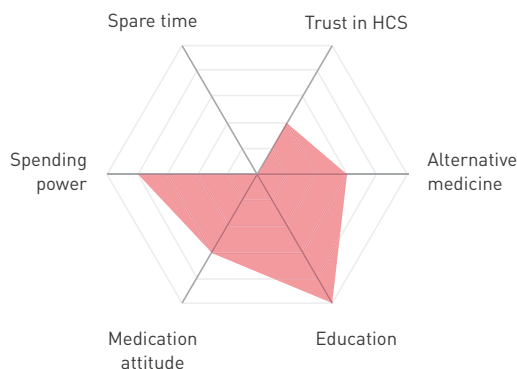
"There's a lot of competition between the different volunteer groups."

Could be happier with

- programmes to allow greater support and collaboration among volunteer groups.
- improved information access and outreach for the elderly to reduce the burden on community volunteers.

Aspires to

- make a positive impact on her community.



Persona 6 The ageing go-getter



"I'm a grown-up, I want to be able to spend my money the way I want to."

Name
Peter

Age
57

Ethnicity
Chinese

Languages
**Mandarin
English**

Housing type
Rents HDB 1-room flat

Retirement status
Retired

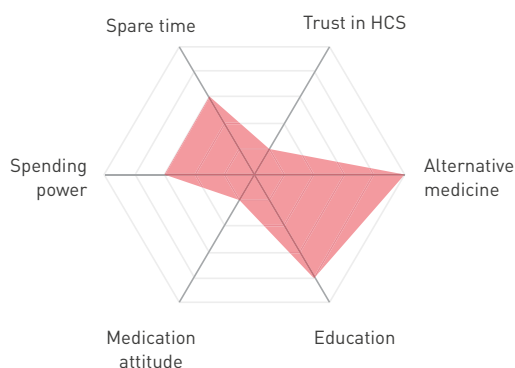
Ageing go-getters

- are highly motivated to learn and take part in the community,
- make an effort to maintain a healthy and active lifestyle, on a limited budget,
- plan for the future, but look beyond conventional means,
- know how retirement funds work, and how to calculate them, but feel let down by the government that their retirement plan has fallen through.

Health and medical attitudes

- minimises use of pharmaceutical medicine, unless it's really necessary.
- understands alternative medicine and is motivated to live healthily.

"80% of all illnesses are caused by stress; the other 20% by environment."



Barriers and limitations

- distrust of doctors results in him avoiding necessary check-ups.

"It's not the doctors' fault; it's the way they were trained."

Could be happier with

- financial planning solutions for people with a well-thought out, alternative plan for retirement.
- methods for skills recognition, further training and certification schemes so skills can be used for formal income.

Aspires to

- use his entrepreneurial skills to fund his retirement.

Persona 7 The overwhelmed caregiver

"I can't afford to be sick."



Name
Ivy

Age
60

Ethnicity
Chinese

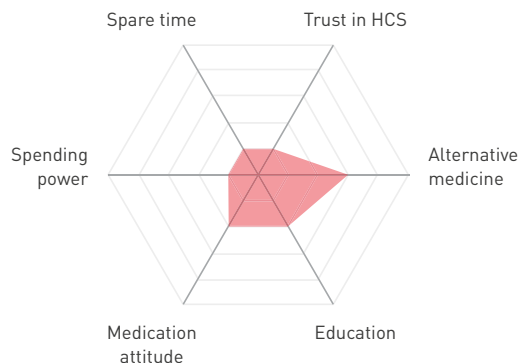
Languages
Mandarin
Teochew
English

Housing type
Owns HDB 4-room flat

Retirement status
Works part-time

Overwhelmed caregivers

- devote much of their time and energy to caring for sick members of their family,
- feel a strong cultural obligation despite not being helped by siblings.
- put own health second; have little time for complaining, or grieving, causing stress-related illnesses, like depression.



Health and medical attitudes

- suffers from depression, but her own health comes second to her demands as a caregiver.
- believes doctors do not understand her condition well, so she self-treats her illness.

"I know my body and I will take care of it."

Barriers and limitations

- self-treatment based on unreliable information has risks.
- unable to get compensation for previous investment in hired carer's training, but she is no longer content with her.
- pays extra to replace food offered in the hospital.

Could be happier with

- affordable psychological support and guidance on how to treat her depression in a way that fits her understanding of her body.
- better solution for labour contracts with domestic workers.

Aspires to

- care for her family without sacrificing her own health and time.

Persona 8

The spiritual believer



*"What will happen,
will happen."*

Name
Anuja

Age
59

Ethnicity
Indian

Languages
Tamil
English

Housing type
Owns HDB 3-room flat

Retirement status
Still works

Spiritual believers

- put Eastern faith and religious practices at the centre of their work and social life, are independent and have critical ideas about mainstream world views, eating habits and medical practices, live a "simple" life, using little modern technology, and practice meditation and prayer,
- lack a clear understanding about the medical and hospital systems,
- generally rely on traditional healing methods for any physical ailments.

Health and medical attitudes

- disappointed by unsympathetic doctors who don't consider alternative treatment options.
- practices spiritual healing.

*"How can you have good karma
and illness at the same time?"*

Barriers and limitations

- lack of consistency in the care-seeking processes and touchpoints of different hospitals and departments causes confusion.
- preference for spiritual healing hinders her understanding of conventional medicine.

*"I'm never able to tell which
hospitals are private and
which are public."*

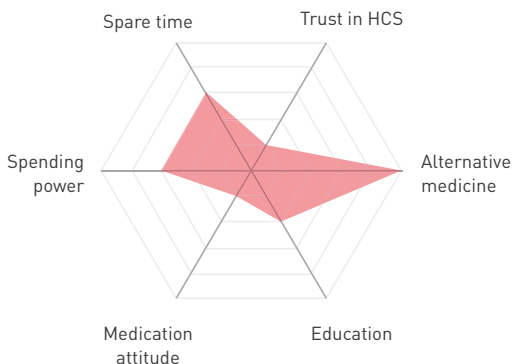


Could be happier with

- standardised care-seeking processes and touchpoints.
- personalised and open-minded medical treatment options.

Aspires to

- practice her holistic healing beliefs in all aspects of her life.

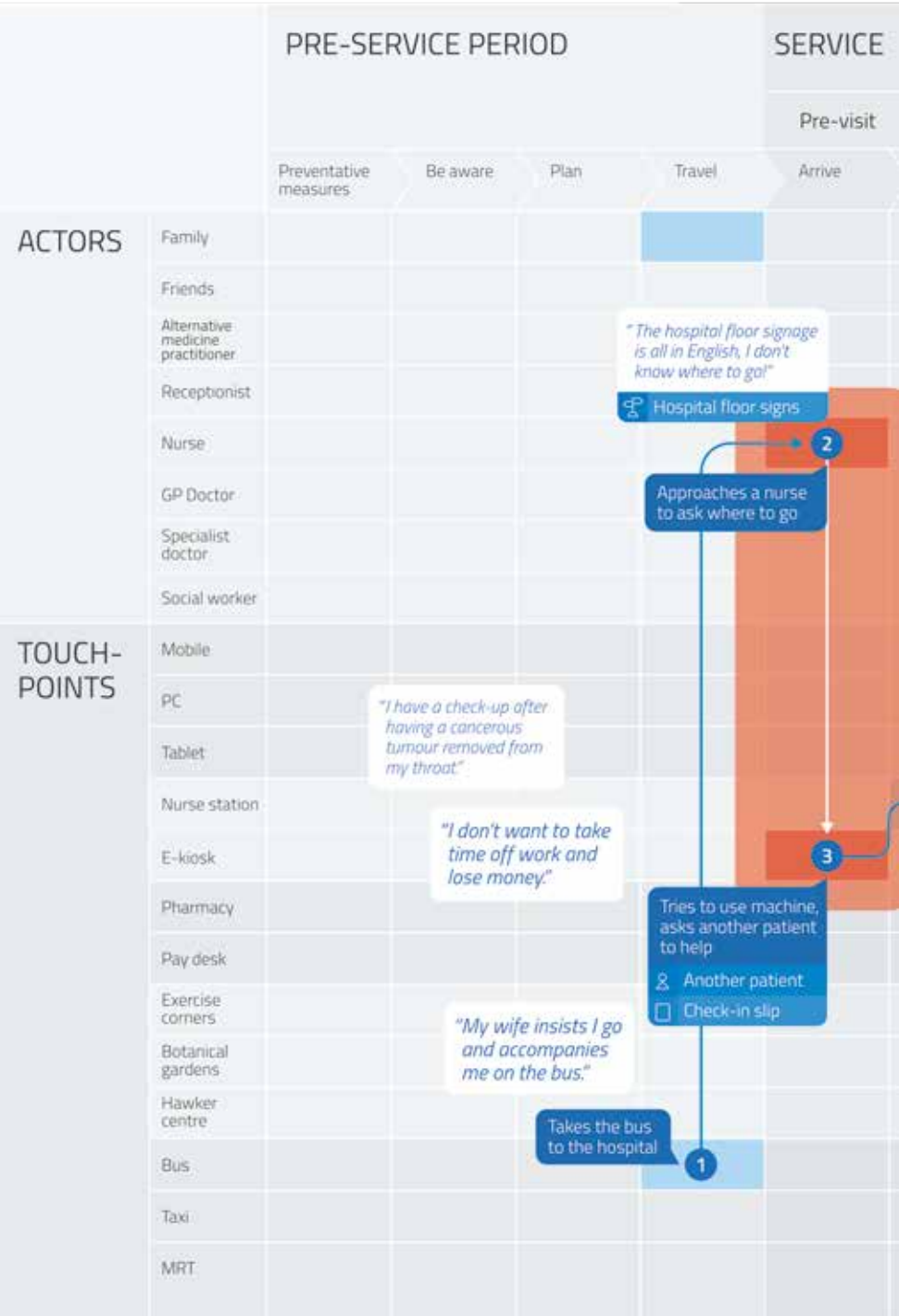


Customer journey maps

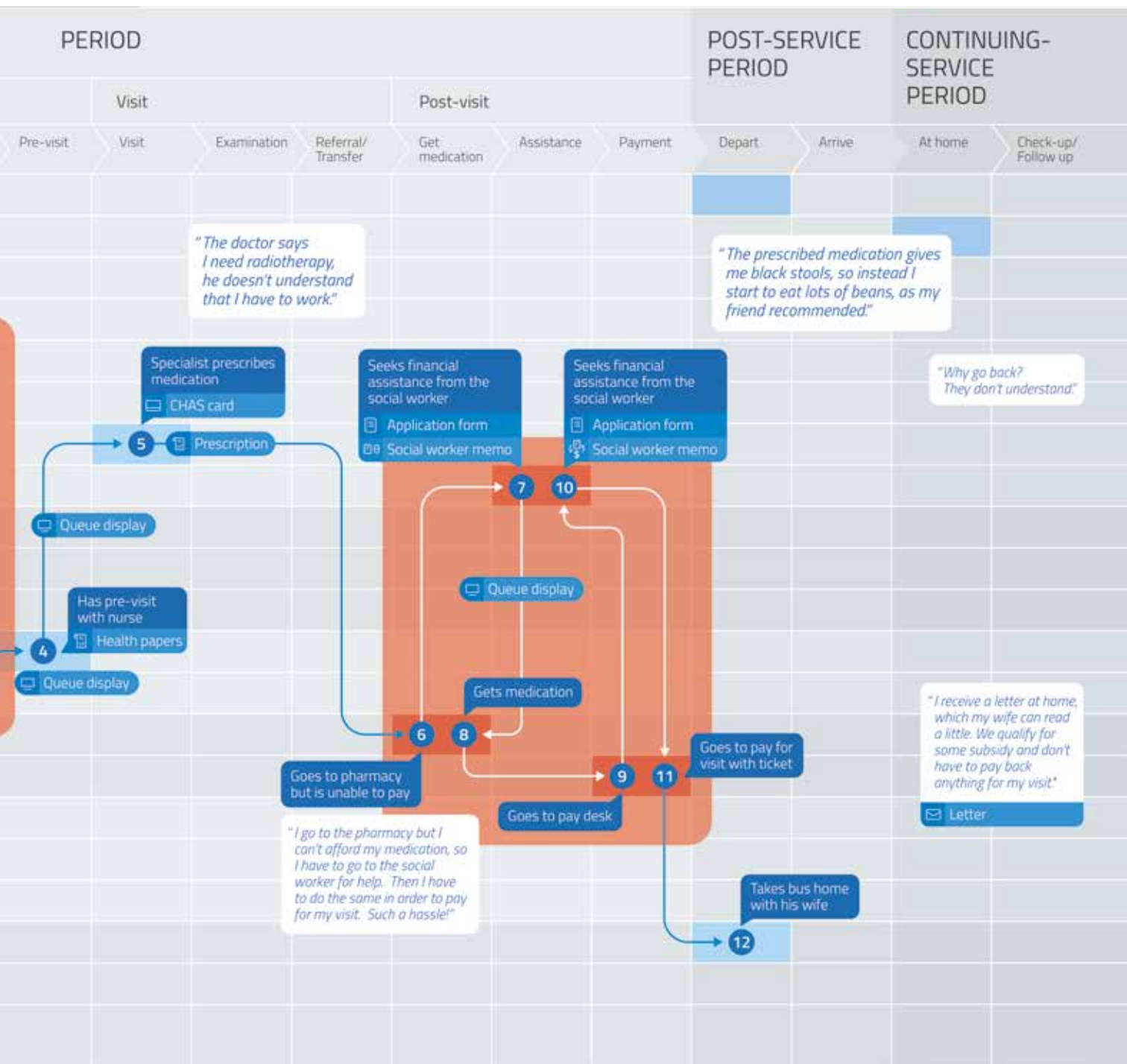
The customer journey map is a graph that shows the step-by-step journey of a user by representing his or her interaction with the different actors and touchpoints of the healthcare system.

Purpose

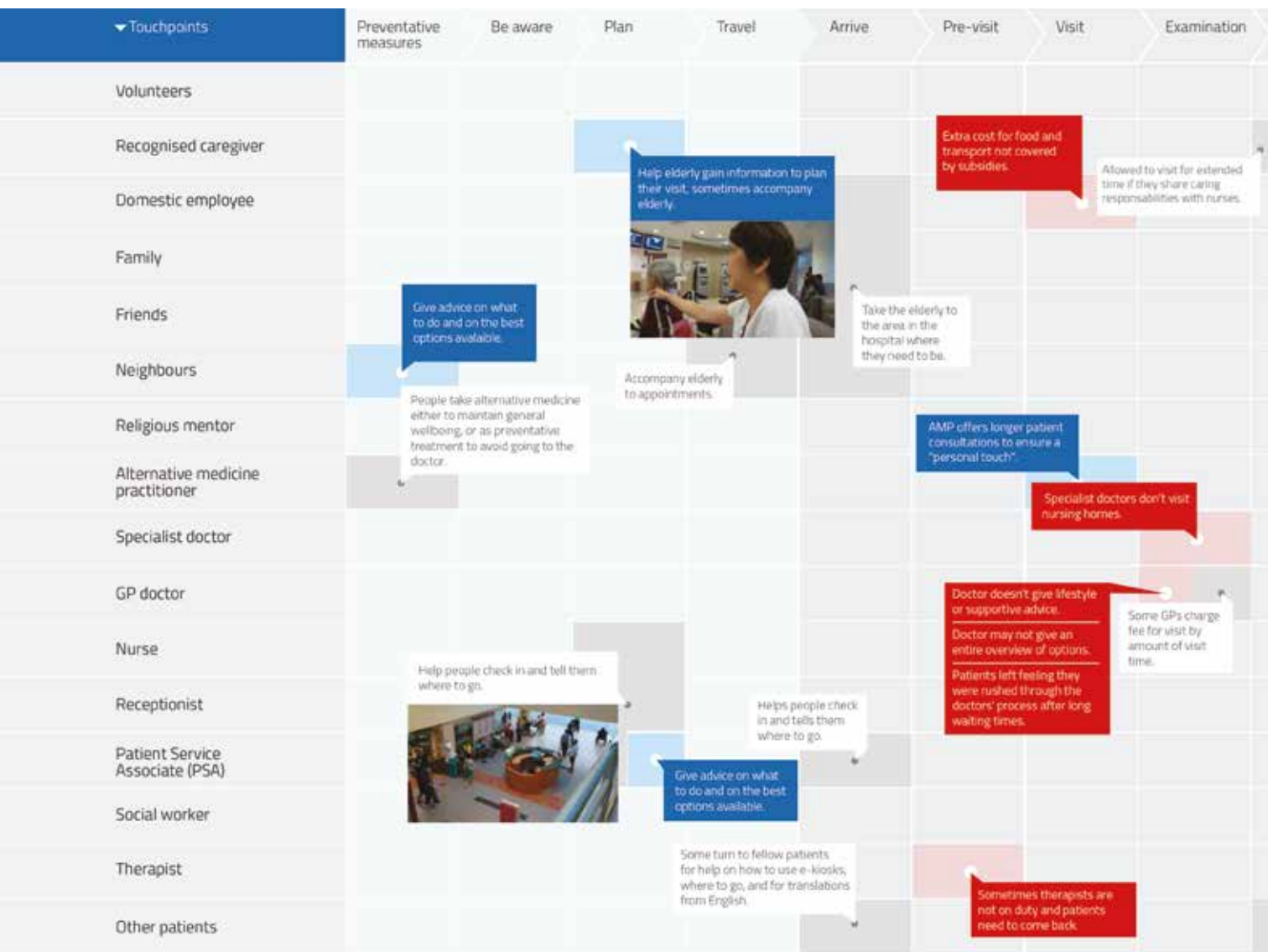
We created customer journeys for the eight personas, describing the steps they take to complete different healthcare services tasks and the touchpoints they interact with. The customer journey maps illustrate how the personas' socioeconomic status, attitudes, education and languages affect their interactions and experiences.



■ Pain points



Service blueprints



Purpose

The service blueprints chart the various touchpoints and interactions that occur when an elderly person has to deal with the healthcare system in Singapore. Our blueprints show the interactions across a period of time that covers the pre-service period right through to the post-service period.

Each map deals with a different set of service touchpoints, or elements, such as people, transport, digital devices, print materials and places. We have highlighted particular pain points within these blueprints, that show where service innovations could positively impact elderly people’s experiences with the healthcare system.

Global trends study

Caring for ageing populations around the world

The potential for innovation is vast for ageing care. New disruptive patterns are emerging. The global trends study identified five core trends, showcasing the multitude of ways in which different individuals and groups are innovating aged care around the world.

It takes a village

New models of care

The saying “It takes a village to raise a child” proves to be the same for supporting the elderly. As it becomes more viable and important for people to stay longer at home, we are creating new ways to care for ourselves; through on- and offline communities, fitting care to needs in people’s homes, and multi-disciplinary communities that innovate. Importance is placed on relationships and connections that individuals have with their friends, family members, community members, caregivers, and care partners in a shift towards networked care.

Internet of everything

Technology and care

The “internet of everything” brings together people, process, data, and objects to make networked connections more relevant and valuable than ever before. It is about turning information into actions that create new capabilities, richer experiences, and unprecedented economic opportunity for businesses, individuals, and countries. Technology acts as a facilitator to lower the current labour intensive field of care through new efficiencies.

Spreading the cost of care

Care funding

New ways to spread the cost of care, including sharing the cost with your younger self, government ensuring equal opportunities to access care and cash-free ways to get the care you need. Providers face increasing scrutiny from regulators to ensure that savings are not at the expense of quality, and care recipients are dictating how they want to “spend” their “credit”.

Knowing your needs

Personalised care

The qualitative approach is placing the focus more firmly on the needs of the elderly at the base of the care system. A deep understanding of the needs of the recipients allows providers and actors in the healthcare system to take a people-centred perspective, offering systems, services and products that are personalised for people’s real needs, behaviours, and contexts, and giving the elderly control over their own care.

The new face of the elderly

Awareness and prevention

The next-generation of seniors need to know how they can start to invest in their own future by supporting and impacting ageing care now. Raising awareness, educating and empowering people to embrace and prepare for ageing allows people to continue playing an active and valuable role in society.



Participatory design workshop

Participatory workshops are used to capture people's experiences, attitudes and innovative ideas about a given topic. Through reflective and idea generation exercises, participants provide input on both problems and solutions.

The participatory workshop took place on 21st-23rd January 2015 at the National Design Centre. During the workshop, insights from the research study were presented and several collective exercises were performed. The general aim was to enable and facilitate sharing of information, behaviours and needs among participants, related to services in healthcare for the ageing population of Singapore.

Participants

70 stakeholders participated in the workshop. This included professionals from the healthcare sector including Alexandra Health, Eastern Health Alliance, SingHealth to social services professionals from the Agency of Integrated Care and National Council of Social Services etc., to enterprises from the design and technology sector. In learning about the research at the workshop, they were able to provide expert feedback on its conclusions and help create design concepts. Participants listened to presentations highlighting research insights, validated emerging personas and customer journey maps, and created initial service design concepts in teams.

Relationship to themes

Concepts were devised around each of the five research themes, and are numbered according to which theme they are designed to address.

Goals

- 1 Understand how to improve healthcare service provision for the elderly.
- 2 Build on stakeholders' expert knowledge to further situate our research findings in grounded examples of service improvement possibilities.
- 3 Help stakeholders gain an understanding and appreciation of concept generation techniques.
- 4 Generate a large number of opportunities and service ideas.

Initial workshop concepts

Concept 1.1 **One heart, many hands**

Challenge

How might we improve the cooperation and synergy effect of government agencies?

Concept

Coordinated, holistic care agency integrating bottom-up and top-down approaches.

Target audience

Persona 1 The ceaseless breadwinner

How could it work?

Agency coordinates and manages implementation status of diverse government agencies. Process is supervised by Ministerial Committee on Ageing (MCA). Integration of care agenda across VWOs, service providers, ILTC sector, grassroot leaders, volunteers, caregivers, social/community groups and the elderly.

Value proposition for Seniors

- convey needs of end user to service providers and bridge communication gaps, delivering service to fit the changing needs of the user.

Value proposition for Providers

- sustainable implementation and timely iteration.
- allow greater synergy between government agencies.
- remove duplication of service provisioning, maximise usage of resources.

Value proposition for Society

- more efficient and responsive service providing system.



Concept 1.2 Rehab with wellness

Challenge

How might we improve the existing environment to make it more elderly friendly?

Concept

Incorporate alternative medicine and holistic approach with rehab services.

Target audience

Persona 6 The ageing go-getter

Persona 8 The spiritual believer



How could it work?

Incorporate patients' preferences for alternative medicine into their recovery process. Assess patients' preferences (could include alternative medication, spiritual session and art therapy) before admission. Inclusion of subsidies and other financial assistance for validated approaches. Prototype, test and iterate different combinations and spin off validated approach to wider patient groups.

Value proposition for Seniors

- have a sense of a personal touch within the process of recovery.
- increases motivation, trust and satisfaction during the recovery process.
- recovery plan based on the combination of seniors' preferences and their medical needs.

Value proposition for Caregivers

- reduce patient's resistance to seeking care.

Value proposition for Providers

- promote practice of holistic healthcare approaches.
- ensure patients' optimal potential for recovery.

Value proposition for Society

- build trustable alternative medication practitioner system.
- building of connections between hospitals and other medical institutions.

Concept 1.3 Neighbour to neighbour

Challenge

How might we increase awareness and responsiveness to people's social needs and behaviours?

Concept

Encourage people in neighbourhoods to look out for each other by creating connecting points and activities.

Target audience

Persona 3 The decelerating retiree

Persona 5 The unequipped volunteer

Persona 7 The overwhelmed caregiver

How could it work?

Identify key linkers in the neighbourhood to match people in need and those able to provide services. Key linkers are the residents who spend most of their time inside the community (people who work from home, retirees, stay-at-home spouses, etc.). Services are provided on the basis of trading, including handy work, dinner, house cleaning, massage, grooming, etc.

Value proposition for Seniors

- creation of support circles.
- reduction of seniors' isolation and increased involvement within the community.
- greater sense of autonomy in the residents due to their own generation of activities.
- opportunity to learn new skills and knowledge through activity sharing.

Value proposition for Caregivers

- provision of social support for caregivers when needed.

Value proposition for Society

- active, responsive and involved communities.
- increased awareness of volunteering and accessible volunteering opportunities.



Concept 2.1 Walk with Granny

Challenge

How might we improve the existing environment to make it more elderly friendly?

Concept

Pairing young students with an elderly person for everyday activities e.g. local walk, MRT ride, supermarket, shop.

Target audience

Persona 4 The engaged elderly

Persona 5 The unequipped volunteer

How could it work?

Collect elderly residents' perspectives on problems in the local built environment. Facilitate matching, incentivising, leveraging and bridging ideas, problems and contexts. Children gain school reward points for volunteering. Social innovation platform connecting social, cultural, healthcare and infrastructure needs.

Value proposition for Seniors

- support ageing-in-place.

Value proposition for Caregivers

- allow the elderly to enjoy the company of children and satisfaction of informal teaching.
- communication, understanding and sharing of experiences between elderly and young people.
- focus on everyday activities rather than special events.

Value proposition for Providers

- reduce healthcare burden by better allocation of resources.
- increase safety of built environment for the elderly, reduce maintenance cost.
- facilitate quality feedback about built environment, measurable over time.
- improve community cohesiveness.

Value proposition for Society

- provide scalable volunteering opportunities.
- increase empathy of students or other volunteers for needs of the elderly.



Concept 2.2 Kampong exchange

Challenge

How can we enable the elderly to be socially independent and reduce isolation?

Concept

Match active & isolated elders and volunteers via a social media platform.

Target audience

Persona 3 The decelerating retiree

Persona 5 The unequipped volunteer

Persona 6 The ageing go-getter



How could it work?

Social worker writes an anonymous story on “Be an Angel” app of an isolated elderly person they are concerned about. Willing, community-oriented elderly read through stories and select one of someone they would like to help to integrate. Elderly-in-need and willing-elderly-volunteers are matched.

Value proposition for Seniors

- isolated older people build social contacts.
- proactive elderly help reach out to those who are isolated and in need of company.
- isolated elderly are less intimidated by company of people their own age.

Value proposition for Caregivers

- additional company for those they are caring for.

Value proposition for Providers

- tapping into unused resources.
- community network building effect.
- self-sustaining process.

Value proposition for Society

- reduce need for formal caregivers as isolated elderly would have access to community support of other seniors.
- build unity and strengthen social fabric of senior age group.

Concept 3 Meaningful data selection

Challenge

How might we spread social intelligence throughout the healthcare system?

Concept

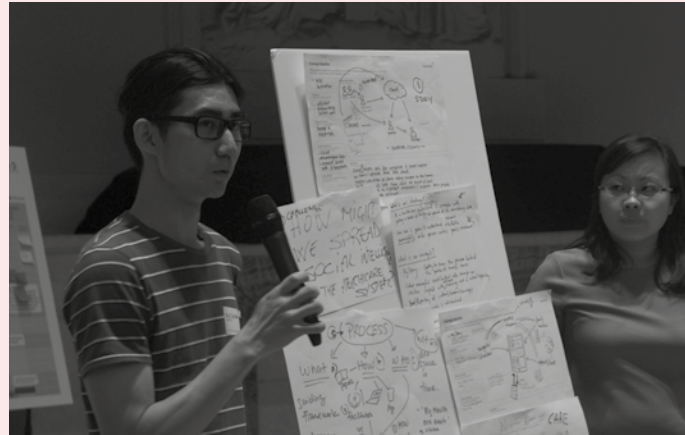
My story: enable patient-centric data selection processes. Track and monitor significant events in family life.

Target audience

Persona 1 The ceaseless breadwinner

Persona 2 The isolated elderly

Persona 6 The ageing go-getter



How could it work?

Provide framework for patients to provide/get concise, useful information. Share holistic information, such as more data about the individual, ranging from voice memos to photos etc., with caregivers and social workers. Smart data analysis to highlight anomalies/ suggest data points relating to ailment. Can include passive, non-intrusive collection of data using sensors in the home.

Value proposition for Seniors

- ensure sharing of the correct information about seniors' needs and situation.
- improve patient satisfaction due to increased efficiency in information access and communication.
- improve health outcomes.

Value proposition for Caregivers

- get a more holistic understanding of the patient life situation at home, including an understanding of family and her/his close context.

Value proposition for Providers

- support healthcare professionals in gaining usable insights into overwhelming amounts of data.
- foster understanding of data sets for person-centric treatments.

Value proposition for Society

- more efficient use of healthcare funds due to better access to information.
- building of sustainable community response group.

Concept 4.1 Care for carers

Challenge

How might we prevent caregiver abuse by patients?

Concept

Create a comprehensive training program to support caregivers dealing with situations of abuse.

Target audience

Persona 5 The unequipped volunteer

Persona 7 The overwhelmed caregiver



How could it work?

Caregivers would undergo training that helps them to recognise and deal with abuse situations. It would start with Orientation: briefing the caregivers on the facility (home) setup; and previewing the premises and patient issues. The next step would be Training: setting up a buddy system/on-the-job-training; training in skills for communication, intervention; and understanding triggers/reasons for abusive behaviours. The caregiver is also trained to evaluate the situation: What happened?; Why did it happen?; How did I react? Finally, staff support is offered, facilitating communication between relevant parties; follow-up on feedback; and recognising good practices (motivation).

Value proposition for Seniors

- better patient care.
- transparency.
- feeling of safety and respect.

Value proposition for Caregivers

- better working environment.
- improved skill sets, knowledge to deal with abuse.
- have a sense of accomplishment.

Value proposition for Providers

- staff and client satisfaction.
- better working relations.
- recognition of role models.

Concept 4.2 Sayang

Challenge

How might we partner with welfare groups to provide emotional support to caregivers?

Concept

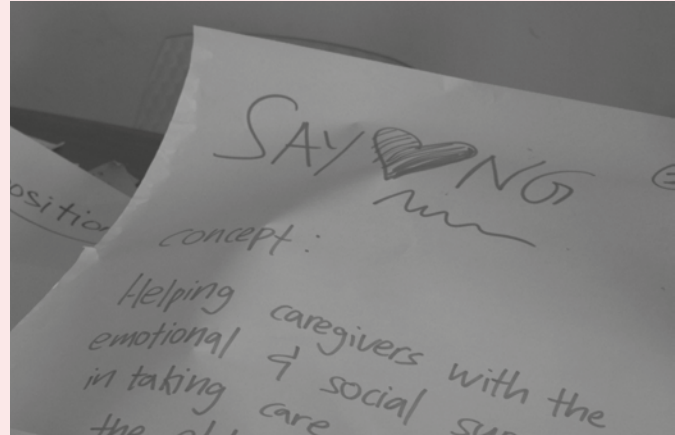
Helping caregivers with emotional and social support in taking care of the elderly.

Target audience

Persona 1 The ceaseless breadwinner

Persona 2 The isolated elderly

Persona 6 The ageing go-getter



How could it work?

The Sayang program would aim to provide emotional support to caregivers through four steps that help ensure caregivers do not feel isolated and that they have recourse to support when needed.

The four steps are:

1. Ensuring engaging first interactions with welfare systems and groups.
2. Providing connections across caregivers and patients, to create a support network.
3. Advocating service propositions and membership, to connect people to existing systems.
4. Facilitating ease of sign-up, so that people are not alienated by bureaucratic procedures.

Value proposition for Seniors

- ultimately greater support from their carers as they will not be left feeling overwhelmed.

Value proposition for Caregivers

- channeling funds to areas of need and meaningful activities.
- engaged volunteer groups provide meaningful volunteering opportunities.
- caregivers provide emotional, social, respite/ timeout support.

Value proposition for Providers

- partner with caregivers for greater healthcare continuum.

Concept 4.3 Care pathway

Challenge

How might we effectively communicate the care trajectory of patients to their caregivers?

Concept

Consolidation of best practice approaches to care journey to inform caregivers about next steps, decisions to be made, support needed and risks.

Target audience

Persona 7 The overwhelmed caregiver

How could it work?

Info is shared in a timely manner on appropriate platform omnichannel communication to enable access to all caregivers. (Some elderly caregivers may hesitate to use electronic tools.)

Care trajectory is categorised in stages: for example A&E → hospitalisation → discharge → integrated and home care.

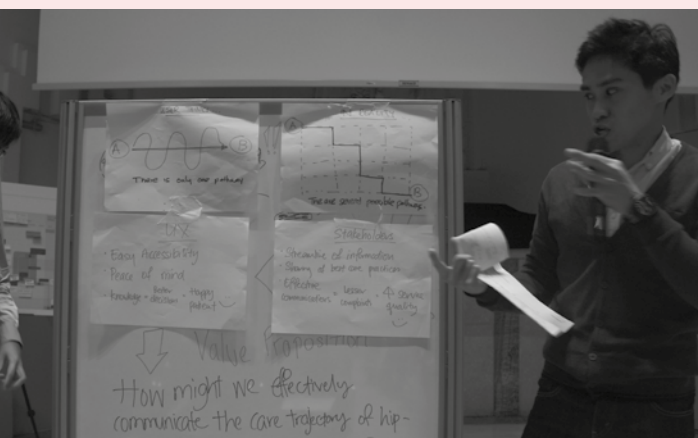
Decision points indicate changes in care trajectory and proactive engagement of caregivers.

Value proposition for Seniors

- increased understanding of care journey through easy-to-use process visualisation.
- provides peace of mind in typical care situations.
- applicable knowledge leads to better decisions and happier patients.
- enables caregivers and patients to ask right questions to healthcare providers.

Value proposition for Providers

- sharing of best practices and evidence based medicine.
- streamlined information collection from different provider perspectives.
- effective communication leading to fewer complaints.



Concept 5.1 Kopi and toast

Challenge

How might we encourage a proactive attitude towards patients' health?

Concept

Mobile cafe in HDB void decks by “senior navigators”, who are paid volunteers for senior citizens.

Target audience

Persona 1 The ceaseless breadwinner

Persona 6 The ageing go-getter

How could it work?

Easy set-up in void deck/hawker centres provides the opportunity for an information stop for seniors, where other seniors would instruct them on policies, schemes, and community events. Open cafe concept serves to disseminate information, and provides healthcare/financial counselling, as well as other initiatives for meaningful activities, tech training, nutritional counselling based on cultural awareness, etc. Communication would be dispersed via oral tradition, media, flyers. Incentives for participation would be persona appropriate, some may need recognition through appropriate media: social media, radio/TV. Concept would engage people in finding out more through persona-appropriate behavioural-change techniques.



Value proposition for Seniors

- increase service accessibility.
- meaningful employment/volunteer opportunities.
- facilitate advice and navigation of care options, schemes and subsidies.

Value proposition for Caregivers

- provide more free respite periods for caregivers.
- decrease struggle between elderly and caregivers.
- increase elderly's pride in ageing.

Value proposition for Providers

- engage senior citizen volunteers.
- help retain volunteers.

Value proposition for Society

- senior citizens could feel compelled to employ or reuse the skills they acquired during their working lives in new ways.
- could potentially open the door for skills exchange/training for younger generations.

Concept 5.2 Doctors on the move

Challenge

How might we improve communication between healthcare providers and the elderly?

Concept

A mobile TCM and traditional healthcare clinic that makes rounds amongst HDB blocks linking existing community facilities.

Target audience

Persona 2 The isolated elderly

Persona 4 The engaged elderly

Persona 8 The spiritual believer

How could it work?

Gather approval and funding from Ministry of Health. Go through Singapore Medical Council and Singapore Medical Association to recruit interested doctors who also speak different dialects. Use Singapore Nursing Board to recruit nurses. Seniors can access a mobile clinic when they go to a hawker centre. A medical practitioner helps the elderly in assessing their needs (whether they need social, medical or financial services) and provides them with a list of qualifying schemes.



Value proposition for Seniors

- reduce travel for low mobility seniors.
- help the elderly in behavioural change.
- help the elderly surpass tech boundaries.

Value proposition for Caregivers

- no need to take time off work to take an elderly to receive care.

Value proposition for Providers

- maximise existing overcrowded GP clinics.
- increase trust and job satisfaction.
- facilitate input of data process for healthcare practitioners.

Value proposition for Society

- increased business revenue and acknowledgement for private alternative medicine practitioners (gives them recognisable jobs so that they can increase their CPF savings).

Concept 5.3 Simply subsidy

Challenge

How might we design a seamless delivery of healthcare and social needs?

Concept

An integrated data management system to facilitate and unite processes for different aid agencies/ministries in Singapore.

Target audience

Persona 1 The ceaseless breadwinner

Persona 6 The ageing go-getter

How could it work?

At Kopi and Toast (see concept 5.1), senior navigators initiate conversations over the long-term which lead to consultations on financial, social, or healthcare services/schemes. Senior navigators instruct people on subsidy processes, help print materials in dialect and help input information into one system.



Value proposition for Seniors

- empowering senior navigators.
- increase sense of community in HDB blocks.

Value proposition for Caregivers

- notifications of available schemes, or updates to schemes, so that they will be aware of possible aid in a timely manner.
- provides full clarity of how subsidies could work together, which agencies are providing what support, etc.

Value proposition for Providers

- one system links financial, healthcare and social support.
- creates a more holistic and tailored offer based on people's specific situations.

Value proposition for Society

- educates senior navigators and increases volunteer retention.
- data security would increase in importance which could spur new business models.

Next steps

The identified insights and opportunities can guide Singaporean healthcare agencies and stakeholders to create strategies, solutions, policies and services that address provision gaps in elderly care.

Ideally, these would consider the experience design guidelines, and drive towards a holistic, people-centred healthcare system, which has the needs and stories of elderly people at its heart.

We believe that successful design-led innovation in the elderly healthcare space in Singapore will:

- 1 integrate people-centred processes and strong design capabilities into policy development;**
- 2 envision a holistic plan for elderly care services, that address identified themes and create a strong system that addresses a wide variety of needs;**
- 3 develop inclusive, participatory process with the elderly and the wide range of public service stakeholders in the development of solutions;**
- 4 understand, explore and test actionable service design solutions, with actual elderly users before implementation;**
- 5 prototype not just services, but also policies, regulations and experiences.**

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