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The Pursuit of Learning among Older Singaporeans



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The Pursuit of Learning among Older Singaporeans

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Key Findings:

Prevalence of learning among older Singaporeans

1. A national survey of older Singaporeans aged 60 years and older (THE SIGNS Study-I), conducted in 2016-2017, revealed a low prevalence of learning, defined as 'participation in at least one course or training attended in the last 12 months': Only 1 in 10 (13.2%) older Singaporeans engaged in learning.
2. The proportion engaged in learning was higher among those aged 60-69 years old (versus those older), not widowed (versus widowed), working full or part time (versus not working), in better health, living in private (versus public) housing and with higher education.
3. Amongst those engaged in learning, 49.3% were motivated by job-related reasons. Those who were aged 60-69 years, males, ethnic minorities, married or never married, working and in better health were more likely to learn for job-related reasons.

Evaluation of the National Silver Academy (NSA)

1. The NSA was rolled out in Singapore in the year 2016. A mixed-methods evaluation (henceforth "the NSA study") was conducted by CARE, in 2017-2018, in collaboration with the Ministry of Health, Singapore and the Council for Third Age, to assess the impact of participation in the NSA on the psychosocial wellbeing of course participants.
2. A large proportion of NSA study participants were aged below 70 years, females, married and had at least secondary school education.
3. The profile of learners enrolled in courses offered by community-based organisations (CBOs) was substantially different from those learning in courses at post-secondary educational institutions (PSEIs) in terms of age, gender, marital status, educational status, work status and housing type.
4. NSA study participants were motivated to learn for personal development and social engagement reasons. However, they reported personal and structural barriers in continuing to learn subsequent to their NSA course.
5. Perceived benefits of learning were mentioned in terms of i) enhanced personal development (such as motivation to learn and self-improvement), ii) gain in social capital (such as civic engagement behavior and strengthening relationships with family members) and iii) fulfillment of learning outcomes.

Introduction

Singapore's population is ageing rapidly. The proportion of its residents (i.e. Singapore citizens or permanent residents (PRs)) aged 65 years and above increased from 6% in 1990 to 14.4% in 2019 (1), and is projected to rise to 40.1% in 2050 (2). In response to this population trend, the Singapore government put in place the Action Plan for Successful Ageing in 2015 to support older Singaporeans to age well in place and lead active lives in the community (3). The Action Plan has identified lifelong learning as one of the enablers to facilitate active ageing in the community (4). The World Health Organisation (WHO) has also identified the ability to engage in learning as one of the five key functional abilities critical to the healthy ageing process (5).

Lifelong learning opportunities for older adults in Singapore

Several opportunities for lifelong learning are available to older persons in Singapore. The most significant among these in terms of reach and coverage are the National Silver Academy (NSA) and SkillsFuture, both driven by the Singapore government.

Initiated in June 2016, NSA offers a wide range of courses to individuals aged 50 and above to allow them to “learn for learning’s sake” (6). They can choose from more than 1,000 NSA courses offered at post-secondary educational institutions (PSEIs), such as polytechnics and universities, and community-based organisations (CBOs). A wide variety of courses are offered – for instance, Humanities courses to learn new languages, IT & Science courses to learn about 3D printing or Media, Art & Design courses to learn different styles of painting. At PSEIs, eligible seniors receive a subsidy of 50% of course fees (up to a cap of \$500 per course) while final fees for courses conducted by CBOs takes into account grants and support given by the government for organisations to develop and offer short courses to older adults.

SkillsFuture was introduced in 2015 as a continuous education platform for all Singaporeans to learn and upgrade their skills so as to adapt and remain relevant in the economy. Under the initiative, Singapore citizens aged 25 years and above are provided with SkillsFuture Credit to pay for these courses. On top of NSA subsidies, older learners can also leverage on their SkillsFuture credits to defray the out of pocket costs for most NSA courses post-subsidies. In this regard, older Singaporeans have the additional option of taking up SkillsFuture courses to enhance their skills or employability (7).

Evidence on the impact of older adult learning

Much of the research on the impact of older adult learning is from the West, particularly North America and Europe. These studies provide useful insights on the benefits of older adult learning. For example, learning has been associated with increasing older persons’ self-confidence, optimism, self-efficacy, life satisfaction, pleasure and sense of purpose (8–11). Other benefits also include better social integration, increase in civic engagement and social

participation (11,12) as well as family relationships (13). Local research on older adult learning is rather limited given the relatively recent policy interest in lifelong learning in Singapore. Only one qualitative study, with 64 adults aged 50 to 64 years, has been conducted in Singapore which suggests similar benefits, such as improved wellbeing (14). Overall, these research findings suggest that older adults' engagement in and satisfaction from learning contributes to positive psychosocial outcomes at both the individual and community level, and they were useful in informing the evaluation framework of our study.

Given the dearth of local data on lifelong learning, the Centre of Ageing Research and Education (CARE) conducted two research studies to look into the state of older adult learning in Singapore. This brief presents the key findings of the two studies.

In Part 1 of the brief, drawing on data pertaining to older Singaporeans (citizens and PRs), aged 60 years and above, collected in Wave 1 of the nationally representative Transitions in Health, Employment, Social Engagement and Inter-generational Transfers in Singapore Study (THE SIGNS Study), we examine:

- (i) The distribution of those engaged in learning (defined as 'participation in at least one course or training attended in the last 12 months') by older person characteristics
- (ii) The distribution of those learning for job-related and non-job related reasons, among those engaged in learning, by older person characteristics

In Part 2, we present findings from our mixed-methods evaluation of the NSA on:

- (i) The characteristics of older Singaporeans who are engaged in learning in the NSA
- (ii) Their reasons and motivations for learning in later life
- (iii) The benefits that they gain from learning
- (iv) The personal and structural barriers to continuation of learning

Findings from THE SIGNS Study-I provide a snapshot of older Singaporeans who are engaged in learning while that from the evaluation of the NSA delve deeper to understand the motivations of NSA learners as well the impact that learning has on their lives.

Part 1: Engagement in learning among older persons in Singapore

BACKGROUND

THE SIGNS Study is a nationally representative longitudinal study assessing the patterns, correlates and outcomes of productive and active ageing among Singaporeans aged 60 years and above. It collects data on various aspects of ageing, including health, work, retirement, social engagement, volunteerism, lifelong learning and intergenerational transfers. (15)

We present data on lifelong learning collected from 4549 participants of THE SIGNS Study-I, the first wave of THE SIGNS Study, conducted in 2016-2017. The participants were first asked if they had attended any course or training in the 12 months prior to the study interview date. They were deemed to be engaged in learning if reported to have attended at least one course or training. These older learners were then asked for their primary motivation to learn – job-related or non-job related – for each course or training attended. Motivated by job-related reasons meant that they took the course or training to learn new skills to search for a new job or to enhance their advancement or promotion opportunities in their current jobs. For example, an older adult might have taken a compulsory cleaning course prior to starting work as a cleaner. On the other hand, motivated by non-job related reasons represented taking the course or training to develop competencies that were more aligned to their personal interests outside of work, for example a watercolour painting course.

WHO IS LEARNING AND WHY?

Only about 1 in 10 (13.2%) of THE SIGNS Study-I participants reported that they had attended at least one course or training in the last 12 months, i.e., they were engaged in learning. Of them, 49.3% engaged in learning for job-related reasons and the remaining 50.7% for non-job related reasons. The distribution, by older person sociodemographic and health characteristics, of a) those engaged in learning and b) those learning for job-related and non-job related reasons among learners is presented in **Table 1**.

Characteristics of learners Engagement in learning varied significantly by age, marital status, educational status, work status, housing type and health status of older persons. However, it was similar across genders or ethnicities.

Age: Engagement in learning decreased with increasing age, from 18% of those aged 60-69 years to 0% of those aged 90 years and above.

Marital status: Widowed older Singaporeans were the least engaged in learning (7%), while those married, separated/divorced or never married had a similar, higher level of engagement (14-17%).

Highest education level completed: Engagement in learning rose with increasing education, from 8% of those with no formal/primary education to 29% of those with university or above education.

Current work status: Those working full or part time had similar, higher engagement in learning (21-24%) relative to those retired/not working (8%) or who had never worked (2%).

Housing type: While only 9% of those residing in 1-2 room flats engaged in learning, the proportion increased with larger (~more expensive) housing, reaching 17% among residing in private housing.

State of health: Those with better self-rated health were more likely to be engaged in learning.

Learning for job-related and non-job related reasons, among learners

The motivations for learning (i.e. job-related or non-job related) differed significantly by age, gender, ethnicity, marital status, work status and health status. Education and housing status were not associated with the reasons for engaging in learning.

Age: The proportion of older learners motivated by job-related reasons declined with increasing age – 53% of those aged 60-69 years as compared to 16% of those aged 80-89 years. The opposite trend was seen in those motivated to learn for non-job related reasons.

Gender: Male learners were mostly learning for job-related reasons (67%) while female learners for non-job related reasons (68%).

Ethnicity: A larger proportion of ethnic minorities (Malays, 66%; Indians, 80%; other ethnic groups, 78%) learnt for job-related reasons as compared to the Chinese (44%). Correspondingly, the Chinese were more likely to report non-job related reasons for learning.

Marital status: Widowed or separated/divorced Singaporeans were more likely to engage in learning for non-job related reasons, whereas those married or never married for job-related reasons.

Current work status: Not surprisingly, those working part or full time were more motivated to learn by job-related reasons (52-79%) than their retired or not working counterparts, who mostly cited non-job related reasons (89-100%).

State of health: A larger proportion of older learners in fair or poor health engaged in learning for non-job related reasons (60%). Those in excellent/very good or good health were more likely to learn for job-related reasons (53-55%).

Table 1: Distribution of THE SIGNS Study-I participants who were engaged in learning, and learning for job-related and non-job related reasons, by sociodemographic and health characteristics

Older person characteristics	Engaged in learning (Weighted Row %)	p-value*	Motivation for learning among the 524 respondents engaged in learning		p-value*
			Job-related (Weighted Row %)	Non-job related (Weighted Row %)	
Overall	13.2% among 4549	–	49.3% among the 524	50.7% among the 524	–
Age					
60-69 years	18.0	<0.001	53.3	46.7	0.002
70-79 years	11.4		40.6	59.5	
80-89 years	1.7		16.4	83.6	
90 years and above	0		0	0	
Gender					
Male	14.0	0.17	66.7	33.3	<0.001
Female	12.5		32.3	67.7	
Ethnicity					
Chinese	12.9	0.42	43.7	56.3	<0.001
Malay	14.1		65.8	34.2	
Indian	15.6		80.4	19.6	
Others	18.4		78.0	22.0	
Marital status					
Married	14.5	<0.001	52.4	47.6	0.007
Widowed	7.4		28.7	71.3	
Separated/Divorced	16.6		43.0	57.0	
Never married	16.4		56.6	43.4	
Highest education level completed					
None/Primary	7.6	<0.001	47.2	52.8	0.80
Secondary	18.3		52.0	48.0	
JC/Polytechnic	27.1		49.0	51.0	
University & above	29.3		46.2	53.8	
Current work status					
Working full-time	24.1	<0.001	79.0	21.0	<0.001
Working part-time	21.3		52.1	47.9	
Retired and/or not working	8.3		11.5	88.5	
Never worked	2.0		0	100	
Housing type					
1-2 room HDB flat	9.2	0.005	58.6	41.4	0.45
3-room HDB flat	11.2		54.5	45.5	
4-5 room HDB flat	14.0		47.0	53.0	
Private housing	17.1		48.9	51.1	
State of health					
Excellent/Very Good	19.0	<0.001	54.5	45.5	0.03
Good	14.2		52.6	47.4	
Fair/Poor	9.9		39.6	60.4	

* From Chi-square tests, comparing the row %s within each older person characteristic

Conclusion

Data from THE SIGNS Study-I, collected in 2016-2017, provides us with a deeper understanding of the prevalence and correlates of lifelong learning among older Singaporeans. We saw a low prevalence (13.2%) of lifelong learning, i.e., having attended at least one course or training in the past year. This might be related to the lack of lifelong learning opportunities for older learners who have retired or no longer working since most of the opportunities that were available until recently, were limited to job-related courses. With the launch of the NSA in 2016, which made more non-job related courses readily available, we might see an increase in participation levels in the future.

We observed variability across demographic and health characteristics among learners which calls for greater inclusivity in the planning and implementation of lifelong learning in Singapore. There is a need for the marketing and promotional strategies of such initiatives to reach out to all older Singaporeans across age and ethnic groups, education, work, socio-economic and health status. We also noted that these demographic characteristics and health status are associated with the primary motivation to learn, with those who are younger, males and working being more likely to learn for job-related reasons. This points to the importance of initiatives such as the NSA, which expands learning opportunities beyond vocational or work-skill oriented courses to hobby-based or life-skill oriented ones. Such initiatives will address the learning motivations of those older, retired, females and even those in poorer health, who are more likely to learn for non-job related reasons.

Part 2: Learning for Leisure at the NSA

BACKGROUND

The NSA was rolled out in Singapore in the year 2016. The Ministry of Health and the Council for Third Age collaborated with CARE to evaluate the impact of participation in NSA on the psychosocial wellbeing of NSA course participants. The evaluation of the NSA (henceforth “the NSA study”) adopted a mixed-methods approach, employing quantitative and qualitative methods.

A total of 558 participants were enrolled in the NSA study from the pool of older Singaporeans enrolled in NSA short courses over the period from January 2017 to February 2018. Purposive sampling was used to ensure that the distribution of participants across the types of courses would be similar to that of the pool of NSA learners during the study recruitment period. Questionnaires were administered to the study participants at 3 time points – **a**) prior to the start of the course (pre-course); **b**) immediately after the end of their course (post-course); and **c**) 6 months after the end of their course (6-months post-course). Data on participants’ psychosocial wellbeing, including quality of life, informational support, loneliness and civic engagement attitudes and behaviours, physical health, including self-rated health and health behaviours and self-reported level of knowledge on the subject matter covered in the course were collected at the three time points.

Qualitative in-depth interviews were also conducted with 48 of the NSA study participants, within a month of completing the immediate-post quantitative survey, to gain deeper insights into the perceived benefits of learning, barriers to learning as well as reasons for not continuing to learn. Participants were purposively sampled to ensure diversity in characteristics in terms of gender, ethnicity, prior course-taking experiences and self-reported scores for quality of life, loneliness and social networks. They were also asked about their motivations to learn at NSA and what they had initially expected out of learning at NSA so as to gather their “pre-course recollections”. They were further probed on what they had gained out of learning at NSA to understand their “post-course recollections”.

PROFILE OF THE NSA STUDY PARTICIPANTS

A large proportion of the 558 NSA study participants were aged below 70 years (87%), females (75%), Chinese (94%), married (71%), had completed at least secondary school education (91%), retired and/or not working (39%), lived in 5-room HDB flats or private housing (65%) and reported having enough money to meet expenses (90%) (**Table 2**). The study participants’ profile is similar to those of the NSA course learners as a whole in terms of age, gender and ethnicity. The sociodemographic profile of the 48 participants involved in the qualitative in-depth interviews were largely similar to that of all NSA study participants.

DIFFERENCE IN THE PROFILE OF NSA STUDY PARTICIPANTS IN COURSES AT CBOs VERSUS PSEIs

The nature of NSA courses that are available at CBOs and PSEIs are rather different. CBOs offer courses that tend to be more interactive, lifestyle-based and informal, while, courses at PSEIs tend to be more structured and formal.

Two-thirds (66%) of the NSA study participants were enrolled in courses at CBOs while the remaining one-third (34%) was enrolled in PSEI courses. The profile of participants who enrolled in CBO courses were also different from those in PSEI courses in terms of age, gender, marital status, educational status, work status and housing type. However, CBO course and PSEI course participants were similar with respect to ethnicity and perceived income adequacy. **Table 2** provides the detailed breakdown.

Age: NSA study participants enrolled in PSEI courses were younger relative to those in CBO courses. 51% of those in PSEI courses were aged 50-59 years while the proportion in this age group in CBO courses was only 38%. There were, on the other hand, almost twice as many of those 70 years or older in CBO courses (16%) compared to PSEI courses (9%).

Gender: There were more females in CBO courses (82%) than in PSEI courses (62%).

Marital status: The proportion of those who were never married was higher among those enrolled in PSEI courses (20%) than in CBO courses (12%).

Highest education level completed: NSA study participants enrolled in PSEI courses had a higher educational status compared to those in CBO courses. For instance, the proportion with university education was 46% among those in PSEI courses versus 23% among those in CBO courses.

Current work status: The proportion of those who are currently working is higher among those in PSEI courses (59%) than in CBO courses (41%).

Housing type: A larger proportion of NSA study participants enrolled in PSEI courses lived in condominiums or private flats (28%) compared to those enrolled in CBO courses (18%)

In summary, we see substantial differences in the profile of enrollees in NSA courses offered by CBOs and PSEIs. These differences were likely to be related to the distinct characteristics of course provider types described earlier in this section (e.g. structured; formal, etc.). These distinctions may be useful to NSA course providers when planning and designing future courses and/or targeted publicity strategies.

Table 2: Sociodemographic characteristics of the NSA study participants, overall and by course provider (community-based organisations [CBOs] or post-secondary education institutes [PSEIs])

	NSA study participants (N=558) Column %	NSA study participants in CBO courses (N=369) Column %	NSA study participants in PSEI courses (N=189) Column %	p-value, based on Chi square test
Age				
50-59 years	42.2	37.8	50.8	0.006
60-69 years	44.5	46.7	40.2	
More than 70 years	13.3	15.5	9.0	
Gender				
Male	24.6	17.9	37.6	<0.001
Female	75.4	82.1	62.4	
Ethnicity				
Chinese	94.4	95.7	92.1	0.14
Malay	2.7	1.6	4.8	
Indian	2.7	2.4	3.2	
Others	0.2	0.3	0.0	
Marital status				
Married	70.6	71.5	68.8	0.02
Widowed	7.7	9.5	4.2	
Separated/Divorced	7.2	7.3	6.9	
Never married	14.3	11.7	19.6	
Highest education level completed				
None/Primary	8.8	11.4	3.7	<0.001
Secondary	35.8	41.5	24.9	
JC/Polytechnic	24.6	24.1	25.4	
University & above	30.8	23.0	46.0	
Current work status				
Working full-time	21.7	17.9	29.1	<0.001
Working part-time	25.6	23.3	30.2	
Retired and/or not working	38.9	41.2	34.4	
Homemaker	13.8	17.6	6.4	
Housing type				
1-2 room HDB flat	2.5	2.4	2.7	0.05
3-room HDB flat	12.9	13.3	12.2	
4-room HDB flat	19.5	22.0	14.8	
5-room HDB flat	31.9	33.3	29.1	
Condominium/Private flat	21.5	18.2	28.0	
Bungalow/Semi-detached/ Terrace house	11.1	10.3	12.7	
Shop house	0.2	0.0	0.5	
Income adequacy				
Enough money, with some left over	47.1	46.3	48.7	0.72
Just enough money, no difficulty	43.2	44.4	40.7	
Some difficulty to meet expenses	6.8	6.5	7.4	
Much difficulty to meet expenses	2.0	1.6	2.7	

WHY ARE OLDER PEOPLE LEARNING? – INSIGHTS FROM THE NSA STUDY PARTICIPANTS

In both the quantitative and qualitative components of the NSA study, we asked the participants what was their main reason for participating in their courses in order to understand what motivated them and what they expected to gain upon completing their courses. An open-ended question “What are your main reasons or motivations for participating in this course?” was included in the pre-course questionnaire for the quantitative component, while in the qualitative study, questions about “learning objectives and motivations to learn” were asked during the in-depth interviews.

Participants’ responses on their motivations to learn and expected benefits were collated and analysed by classifying the responses into themes and sub-themes. Two main themes emerged as factors that shaped learners’ motivations – personal development and social engagement. The thematic findings are illustrated in **Table 3**, appended with participant’s quotes to represent some of their views.

Table 3: Key themes and sub-themes corresponding to motivation to learn and expected benefits of learning, with representative quotes

Primary motivation to learn	Expected (pre-course) benefits of learning	Representative quotes describing motivations or reasons for learning
Personal Development	Acquire or improve skills/knowledge to enrich life and stay relevant	<p>“I want to learn more about this for my own well-being and those around me. If I know more, I can impart knowledge to others too. This is part of keeping my mind active too.”</p> <p>“Now it’s like ahh...I learn things to enrich my life. Not enrich my bank account. But previously we learnt something to you know... to excel better in your job. Everything is all job related. [Now] it’s different right?”</p>
	Satisfy interests and life purpose	<p>“At this age I am still looking for [something] to be passionate about. So I like to attend courses that help me look for life purpose.”</p> <p>“What motivates me to learn in general? I guess not to be a useless person. To be a useful person, yeah. And when the need comes, I can apply myself, and not be that useless person [just] sitting there.”</p>
	Pleasure and social engagement	<p>“I wish to pick up a hobby. Learn a new musical instrument so that I can entertain myself and others in the future. There’s time to learn now. This course is also cheap since there is subsidy. Time and money permits.</p> <p>“Because I love art. Now that I have more time to spare. I follow my passion.”</p>

Primary motivation to learn	Expected (pre-course) benefits of learning	Representative quotes describing motivations or reasons for learning
Personal Development	Self-Actualisation	"It is my dream to draw a picture, to accomplish something that I couldn't do in the past, now that I'm at the retirement age, I have the time, can manage my time to do the things I like, not just make a living."
	Overcome age-related challenges	"I want to know how to prevent being alone. I don't understand how people above 60 think, so I want to know more." "The doctor mentioned that I need to go out and take part in activities. I cannot stay at home. If I stay at home all day my thoughts will run wild. I was thinking to myself, it's only through going for lessons that I won't become senile. Come and learn. They say, 'Cannot stay at home, or you will become senile.'"
	Personal improvement	"Learn more. I'm lacking in social media. Keep up with technology improve my work competency." "You cannot be stagnant. That's why ah, I always keep up with my update, kept update myself. Because I cannot be always uh, only have one skill. I try to have more multiple skills."
	Maintain independence and autonomy	"If you know something means you don't have to rely on other people, be independent.... You learn so that you can be independent from other people. You don't rely on other people help." "Sometimes hor when I'm met with difficulties or problems, I hope I can be able to help myself to solve them."
Social engagement and social networks	Strengthen relationships with friends and family	"Socialise and make more friends since the class is small. 3 hours, can make friends along the way." "I want to understand more about family relations, and help to better communicate with my children. To create a more harmonious family." "I wanted to take something to communicate with the PRCs [at work] because they have a very hard time to learn another language, they take a long time to learn something new."

Primary motivation to learn	Expected (pre-course) benefits of learning	Representative quotes describing motivations or reasons for learning
Social engagement and social networks	To contribute to the community	<p>"It allows me to volunteer. Through the course, I learned about the problems that seniors face, and it allows me to learn how to solve similar problems that I faced as well."</p> <p>"It's for retirement; I want to know what I can do for myself & my community."</p>
	To share knowledge and skills with others	<p>"To meet new people. To gather friends to learn together. To share with others about what I've learnt, to share knowledge with the community."</p> <p>"Wish to learn how to help others. If I learn more, I can help others. Can help myself too. If my friends have trouble, I can help them."</p>

WHAT ARE THE BENEFITS OF LEARNING AT THE NSA?

RESULTS FROM THE QUANTITATIVE COMPONENT OF THE NSA STUDY

Change in the NSA study participants' psychosocial wellbeing and physical health variables (assessed using questions or scales) from pre-course to post-course and from pre-course to 6-months post-course was used to quantify the benefits of learning. The metric used was the "percentage change" in the variable of interest at the two later time points relative to pre-course and it was calculated as:

$$\frac{\text{Variable value at later time point (postcourse or 6 months postcourse)} - \text{Variable value at precourse}}{\text{Variable value at precourse}} \times 100$$

We found a small - ranging from 1.5% to 6.1% - but significant beneficial increase in several psychosocial wellbeing variables from pre-course to post-course. Specifically, there was an increase in the following dimensions:

- motivation to learn
- self-realisation
- pleasure
- civic engagement behavior and
- perceived availability of helpful information or advice

With the exception of motivation to learn, the increase in these psychosocial wellbeing outcomes was sustained at 6-months post-course. There was also a small increase in autonomy and in conformity with a healthy lifestyle from pre-course to 6-months post-course. Details of these changes are in **Table 4**.

At the same time, we found a small and significant increase of 6.7%, in the extent of loneliness from pre-course to post-course. Since NSA study participants felt lonelier after their courses ended, we hypothesise that participants might have experienced a sense of emptiness upon completing their course, after a period of sustained interaction with their course mates. The increase in the feeling of loneliness was sustained at 6-months post-course albeit at a slightly lower level.

The percentage change in the self-reported level of skill in or knowledge on the subject covered in the course the NSA study participants had taken was also assessed. The question, “On a scale of 1 to 10, where 1 is Beginner and 10 is Expert, please rank your level of skill and/or knowledge on the subject covered in the course that you will be taking/recently completed”, was asked at all 3 time points. There was a 128% increase in the level of skill or knowledge from pre-course to post-course, which was sustained (127%) at 6-months post course.

Table 4: Percentage change in psychosocial wellbeing and physical health variables from pre-course to post-course and to 6-months post-course (with bold indicating change values that are significant)

Variables	Scale ¹	Pre-course to post-course (N=536)		Pre-course to 6-months post-course (N=517)	
		Mean	95% CI ²	Mean	95% CI
Psychosocial wellbeing variables					
Motivation to learn	Motivation to learn scale	1.53	(0.24, 2.81)	-0.61	(-1.76, 0.55)
Quality of life	Control, Autonomy, Self-realisation, Pleasure (CASP) scale	-0.17	(-1.42, 1.09)	-0.21	(-1.56, 1.15)
Control		0.49	(-2.13, 3.12)	-1.00	(-3.83, 1.83)
Autonomy		3.27	(-0.40, 6.94)	4.19	(0.49, 7.89)
Self-realisation		3.20	(0.68, 5.72)	3.36	(0.64, 6.07)
Pleasure		5.44	(1.43, 9.44)	4.51	(1.40, 7.62)
Civic engagement attitudes	Civic engagement scale	-1.09	(-2.57, 0.39)	-1.52	(-3.24, 0.20)
Civic engagement behaviour		6.11	(2.84, 9.39)	6.87	(3.86, 9.87)
Perceived availability of helpful information or advice	PROMIS informational support (PROM) scale	3.02	(1.02, 5.01)	3.48	(1.47, 5.49)
Loneliness	UCLA loneliness scale	6.71	(3.70, 9.73)	4.95	(1.96, 7.95)
Physical health variables					
Self-rated health	SF-36	1.19	(-1.26, 3.64)	0.49	(-2.18, 3.17)
Health behaviours	Benefits of lifelong learning questionnaire				
I lead a healthy lifestyle		2.60	(-0.32, 5.51)	3.33	(0.55, 6.11)
I pay attention to my health		0.99	(-1.50, 3.48)	1.66	(-4.77, 6.40)

¹ Scales were administered to study participants to measure specific psychosocial wellbeing outcomes. Details of these scales are provided in Appendix 1.

² The 95% confidence interval (CI) reflects the range of values in which one is 95% certain that the true mean of the population can be found. In the current analyses, a 95% CI that does not include 'zero' indicates a significant percentage change at the considered later time point relative to pre-course.

In summary we observed small, but significant gains in psychosocial wellbeing from the quantitative component of the NSA study. These relate specifically to personal development (motivation to learn, self-realisation and pleasure), social capital (civic engagement behaviour) and learning outcomes in NSA learners over time.

Next, we present findings from the qualitative component, which provide more nuanced information about how learning had benefited the NSA study participants in terms of their personal development and social capital.

RESULTS FROM THE QUALITATIVE COMPONENT OF THE NSA STUDY

The majority of the qualitative component participants had positive experiences from learning at NSA. Most described how their course experience exceeded their initial expectations (i.e. what they had anticipated to gain in terms of learning outcomes). The most common and concrete impact was expressed in terms of personal development or enhancement of their “soft skills”, which participants also associated with better relationships, contributing to society and coping with age-related losses.

Gains in personal development

Benefits in terms of personal development was expressed by a majority of the participants (93% or 45 out of 48). **Table 5** lists the sub-themes and their descriptions (based on participants’ responses).

Table 5: Personal development sub-themes and their descriptions

Personal development sub-themes	Description
Self-improvement	Benefits related to learning, acquiring, improving and applying knowledge, critical-thinking abilities, creative skills/techniques
Self-care	Benefits related to understanding and improving one’s physical and mental health; delay cognitive impairment;
Self-discovery	Benefits related to assessing personal strengths and weaknesses; gaining new perspectives about life
Self-actualisation	Benefits related to fulfilment from pursuing and accomplishing goals; learning for fun; satisfaction in new hobbies

Self-Improvement

Benefits related to self-improvement included the acquisition of new skills or knowledge or hobbies, or improvement of existing skills or knowledge or hobbies. Depending on the courses taken, some spoke about the importance of keeping up with societal trends and the confidence they gained to dabble in something new and unfamiliar (e.g. social media, digital photography). Other benefits included feeling empowered to care for grandchildren and family members (e.g. grandparenting course, Traditional Chinese Medicine) while others felt that they learned to communicate better whether at work or with family members (e.g. language classes, counselling course).

“I don’t like to rely on people, whether physically or with technology. For me, we always cannot catch up with the youngsters. They [are too fast with their use] of social media. Even with hand phone, I’m not so good...but at least [I can be better] with the Internet. I need to go into the Internetworking Essentials, because that’s where I learn to cope with technology. They teach about Instagram and Snapchat.”

[Malay female, 56, tertiary education, enrolled in a Humanities course]

Self-Care

Participants who attended courses related to health and wellbeing felt that courses helped them understand how to maintain and/or improve their physical and mental health, including developing better coping mechanisms to overcome depression or stress. One learner shared how learning about the body and healing through her Traditional Chinese Medicine (TCM) course helped her understand how to cope with her chronic ailments as well as overcome suicidal thoughts.

“[Learning] can help others. I can help my friends. It can help everybody. It can help everyone’s health. In my entire life, I’ve been working since I was a child because my family was poor. I had to do chores at home after school back in the village. My mother had asthma when she was younger...When your family is sick, you feel miserable too. After that, I decided I wanted to learn TCM. I feel that it is helpful both towards oneself and their family. I visit the doctor less after learning about TCM. I only take medicine for high blood pressure. I don’t have any other illnesses.”

[Chinese female, 72, primary education, enrolled in a Health & Wellness course]

Self-Discovery

Some participants took courses to gain new knowledge and experiences that could enhance their perspectives about life, the world they lived in and also themselves. The ability to contemplate about their personal experiences and connect it to larger issues around them enabled them to think about the world outside of their own personal realm and comfort zone. Most found this process reinvigorating as participating in courses that facilitated contemplation gave them tools to clarify their purpose in later life.

"I feel that I've changed a lot since taking the counselling course. I no longer look at people the way I did before, and also ah to not care so much about how others perceive me, and also to better empathise with others.

The good thing is that I will view things with a more macro attitude. And also, I will monitor my own actions and behaviour, and in turn understand why I do certain things. Actually I also think I have [done] some despicable actions that made me think lowly of myself. But now, I am more understanding of my actions, forgiving myself and telling myself to change...I feel that a very important takeaway is that I am more able to understand the despicable me. So, after understanding yourself, you will forgive and change yourself".

[Chinese female, 54, secondary education, enrolled in a Humanities course]

Self-Actualisation

Lastly, some participants took courses for fun, enjoyment and to stimulate their mind. This involved finding fulfilment from learning new languages, hobbies and accomplishing personal goals, compared to taking courses to improve employability. For example, one participant pointed out that his goal had always been to master an entire song on the guitar, which he was not able to do when he was younger. Thus, taking a music course enabled him to fulfil his lifelong dreams. Some female learners pointed out how the courses they took enabled them to pursue new roles and activities that took a backseat when they were raising their children.

"Previously I work to fulfil my goal as a mother and as a wife, but now I am trying to fulfil my role as a creative in designing bags or clothes".

[Chinese female, 60, secondary-education, enrolled in a Finance & Business course]

Gains in personal development can be summarised, based on the quotes discussed, as:

- i. Increased self-confidence, self-efficacy and self-worth
- ii. Ability to see difficulties within broader contexts
- iii. Cultivate positive attitudes towards the future/Optimism about the future
- iv. Awareness of possibilities/goals that can be achieved
- v. Regained sense of purpose in life

Participants also described how their courses imparted them with tools and resources that were useful in enhancing their coping mechanisms. Based on the quotes, this can be summarised as:

- i. Coping strategies for stressful situations
- ii. Let go of negative emotions, de-escalate tension and conflict
- iii. Awareness of others going through similarly difficult situations – feeling less isolated in overcoming problems
- iv. Coping with role loss

Gains in Social Capital

Another area of impact was enhancement of the participants' social capital. Putnam's concept of social capital (16) emphasises values such as trust, cohesion, tolerance, reciprocity, co-operation, civic participation and other characteristics that bind people together towards a greater, common good. From the participants' responses, we found 4 sub-themes that relate to Putnam's concept of social capital (**Table 6**).

Table 6: Social capital sub-themes and their descriptions

Social capital sub-themes	Description
Appreciate and understand people from different cultures	Responses related to learning a new language; improving the ability to interact/communicate with others from different cultural backgrounds
Strengthen relationship with family members	Responses related to learning how to improve relationships with family members/friends/colleagues; managing conflicts
Share knowledge with others	Responses related to guiding or imparting knowledge/advice to others
Engagement in social and/or volunteering activities	Responses related to making new friends, volunteering or engaging in community activities

Overall, gains in social capital were more prominent in participants' responses pertaining to questions about the benefits gained after completing the course compared to responses they gave about their pre-course expectations. About 81% of the participants (39 out of 48) referenced social capital gains.

Appreciate and understand people from different cultures and backgrounds

Participants who enrolled in foreign language courses expressed curiosity to learn about the cultural and national backgrounds that were different from theirs. They believed that being able to speak a foreign language (e.g. Thai, Mandarin, Arabic) could widen their social networks within and beyond Singapore. Further, they also expressed how exposure to different languages would facilitate better experiences when they travelled for vacations overseas, especially in terms of gaining trust and respect of people from different cultures:

"I was hoping that I would be able to converse well with my driver whenever I'm in Thailand. I'm able to converse with my relatives in Thailand and my friends who are Thais. I guess that's the main aim, to be able to converse and understand what they say in Thai, rather than always expect them to convert it to English so that I would understand."

[Chinese male, 60, tertiary education, enrolled in a Humanities course]

A number of participants also emphasised that attending courses was a good platform to make new friends and expand their social networks. Additionally, courses that were designed to facilitate intergenerational learning provided participants with ample opportunities to interact with younger people, which they found to be novel and engaging.

“If you want to do something worthwhile, interesting, engaging... you gotta learn. Also I think... a side effect is you mix with young people. I think you get; you feel old if you don’t mix with young people. The energy is infectious; it rubs off on you. Mixing with young people is fun.”

[Chinese male, 55, tertiary education, enrolled in a Finance & Business course]

Strengthen relationship with family members

One of the things we frequently came across in the data were participants’ concerns about managing family conflicts, particularly those dealing with generational differences in raising grandchildren. Participating in grandparenting courses for instance or family counselling provided them with the tools and resources to communicate their needs and expectations more effectively and mitigate family conflicts. The courses also equipped them with new skills to enhance their social competence such as learning how to engage young children or prepare nutritious meals thereby making them feel rewarded in their ability to continue contributing to their families. Additionally, participants who attended courses related to social media platforms such as Facebook and Instagram felt that they could leverage on their new digital skills to forge closer ties with younger family members, whom they described to be tech-savvy.

“I want to know how to better take care of my granddaughter...or what to take note... and also the course not only talk about grandparent, they also touch on how to communicate with our children and how to handle matters related to our grandchild; Just get to know more things, know more, it’s good for everyone. So there wouldn’t be so many conflicts.”

[Chinese female, 58, secondary education, enrolled in an Ageing & Life Skills course]

Share knowledge with others

Participants’ quest for learning was not only for their own self-enrichment. They were also invested in applying their knowledge to benefit others. One participant chose a watercolour course so he could “gain new crafts or new techniques”, but more specifically, he wanted to share his “art therapy” with fellow volunteers and the patients he befriended in hospital wards.

Engagement in social and/or volunteering activities

Following up on the interest to share knowledge with others, there were also participants who expressed an interest to be a volunteer, but who were unsure about the process of signing up or their own capabilities. NSA courses that had a service or volunteering component became a springboard where they gained confidence in their own abilities to serve the less privileged and contribute to the wider community. One participant enrolled in a basic counselling course even though she knew it would not certify her as a counsellor:

“I thought I can still benefit from the course even if it's not in depth. I would know how to approach a person who is actually unhappy...this kind of thing.”

[Chinese female, 54, tertiary education, enrolled in Humanities course]

To summarise the gains in social capital, participants' responses demonstrated how learning at the NSA fulfilled their desire to connect and strengthen relationships with others as well as contribute to the community. Based on the participants' quotes, learning at NSA may translate to:

- i. Appreciation for cultural diversity
- ii. Increased sense of social competence
- iii. Make new friends and/or broaden social circles.
- iv. Feeling useful and contributing to society
- v. Increased desire to engage and participate in social activities and new experiences
- vi. Reduced sense of social isolation

Tangible and Intangible Gains in Older Adult Learning

Cote and Levine (17) describe how learning enhances individuals' assets and distinguish between tangible and intangible assets:

- (a) Tangible assets are resources that are socially visible. Tangible resources include possessions, finances, educational qualifications/certifications, memberships of social networks as well as interpersonal, impression-management and social skills.
- (b) Intangible assets refer to the characteristics of the individual that define his/her image and self-concept. These include ego-strengths such as internal locus of control, self-esteem, sense of purpose in life, ability to self-actualise and critical-thinking abilities.

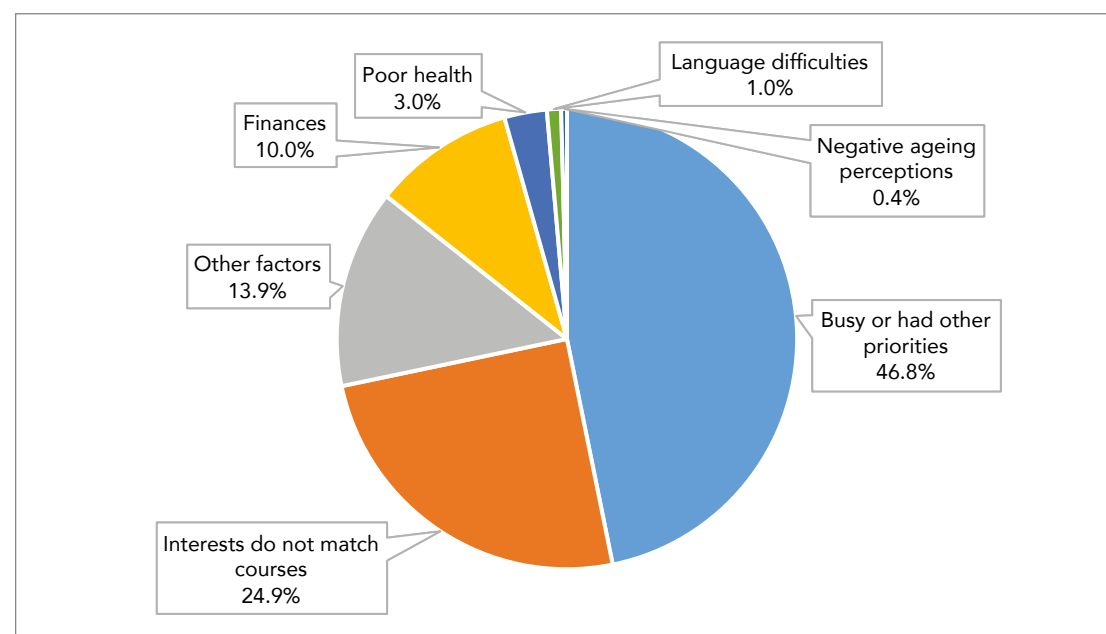
From the qualitative component, we found that learning at the NSA could potentially enhance older persons' tangible and intangible assets – both of which becomes more rather than less relevant in later life. Participants' narratives demonstrate awareness of their personal development as well as social capital – contributing to growths in both the tangible and intangible assets.

To summarise, the benefits of learning on older persons are evident in terms of promoting their personal development as well as gains in social capital. Acquiring assets that are both tangible and intangible could enhance older persons' psychological reserves to manage their life transitions, pursue new interests, set new goals as well as accomplish them. The confidence gained could also bolster their emotional resilience to cope with stressful consequences of social, physical and emotional strains. In other words, participants perceived that learning at NSA may help them cope better with life transitions and ageing related challenges, gain a deeper understanding of themselves as well as their relationship with others. The evidence from our study suggest the importance of promoting learning in later life. At the same time, it is also as important to recognise and acknowledge the barriers that hinder participants' pursuit of learning.

WHY SOME PARTICIPANTS STOPPED LEARNING AFTER COMPLETING THEIR NSA COURSE?

Participants who reported at the 6-months post-course survey that they did not take any more courses beyond their NSA index course (i.e. the course from which they were recruited into the study) were asked the reasons for the same so as to identify the possible challenges for continued learning at the NSA. A total of 256 responses were collated from the 186 participants who did not continue learning at the NSA beyond their NSA index course (see **Figure 1**).

Figure 1: Reasons for not continuing to learn at the NSA (N=256 responses)³



³ Other factors include inaccessible course locations, popular courses being full, uncomfortable/unfamiliar learning environments and negative experiences with instructors.

The responses provided at the 6-months post-course survey were triangulated with qualitative analysis of the in-depth interviews that specifically mentioned barriers to continued learning. As summarised in **Table 7**, the interviewed participants also highlighted personal, social and programme-related barriers to continued learning.

Table 7: Personal, social and programme-related barriers to continued learning, with representative quotes

Personal and/or social Barriers	Programme-related Barriers
<p><u>Poor health</u></p> <p>“My mind is in a mess, cannot follow the lesson. Actually there are a lot of courses that I am interested to sign up for...It’s just that my health is not good, I really want to go for the other courses”</p>	<p><u>Limited relevance and application to everyday life</u></p> <p>“Even after learning so much about TCM... like my friends, who studied about how to treat themselves, how to observe the tongue. I feel that.. even though we know how to do pulse-reading... we learned these at such an old age, even if we learn, it’s of no use for us... when you are sick, you still have to go and see the doctor”</p>
<p><u>Negative attitudes towards ageing process</u></p> <p>“In the past when you study about something you will go and check... Now when I’m studying hor... if I don’t understand something, I will not pursue it further. Even though the internet is very convenient...I am still very lazy, one gets very lazy as they grow older lor.”</p> <p><u>Low confidence in learning abilities</u></p> <p>“The elderly have poor memory and we forget after we attend the class. So we attend again, forget and attend again”</p>	<p><u>Lack of course options that caters to participants’ interest</u></p> <p>“I am looking for more practical courses, more hands-on. The one I took 6 months ago is more on communication - it was not what I was looking for. I want more practical courses like a nurse come to teach.”</p>
<p><u>Caregiving responsibilities</u></p> <p>“Every day I work in Changi, then I have to bring my mother to the day care centre in Yishun. I don’t have much time so like these courses I attend ah I have to apply leave to attend.”</p>	<p><u>Course affordability</u></p> <p>“So after I stopped working I looked around for things to attend to enrich myself. But it’s not nice when you got no pay. Zero income. To learn, I got to take from my savings already. How long can this last? If I keep on taking from my salary, by the time I’m older, I got no more money...So cannot already.”</p>

Personal and/or social Barriers	Programme-related Barriers
<p><u>Limited English proficiency or literacy</u></p> <p>“Classes that were conducted in Chinese... very easy. But we are interested in those that are conducted in English. We realise we cannot keep up with the English standards. I feel like we are just trapped in the middle, neither here nor there. You can’t keep up with the environment. If you don’t have the power of the language, you feel different from the rest.”</p>	
<p><u>Conflict with work commitments</u></p> <p>“If you’re not working, no issue la. But [older adults] working part-time, those working fulltime...They have lesser annual leave and they cannot be taking the leave just to attend to the course you see? That’s one of the shortcomings of NSA that I realise.”</p>	

Conclusion

The wider beneficial impact of learning in later life has been documented in several research studies in terms of its capacity to generate meaning and social engagement at the individual level as well as to promote social cohesion in communities (8-14). Our findings from the NSA study on older Singaporeans’ aspirations for learning and its benefits coupled with those from previous studies are conclusive in highlighting the critical importance of initiatives such as the NSA. NSA study participants experienced multiple benefits from learning including gains in psychosocial wellbeing as well as enhanced social capital and civic engagement and attitudes. These positive findings suggest that lifelong learning can be beneficial to older adults who partake in it. All older Singaporeans should therefore be encouraged to engage in learning, via the NSA or other avenues, in order to realise its psychosocial gains and thrive healthily in the community.

At the same time, the sociodemographic profile of the NSA study participants informs us about older person sub-groups that need to engage or be engaged more in lifelong learning efforts in Singapore. The majority of the NSA study participants were females, Chinese, in the young old age group and had at least secondary school education. A large proportion stayed in 5-room HDB flats or private housing suggestive of their higher socioeconomic status. Hence, there needs to be a stronger push for a wider participation in NSA. Specifically, more effort is needed to engage older men, ethnic minorities, the less educated, those who are in the lower socioeconomic status and non-English speaking backgrounds so that they can

benefit from the educational opportunities provided by the NSA. It may be argued that the NSA study participants may not be representative of the NSA enrollees. However, their age, gender and ethnicity profile matched with that of all NSA enrollees during the study period, lending support to the representativeness of the NSA study sample.

The barriers to continuation of learning at the NSA inform some recommendations to enhance the NSA's position as a national coordinator of lifelong learning for older persons. First, there is a need to make NSA courses more affordable. NSA has recently introduced free or affordable bite-sized courses as well as removed the limit on subsidies, which were capped at three courses per course provider per year. To encourage older persons to learn with friends, attractive discounts could also be offered when sign-ups are done in a group or in pairs. Second, the lack of time is also a major barrier to continued learning, hence accessibility is key to reduce traveling time. Courses can be offered closer to homes or older persons' workplaces. Courses can also be offered in community spaces frequented by older persons such as places of worship – mosques, temples, churches etc. Third, outreach efforts to promote lifelong learning can be more targeted with roadshows held in the heartlands, such as neighbourhood malls and hawker centres, places where older Singaporeans live and/or spend their time. Fourth, more courses in vernacular languages can be offered. Fifth, it is critical for course providers to consider personal factors, which may serve as barriers to learning, in developing and designing learning programmes for older persons (18). These include personal circumstances such as family and caregiving responsibilities, health and functional challenges, financial limitations and safety concerns as well as perceived attitudinal obstacles due to personal experiences over the life course, such as earlier learning experiences which were negative, low self-confidence and association of learning with youth. We do note that some of these recommendations have been implemented by the Council of Third Age as the implementation agency of NSA since the conclusion of the NSA study. For example, there are more non-English courses being offered.

This evaluation study has presented evidence that education is a potential resource for older adults to acquire the necessary assets, such as knowledge and skills, to maintain their social status in our society. NSA's mandate to make lifelong learning enjoyable, affordable and accessible for older adults is a necessary intervention to ensure that opportunities for a fulfilling later life remains available to older persons in a rapidly ageing global city-state like Singapore.

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The Centre for Ageing Research and Education (CARE) is an academic research centre based in Duke-NUS Medical School. It aims to harness the potentials of population ageing both in Singapore and the region through its interdisciplinary expertise and collaborations across medical, social, psychological, economics and environmental perspectives. Recognising the need for a consolidated and long term approach towards longevity, CARE spearheads educational programmes to build competencies in ageing among researchers, policy and programme professionals. CARE also actively engages with government and industry partners to meet the needs of population ageing.

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- Implement and evaluate best practices to improve health and function of older adults
- Inform policy and practice agenda on ageing

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Appendix 1: Summary of scales used in the NSA study

Scale	Psychosocial wellbeing measured	Items	Response options	Scoring method	Significance of score
Motivation to learn scale	Motivation to learn	<ol style="list-style-type: none"> 1. I like learning new things 2. I like to get to the bottom of difficult things 3. I like to figure out how different ideas fit together 4. If I don't understand something, I look for additional information to make it clearer 	<p>Not at all (1) Very little (2) To some extent (3) To a high extent (4) To a very high extent (5)</p>	Sum of response options of all items	A higher score indicates a higher level of motivation to learn
Control, Autonomy, Self-realisation, Pleasure (CASP) scale	Quality of life	<ol style="list-style-type: none"> 1. My age prevents me from doing the things I would like to do 2. I feel that what happens to me is out of my control 3. I feel free to plan for the future 4. I feel left out of things 5. I feel that I can do as I please 6. My health stops me from doing the things I want to do 7. Shortage of money stops me from doing the things I want to do 8. I look forward to each day 9. I feel that my life has meaning 10. I enjoy being in the company of others 11. I feel satisfied with the way my life has turned out 12. I feel that life is full of opportunities 	<p>Often (4) Sometimes (3) Not often (2) Never (1)</p>	Sum of response options of all items after negatively worded items were reverse coded	A higher score indicates a better quality of life

Scale	Psychosocial wellbeing measured	Items	Response options	Scoring method	Significance of score
	Control domain	<ol style="list-style-type: none"> 1. My age prevents me from doing the things I would like to do 2. I feel that what happens to me is out of my control 3. I feel free to plan for the future 4. I feel left out of things 	<p>Often (4) Sometimes (3) Not often (2) Never (1)</p>	Mean of response options of all items in Control domain	A higher mean score indicates a higher level of Control
	Autonomy domain	<ol style="list-style-type: none"> 1. I feel that I can do as I please 2. My health stops me from doing the things I want to do 3. Shortage of money stops me from doing the things I want to do 	<p>Often (4) Sometimes (3) Not often (2) Never (1)</p>	Mean of response options of all items in Autonomy domain	A higher mean score indicates a higher level of Autonomy
	Self-realisation domain	<ol style="list-style-type: none"> 1. I feel satisfied with the way my life has turned out 2. I feel that life is full of opportunities 	<p>Often (4) Sometimes (3) Not often (2) Never (1)</p>	Mean of response options of all items in Self-realisation domain	A higher mean score indicates a higher level of Self-realisation
	Pleasure domain	<ol style="list-style-type: none"> 1. I look forward to each day 2. I feel that my life has meaning 3. I enjoy being in the company of others 	<p>Often (4) Sometimes (3) Not often (2) Never (1)</p>	Mean of response options of all items in Pleasure domain	A higher mean score indicates a higher level of Pleasure

Scale	Psychosocial wellbeing measured	Items	Response options	Scoring method	Significance of score
Civic engagement scale	Civic engagement attitudes	<ol style="list-style-type: none"> 1. I feel responsible for my community 2. I believe I should make a difference in my community 3. I believe that I have a responsibility to help the poor and the hungry 4. I am committed to serve in my community 5. I believe that all citizens have a responsibility to their community 6. I believe that it is important to be informed of community issues 7. I believe that it is important to volunteer 8. I believe that it is important to financially support charitable organisations 	Ranges from 1 (Disagree) to 7 (Agree), indicating a degree of agreement	Sum of response options of all items	A higher score indicates a higher level of informational support
	Civic engagement behaviour	<ol style="list-style-type: none"> 1. I am involved in structured volunteer position(s) in the community 2. When working with others, I make positive changes in the community 3. I help members of my community 4. I stay informed of events in my community 5. I participate in discussions that raise issues of social responsibility 6. I contribute to charitable organisations within the community 	Ranges from 1 (Never) to 7 (Always), indicating a level of participation	Sum of response options of all items	A higher score indicates a higher level of civic engagement behaviours

Scale	Psychosocial wellbeing measured	Items	Response options	Scoring method	Significance of score
PROMIS informational support (PROM) scale	Perceived availability of helpful information or advice	<ol style="list-style-type: none"> 1. I have someone to give me good advice about a crisis if I need it 2. I have someone to turn to for suggestions about how to deal with a problem 3. I have someone to give me information if I need it 4. I get useful advice about important things in life 	<p>Never (1) Rarely (2) Sometimes (3) Usually (4) Always (5)</p>	Sum of response options of all items	A higher score indicates a higher level of informational support
UCLA loneliness scale	Loneliness	<ol style="list-style-type: none"> 1. How often do you feel that you lack companionship? 2. How often do you feel left out? 3. How often do you feel isolated from others? 	<p>Always (5) Fairly often (4) Occasionally (3) Rarely (2) Never (1)</p>	Sum of response options of all items	A higher score indicates a greater extent of loneliness
Scale	Physical health measured	Items	Response options	Scoring method	Significance of score
SF-36 scale (1 item)	Self-rated health	In general, how would you describe your current state of health?	<p>Excellent (5) Very good (4) Good (3) Fair (2) Poor (1)</p>	-	A higher score indicates a better state of health
Benefits of Lifelong Learning questionnaire (2 questions)	Healthy behaviours	<ol style="list-style-type: none"> 1. I lead a healthy lifestyle 2. I pay attention to my health 	<p>Strongly disagree (1) Disagree (2) Somewhat disagree (3) Somewhat agree (4) Agree (5) Strongly agree (6)</p>	Each question is assessed individually	A higher score indicates a higher level of agreement with healthy behaviours

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