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A Qualitative Evaluation of Nationwide Community-Based Screening Programme for Older Adults: Oral Health, Vision and Hearing

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Key Findings:

- Functional impairments such as vision loss, hearing loss, and poor oral health have created challenges in several aspects of quality of life for older persons, such as difficulty in performing daily activities, being unable to engage effectively in social interactions and/or participate fully in social life, and hindering work.
- Functional impairments compromise older person's sense of independence and self-reliance, increasing their fear of burdening family members and/or others.
- Functional impairments or deterioration are perceived by older persons as a natural part of ageing, thus functional screening may be regarded as something useful but less important compared to other kinds of screening, for example chronic diseases.
- Older persons who participated in Project Silver Screen (PSS) generally agreed that PSS had facilitated the early detection and subsequent intervention for functional impairment. Majority also reported being willing to participate again in the programme.
- Factors that enabled participation in PSS were its low cost and convenience, opportunities for detection and timely interventions, and access to subsidised prescriptions for assistive aids including spectacles, hearing aids, and dentures.
- Barriers reported include inconvenience over the time and cost incurred (e.g. transport fare) to attend multiple appointments, and inadequate explanation on their screening results.
- Other health management interventions such as health and social counselling, public health communication and education, and health literacy initiatives and practices could be considered in parallel to PSS to help older persons better manage, prevent, and delay functional loss and/or deterioration.

1. INTRODUCTION

Project Silver Screen (PSS) is a community-based functional screening pilot programme for Singaporeans aged 60 and above, with a view to improve their quality of life and support ageing-in-place. Funded by MOH and with corporate sponsorship from Temasek Foundation and the business community, the programme aims to enable early detection of decline in an older person's vision, hearing, and oral health, and to provide timely treatment and/or follow-up care services for older persons with abnormal screening results. Those requiring assistive aids, such as spectacles, hearing aids and dentures, receive corporate vouchers, in addition to government subsidies, to defray out-of-pocket costs.

This study was funded by MOH as part of programme evaluation of PSS. The study aims to assess the impacts of PSS on the general and condition-specific quality of life (QoL) for older persons using multi-method techniques that include in-depth interviews and focus group discussions. The objectives of this study are:

i. Assessing impact of programme – whether and in what ways PSS improves the general and condition specific QoL for older persons and/or their family caregivers?
ii. Identifying factors affecting take-up of screening and follow-up care services – what factors enable or impede participation in PSS?
iii. Understanding health behaviours and perceptions of health screening among older adults – how do perceptions of risk and barriers, as well as factors such as socio-cultural, economic, demographic, and household/familial circumstances influence the health behaviours of older adults and their interactions with healthcare services, primarily health screening?

2. BACKGROUND AND METHODOLOGY

PSS adopts a tiered approach to screening and post-screening intervention. Level 1 (L1) comprises community-based screening by trained staff. Level 2 (L2) services involve further investigation of older adults with abnormal L1 results, and the provision of non-complex follow-up care services. These services are sited within the community (e.g. mobile hearing clinics) and provided by healthcare professionals, such as optometrists and audiologists, with expertise in the relevant functional domains. Level 3 (L3) services are mainly to treat a small number of complex cases that cannot be managed in the community. These L3 services are typically provided within the acute hospital setting (e.g., specialist outpatient clinics) where participants, referred from L2, are reviewed by specialist teams.

This study focuses on older persons' experiences of PSS and its impacts and implications on managing common declines in physical capacity in older age, specifically vision, hearing, and oral health. These conditions are generally recognised as key factors that impact quality of life[4].

2.1 Realist evaluation approach

We adopt a realist evaluation approach which asks, "what works for whom in what circumstances and in what respects, and how"[6]. Realist evaluation considers the contingent nature of things, and it is more concerned about how policies and programmes work on the ground than trying to "measure" whether they are successful or not against pre-determined benchmarks or Key Performance Indicators (KPIs).

Realist evaluation approaches are underpinned by the following three key concepts:

- *Context* refers to the social and economic circumstances and cultural values of participants;
- *Mechanisms* are the "underlying entities, processes, or structures which operate in particular contexts to generate outcomes of interest"[6] that includes the cognitive or emotional reasoning of participants responding to the opportunities, constraints, and challenges of the programme;
- *Outcomes* include both the intended and unintended, and they could be short, medium or long-term.

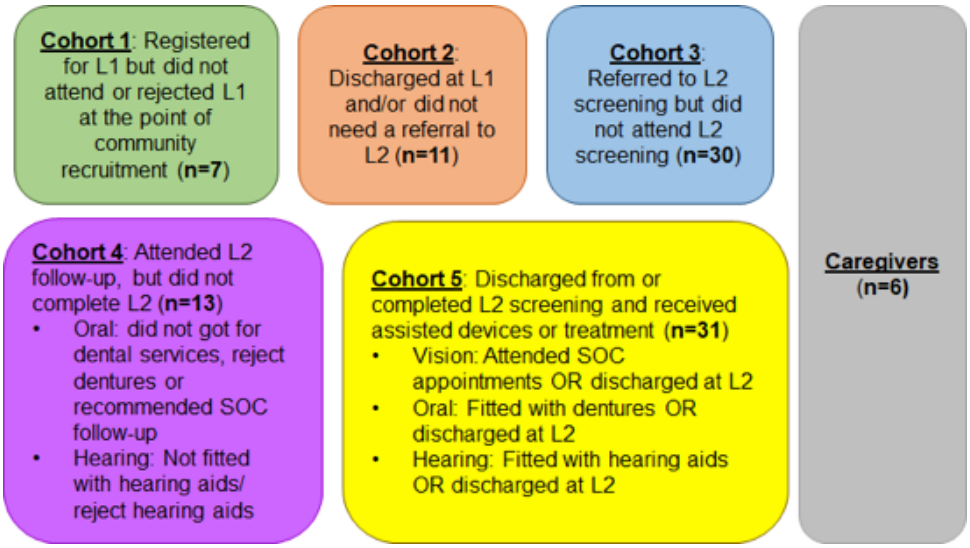
In order to understand how the programme works when and for whom, it is important for the research and/or evaluation design to focus on the context and mechanisms alongside with or in relation to the interventions and outcomes.

Hence, taking a realist evaluation approach in this study means that we pay attention to the *mechanisms* such as participants' health seeking behaviours; their perceptions, experiences and understandings of health management; and reasonings situated within the *contexts* of particular social and economic realities, in response to PSS processes, interventions and outcomes.

2.2 In-depth interviews

In view of the challenges faced whilst conducting research during the COVID-19 pandemic, we adopted a cohort-based, cross-sectional approach and conducted a total of 98 interviews (including with 6 caregivers) across seven months from December 2021 to June 2022. The evaluation considers the experiences of older persons (participants and non-participants of PSS) who fall into the five cohorts based on their progress along the PSS journey **(Figure 2.1)**.

Figure 2.1 Definition of cohorts



The main modes of participant recruitment were:

- Relevant agencies involved at L1 and L2 (e.g. Silver Generation Office and regional healthcare clusters) referred information of pre-consented older persons in batches, from September 2021 to June 2022;
- The research team conducted direct on-site recruitment at L1 and L2 sites between February 2022 to April 2022.

Semi-structured interviews were conducted face-to-face at a venue convenient to the participants. The duration of interviews ranged between 1 to 2 hours. All participants were enquired at length about general topics such as health conditions, healthcare service utilisation and social support. For participants who had undergone PSS, questions were tailored to understand their experience, as well as changes observed after participating in the programme. Interviews were audio-recorded and transcribed for analysis. With a total sample size of 98 individuals, we were able to achieve:

- The desired diversity of the sample, according to cohorts and sensory domains;
- The desired experiential and perspectival diversity in the data;
- A good depth in terms of the complexity and richness of data generated from each participant.

2.3 Focus group discussion

Four Focus Group Discussions (FGDs) comprising of a total of 29 participants from organising partners and stakeholders (HPB, AIC, L1 vendors) were conducted in July 2022. The objectives of the FGDs were to identify areas for improvement in the PSS programme and re-imagine the next iteration, phase and/or future development of PSS. The outcomes of the FGDs were "triangulated" with the interview data, and informed our recommendations for improving PSS.

3. INTERVIEW PARTICIPANT DEMOGRAPHICS

Table 3.1 Demographic of older persons (n=92)

Sex	Male	42 (46%)
	Female	50 (54%)
Age	**60-74**	**70 (76%)**
	75-84	19 (21%)
	85+	3 (3%)
Ethnicity	**Chinese**	**77 (84%)**
	Malay	6 (6%)
	Indian	9 (10%)
Marital Status	**Married**	**61 (66%)**
	Widowed	12 (13%)
	Separated/Divorced	10 (11%)
	Single/never married	7 (8%)
	Unknown	2 (2%)
Home Ownership	Rental	12 (13%)
	Purchased	**78 (85%)**
	Unknown	2 (2%)
Children	0	13 (14%)
	1-2	**51 (55%)**
	3 or more	28 (31%)
Employment	**Retired**	**52 (56%)**
	Part-time	19 (21%)
	Full-time	19 (21%)
	Never Worked	2 (2%)

Living Arrangement	Alone	18 (20%)
	Spouse	28 (30%)
	Spouse & Children	30 (33%)
	Children/Siblings	6 (7%)
	Co-tenant	4 (4%)
	Family & Helper	4 (4%)
	Helper	2 (2%)
Household Income	**< $2,000**	**54 (59%)**
	$2,000 - $4,999	22 (24%)
	$5,000 - $8,999	10 (11%)
	$9,000 - $12,000	2 (2%)
	$12,000 <	2 (2%)
	Unknown	2 (2%)
Sensory Issues Detected at PSS L1	Vision (V) only	15 (16%)
	Oral (O) only	15 (16%)
	Hearing (H) only	**26 (28%)**
	V & O	0 (0%)
	V & H	10 (11%)
	O & H	9 (10%)
	V, O, & H	2 (2%)
	No issues detected	8 (9%)
	Did not attend	7 (8%)

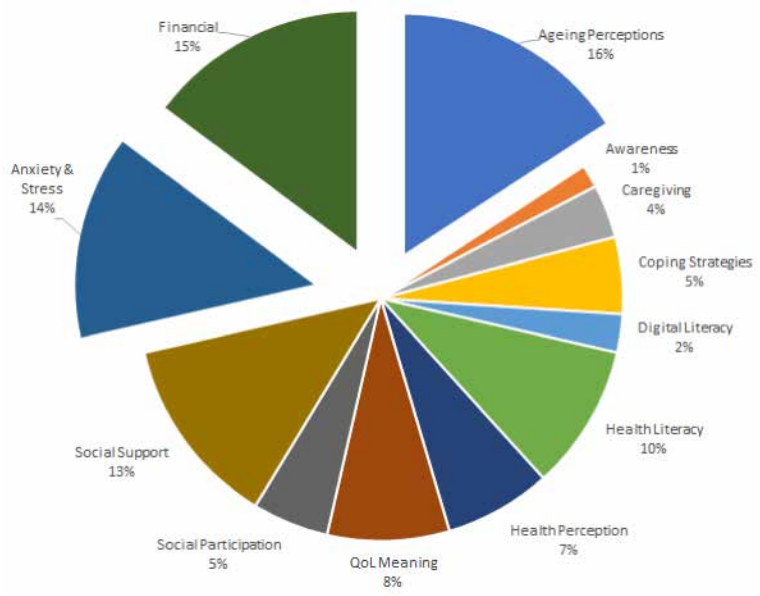
Table 3.1 shows that older persons who were interviewed in this study tend to be young-old; Chinese; married with one to two children; living with other family members in purchased flats; has household incomes below median range (S$7,744)[5]; retired; and were mostly assessed to have hearing issues. This concurs with the demographic profile from the PSS quantitative study (i.e. mean age of PSS participants was 71 years old, and most were Chinese and/or female).

4. OLDER PERSONS' ATTITUDES TOWARDS HEALTH MANAGEMENT

Thematic analysis shows that participants' attitudes towards health management shaped their actions and responses to PSS. In the same ways that individual "health knowledge" and "health empowerment" mediated health outcomes[1], participants' attitudes which arise from a combination of different individual health conditions, life circumstances, needs, and subjective experiences, affected the outcomes of PSS.

By paying attention to how participants talked about functional screening and PSS with regards to their functional health, we have identified the salient features of such attitudes towards health management; in terms of ageing and health perceptions, financials, anxiety and stress, social support and health literacy (see **Figure 4.1**). These features provide insights into the common-sense knowledge, practices, and considerations of older persons who sought to make sense of their functional health concerns and QoL needs, and their responses to functional screening or PSS[7].

Figure 4.1 Older persons' attitudes towards managing health[A]



4.1 Ageing perceptions

Deterioration and decline were seen as "natural" part of ageing, and this perception could on one hand foster acceptance but also inaction and a sense of fatalism inhibiting screening, treatment or intervention on the other.

"Because when you grow older, a lot of things are not functioning" (76M, Chinese, 4H)[B].

[A]Refer to Appendix A for the full glossary of the themes. Percentages in the chart reflect that of the total responses gathered (N=196).

[B]Brief, non-identifying information of the research participant is reflected at the end of each quote. It is read as "age-sex, ethnicity, cohort". In this case, "76M, Chinese, 4H" refers to a 76-year-old male Chinese in Cohort 4 Hearing i.e. attended L2 follow-up for hearing but did not complete it. Cohorts 1 and 2 are not specific to a sensory domain, hence reflected as "Co1" and "Co2" respectively. Refer to Appendix B for more details on acronyms used for cohorts.

"I don't go out. That is why I did not change my spectacles. I am old already, no need to change" (88F, Chinese, 5V).

4.2 Financials

Concerns about financing medical treatment could inhibit participants from continuing with post-screening follow-up and intervention. In some cases, participants were worried about the potential costs of treatment and played down their health issues and needs.

"I worry about the medical fee so I didn't go. As long as I can see and [it is] not so serious, I probably may want to delay it [specialist appointment]" (63F, Chinese, 5V).

4.3 Anxiety and stress

There was a significant level of anxiety and stress in these conversations with participants about managing their health. It ranges from slight hesitations and considerations about screening to the point of avoiding it, so that they do not have to face potential health issues. The combination of fear, avoidance, and denial to deal with actual health and medical conditions characterise the ambivalence towards health screening in general and PSS in particular.

"I am afraid I would have [health] issues. So, if I don't go to these check-ups then I don't [have to know] these problems" (74F, Chinese, Co1).

4.4 Health perceptions

The notion of "if one could still see, hear, and/or eat implies good health and therefore no need for screening" is prevalent. Certain health issues may also be dismissed as a "small matter" when compared with other issues or functions like vision, which was deemed to be more critical.

"Got problems, then check. No problems, check for what? Waste my time" (70F, Chinese, 3H).

"If it is not so critical or urgent that you need to handle it immediately like eyesight problems, I think I will put it aside first" (63F, Chinese, 5V).

4.5 Social support

Community and family support have been important in enrolling participants in PSS, and sustaining their participation throughout the programme. Family members have helped to register their parents, encouraged them to follow through with the intervention and go for their follow-ups, as well as helped to manage and/or remind them of their appointments.

Community partners such as Community Centres (CC), Residential Committees (RC), and Silver Generation Office (SGO) ambassadors have also played an active role in

disseminating information and recruiting participants into PSS.

"My family encouraged me to put on the hearing aid" (84M, Chinese, 5H/caregiver).

"Because the Merdeka Generation [SGO Ambassadors] encouraged me to go [for PSS]" (68F, Chinese, 2Va5H).

4.6 Health literacy

Participants relied on multiple sources ofinformation to understand their own health including their own sense and sensibilities about their bodies in response to screening and intervention. Screening results and prescribed treatments were mediated and negotiated against these embodied understandings, alongside the knowledge gained from their consumption of popular health literature, interactions with healthcare professionals, and discussions amongst friends.

"I ate the medication on alternate days because I can feel whether I am healthy" (75M, Malay, 3Vb).

"Yes, I read a lot and I asked my doctors a lot of questions…at least they share with me to allay my fear" (70F, Chinese, 5V5H).

"We have a big group of friends, every time after jogging we'd stand there and talk, we'd absorb and learn anything beneficial" (60F, Chinese, 5H).

5 UNDERSTANDING OLDER PERSONS' QoL NEEDS AND IMPACT OF SENSORY IMPAIRMENTS ON QoL

In our study, we found that older persons regarded ageing as a process that they sought to manage on their own and by themselves. In order to avoid burdening their family, older persons exercised self-reliance and self-management. Having insights into what participants define as good quality of life (QoL)/good health and their perspectives of how sensory impairment impacts QoL provides understanding of how participants prioritise/experience PSS.

5.1 Older persons' perspectives of QoL

From the older persons' perspective, QoL corresponds mainly to three key categories: sustaining independence; staying healthy and living well (physical and psychological well-being), and having good personal relationships and interdependencies (social and family connections).

Maintaining independence means a functioning mind and body so that they do not need help or help in everyday life, and thus do not become a burden on the family, the state and others. The salience of independence and burden arises from concerns over rising cost of living and cost of care that might be imposed on family members and others; the emotional shame of "adult dependence"[3], and the attendant fear of estrangement from and abandonment by family and friends. Independence also implies a degree of autonomy or locus of control over understandings, decisions, and courses of action regarding their own health.

"I can take care of myself and don't need to burden them [children]. I can go for my medical check-up myself, see the doctor myself, I don't need to bother them. I can cook myself, I take care of my husband" (71F, Chinese, 5H).

"[Being] free and not dependent on someone to do the things that you want to do" (67F, Chinese, 2Va5H).

Staying healthy means not suffering from bodily pains and illnesses, while living well entails freedom from worries or anxieties and being ambulant. Staying healthy and living well are deemed by participants as necessary conditions (rather than goals) for continuing to do and enjoy everyday activities.

"Good health means that you should not have any sickness. Then you go for brisk walking, have healthy food & exercise" (73F, Indian, 3O).

"To not have worries and stresses. If we have enough to eat and have enough sleep, it is sufficient. Don't request for too much" (76M, Chinese, 5H).

Personal relationships and interdependency are important aspects of QoL. Counter to the cultural stereotype of dependency of Asian older persons on the younger generation, the following quote underscores the interviewee's desire for independence and autonomy even as she seeks to have good family relations and friendships:

"I just want a peaceful life with my children and grandchildren, and be able to work, have food on my table, and be able to go out and relax with my friends, have afternoon tea with them and chat with my employer" (62F, Chinese, Co1).

5.2 Visual impairment and QoL

Participants with visual impairment reported on how the condition impacted QoL in terms of their ability to perform daily activities, including leisure and work.

"My eyes, quite blur. My reading also I don't enjoy, and I like to read. So, I can't enjoy reading because I get tired faster" (73M, Indian, 4O).

"I cannot see things clearly [at work]. If there is a dirty spot, I cannot see it. If something drops, I also cannot see [it], even if it is right beside me" (74F, Chinese, 5V).

Visual impairment creates physical discomfort and compromises on participants' independence. Participants expressed anxiety about relying on others for care and basic needs.

"I'd be very depressed because I'd have to depend on others for everything then. I can't take anything I want on my own, or go out on my own. I'd have to rely on others" (60F, Chinese, 5H).

"[I'm] worried also if I can't see, who's going to take care of me?" (68M, Malay, Co1).

When visual impairment takes a toll on participants' sense of independence, it leaves them with a sense of hopelessness and despair.

"If it [eyesight] deteriorates, then won't have hope anymore. No hope. If you deteriorate, your family has to take care of you" (69M, Chinese, 3Va);

"If you cannot see, you totally become useless. You cannot see anything, you'd think of ending your life" (73M, Chinese, Co2).

5.3 Poor oral health and QoL

Oral health's impacts on QoL are multi-dimensional and complex. Studies of oral health programmes such as the "8020 oral health movement" in Japan have shown not only is there a relationship between dental function, general health (including cognition) and QoL but how this relationship is shaped by policy directions and legislation[8]. In the tentative absence of a comprehensive oral health policy for older persons in Singapore, individual

factors including denture wear, health perception, self-management and adaptation then play an important role in impacting QoL. Impacts on QoL reported include difficulties in chewing, which compelled participants to switch to eating "soft food" like porridge or rice gruel, and thus not getting sufficient nutrition.

"I want to eat solid food but cannot. I can only drink porridge" (70M, Indian, 4H5O).

Participants also reported on the physical discomfort from toothaches and denture wear.

"When I drink or eat, sometimes it has a stinging pain like that. Then these few days, I don't chew on this side where it's painful" (73F, Indian, 3O).

"It is always as if I can't bite…when I bite, my denture is pressed down, and the gums will be painful" (81F, Chinese, 3O3H).

5.4 Hearing loss and QoL

Despite the importance of hearing to the performance of daily life activities, hearing impairment tends to be an unrecognised, underreported, and undertreated health problem[2]. The impacts of hearing loss on psychological well-being are well-noted in many studies. Likewise, our participants reported on how the condition contributed to a sense of low self-esteem, frustration, and feelings of exclusion.

"My ear already has some problem. Sometimes when people talk to me, I don't reply. I don't know what they are saying so I just keep quiet and don't anyhow say things. Sometimes, I nod my head even though I don't understand very clearly" (76F, Chinese, 5H5O).

"If you can't hear things, it will be very frustrating. That's why, you look at people who are hard of hearing – they are always scolding people" (62M, Chinese, 5V5H).

Participants who were prescribed with hearing aids do not necessarily see improvements in QoL because of the physical discomfort, the inability to adapt, and/or the competency (i.e. skills and knowledge) to use the devices effectively that resulted in reduced and/or discontinued usage.

"I get a headache as I can't adapt to it [hearing aid] because of the adjustment and so on" (76F, Chinese, 5H5O).

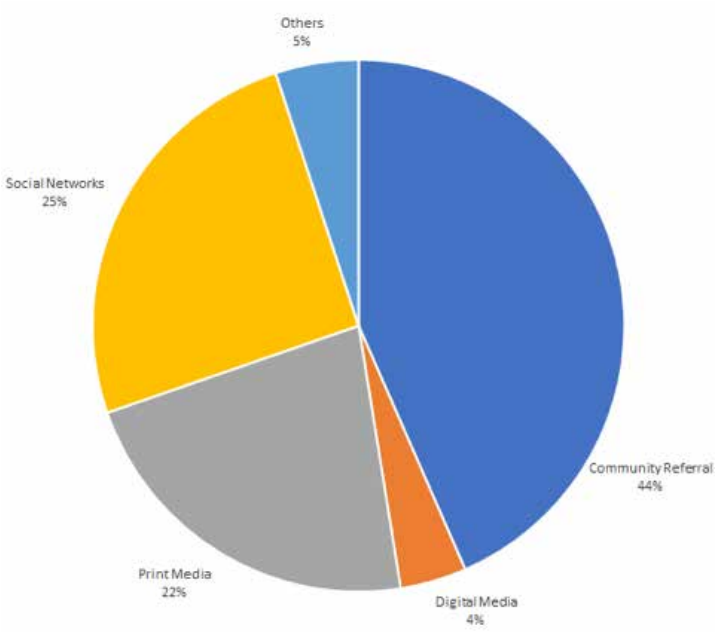
"Sometimes when I go out, I seldom use [hearing aid] because it is too noisy. Too noisy until I get annoyed" (76M, Chinese, 5H).

6 OLDER PERSONS' EXPERIENCE OF PSS

Participants' experiences of PSS vary because of their different perceptions, attitudes and other intrinsic capacities as they encounter, interact with, and respond to each touch-point in the programme. These touch-points begin from outreach and extends throughout their journey on the programme, including its processes, infrastructure and engagement with PSS staff. Participants' opinions and responses build upon each other and influence their experiences of the programme – whether positive, neutral or negative – and shape their motivation to follow through or drop out from it.

6.1 Awareness of PSS

Figure 6.1 How participants came to know about PSS[C]



Participants were mainly activated through community networks, relations, and interactions **(Figure 6.1)**. The reach of the PSS programme in terms of enrolment and dissemination of information thus depended on the levels of social connection and communication between community partners/organisers and older persons.

Participants were informed and enrolled into the programme through community referrals; from RC/CC volunteers and Silver Generation Ambassadors (SGA) who actively recruited older persons through a variety of avenues, but also mainly through door-knocking. Other participants were already members of the RC/CC/active ageing centres (AACs) in their neighbourhood and heard about the programme through word-of-mouth. Notably, one other key driver of awareness is access to printed publicity materials of the community screening event. This includes posters put up at lift landings and CCs, newspaper advertisements, and flyers. However, the access to print media is at times not a stand-alone experience; some had interacted with a community partner in the process (e.g. an SGA visited the participant at home with a brochure at hand).

[C]Percentages in the chart denote the total responses gathered (N=99). Participants may have more than one response.

6.2 Feedback on PSS L1 and L2

Participants were probed about their experiences across various touch-points and components of PSS such as booking of appointments, interaction with staff, tests administered, infrastructure, subsidies and so on. They also shared their thoughts and feedback of the programme as a whole.

6.2.1 Positive/neutral responses

PSS was generally well-received by the participants. Though the functional tests administered were deemed as "basic", participants appreciated that PSS had facilitated the early detection and subsequent treatment of functional impairment, at an affordable rate. They were motivated to attend the screening at L1, knowing that they only had to pay a minimum sum, if at all.

Participants valued the programme for being well-organised and accessible as well. With L1 located within familiar spaces of the participants, such as the nearby RC, CC or AAC, participants felt they had "no excuse" to not attend it, and highlighted the convenience of walking no more than 5-10 minutes to the venue.

For these reasons, participants were activated to address their functional health issues and were willing to participate again in the programme, especially if they observed a decline in their condition.

"If there were no such services, in case we have hidden illness, then it is problematic. So, preventive is always good. Can always prevent occurring is better" (69M, Chinese, 3O).

"For those of us who are of lower income, we went as well. Otherwise, it's very expensive." (72F, Chinese, 5O).

Participants reported having benefited from their interactions with professional healthcare staff at L2, who were able to provide insights regarding their functional health status and instructed them on how to look after their eyes, ears, and/or teeth. They felt that the health education provided (e.g. self-care habits) were useful and relevant. These gave them a sense of reassurance about their health and increased their knowledge.

"At least I know what the discomfort is. No need to speculate "old already la, you know you have this". But I know exactly where I stand. Like the doctor tell me, "oh, you have cataract, don't worry. Maybe 3, 4 years." So now I know the doctor told me that "don't worry". So, I don't have to bother about the cataract." (70F, Chinese, 5V5H).

"They also advised us, because we're very used to… after washing our hair just use the cotton bud to poke, they said cannot. They told us to try and avoid such steps, and we'd follow" (60F, Chinese, 5H).

Participants were grateful that there were subsidies available (both through the Government as well as through corporate vouchers supported by Temasek Foundation) to significantly offset the cost of assistive devices, especially for hearing aids. As they were generally concerned about medical costs in Singapore, the availability of and access to subsidies for treatments and/or further investigation through PSS was reassuring.

"They told me "Auntie, don't need to be scared, you don't need to give $3,000, the government got subsidise 90% for you. 90% of $3,000. You only need to pay $300. Because I am from CC refer there, so they deducted $200. So, at last, I only give $100. Wow, of course I will be very happy." (76F, Chinese, 5H5O).

6.2.2 Negative responses

Participants expressed inconvenience over the length of time and cost incurred (e.g. transport fare) to attend multiple appointments. Presently, participants who were screened to have "abnormal" results at L1, may be required to go for follow-up at L2, sometimes more than once, for hearing- and oral-related issues. This is especially challenging for participants with mobility or financial concerns. Appointments were also delayed or cancelled, due to logistical/coordination issues required for an L2 event to take place (this was constrained by the fact that L2 manpower and capacity had to be lowered during COVID-19).

Participants echoed a preference for more comprehensive and consolidated screening programmes moving forward.

"Just a waste of time because every now and then they said the nurse, they give appointments. Then wait for this, wait for that, and then not enough manpower. Until 3 appointments cancelled for my eye follow-up. Not enough people… a lot of stories. Don't have mobile… then after that never mind, I just cancel." (80M, Malay, 3O).

"What I feel is why must [go] until 3 times, why cannot just directly go? This is my intention so just refer me to the place, the specialist, no need to go so many times.....I would say [the screening needs to be] more detailed not so general. Although they say it's a fee of $5 for 3 tests, it is not the issue right but the time-consuming, travel all the way there and then you did not get the actual functioning test" (64F, Chinese, 3O4H).

Specifically, for L1, participants with existing concerns or issues felt that they were not able to express those during the screening event. They perceived the staff as lacking a certain level of professionalism (e.g. L1 staff appeared very young, or less qualified than the doctors or specialists in a typical healthcare setting).

Information provided at the results station was also perceived to be insufficient and incomplete. Some participants reported that they were confused, felt undervalued or not attended to, as they wanted to know more. These service-related issues limited opportunities for effective dialogue and participants leave the event feeling that their expectations and needs were unmet. Any further explanation of their condition was only provided at L2.

"Some people have problems, but the procedure [at L1] did not cater for question and answer" (81F, Chinese, 3O3H).

"We took the effort to go to your program. Ok, you must bear with us for a few minutes longer by giving us the proper reasoning. Why you have passed and why you have failed, what is the impact" (69M, Indian, Co2).

"Maybe they were in a hurry to go off when they gave me the voucher for the spectacles. They didn't explain to me. I thought it was complete free. So, when I went to the optician, they said, 'no, you have to pay something on top'…" (67F, Chinese, 2Va5H).

6.3 Case-studies

Case studies reveal the tacit knowledge and understandings of participants, and provide some insights into the complex issues faced by specific individuals (whose circumstances could be unique) in their real-life settings. Case studies serve both explanatory and exploratory functions[9] that address "how" and "why" participants' health, social, and economic needs have shaped their responses to PSS, and how PSS in-turn impacted QoL.

Madam Lim, 67, female Chinese

Madam Lim was living by herself after her mother and youngest brother had passed away. She was well-informed and continued to lead an active and independent life working full-time as a church staff. Madam Lim reported that she was in good health and was grateful for the outreach on COVID vaccination and health screenings which she had responded affirmatively to. Through PSS, Madam Lim received spectacle vouchers and L2 referral for hearing. She appreciated PSS for the activation and reminder of functional health issues.

"I guess all these screenings act like a reminder that number one, you're ageing, and number two you got to take steps to 'counteract 'some of these deteriorations, if you could. So, it's good- good to be reminded that hey, watch it you know."

However, she highlighted a concern that the screening results were not explained to her, and it was a common issue amongst other PSS participants who felt that they did not receive any explanation or that the explanation was inadequate and unclear. This concern or issue was salient particularly for participants who did not feel that the screening mattered much, and they reasoned that the screening was "too simple" and poorly implemented to be taken seriously anyways.

Mr. Chiam, 74, male Chinese diagnosed with hearing loss

Mr. Chiam was concerned about his functional ability to the extent that it would affect his role as a father and caregiver. Mr Chiam looks after his adult son who has a mental health condition and unable to sustain a job. Thus, Mr. Chiam continued working as a part-time security officer to provide for his family. He said:

"If I had money, I wouldn't [work so hard]. It's not easy waking up at 5am, leaving at 6am and coming back around 8 or 9pm. Sometimes, I knock off at 8pm, some places at 9pm. I must change buses two or three times, and I still need to walk some distance- it's very far. I'm getting on with my years as well, if I can rest then I won't work anymore."

Mr. Chiam had a positive view of health screenings including PSS – he treated the results of the screening as a reminder to himself about his health conditions. He mentioned that an appointment for L2 hearing was booked for him initially but for some reason the appointment lapsed and there was no news for any follow-up. He did not know who to call or how to reinstate the appointment. Mr. Chiam was also worried about his ability to pay for any intervention or treatment which might arise from the follow-up, as most of his earnings were spent on daily expenses. He was recommended hearing aids but could not make the appointment because he had no time and felt that it was inconvenient:

"I had to wait for a long time, go somewhere to apply for it, and somewhere else to collect it. It's so troublesome running around for them, it's a waste of time [for me]."

Mr. Ong, 67, male Chinese diagnosed with hearing loss and oral health problems

Mr. Ong faced challenges with his ears, mouth, and eyes. Despite not having been classified for visual problems, Mr. Ong claimed that his night vision had been deteriorating and his vision was blurred when he tried to look faraway. This became more apparent for him when he was driving taxi at night but did not interfere significantly in any way with his daily life. In describing his oral health, Mr. Ong highlighted that he always had poor oral hygiene for most parts of his life and problems with the root canals and gums. He also discovered that he had to raise the volume of the radio significantly, and that it

was sometimes difficult to hear what others had to say at home, which created tension in the household as family members would need to raise their voices to get through to Mr. Ong, or repeat themselves several times.

Thus, PSS was aligned with what Mr. Ong wanted to seek help for and he registered when invited by the CC (of which he was an active member). Mr. Ong appreciated the convenience and ease of the L1 screening but was concerned about receiving seemingly inaccurate results which suggested he had issues with his ears and mouth but did not get flagged for eye problems. He received follow-up appointments for oral and hearing.

Mr. Ong received dentures following root canal treatment, but he missed several other appointments which were difficult for him to meet as he could not find time off work. He also received subsidies that helped to offset most of its costs. Mr. Ong reported that with the dentures, he was able to eat better and enunciate clearer.

7 FOCUS GROUP DISCUSSIONS (FGD) WITH PSS SERVICE PROVIDERS AND STAKEHOLDERS

FGD participants felt that one of the key successes of PSS have been the ability to reach-out to older persons in the community who would otherwise not have sought the necessary medical treatment or intervention for various reasons. For instance, it has been able to reach out and provide early intervention to specific groups of people who have some degree of functional impairment, but were unaware about their condition. Older persons who were otherwise unable to access screening/treatment for their functional health issues due to physical, social, and/or financial challenges were able to receive diagnosis and intervention for their conditions because of the deliberate outreach and low-cost or no-cost treatment.

PSS facilitated older persons to access subsidised care and navigate the healthcare system better. The programme has sought to guide older persons to solutions such as prescription of spectacles and hearing aids in order to improve and if not maintain their quality of life. With this, the programme aims to facilitate older persons to "age with grace" within the community, and potentially reduce hospitalisations and admissions to nursing homes.

"This screening is a channel for them to find relevant help without going through the chaotic healthcare system. If you have very low health awareness, you will never know how to seek help in the first place, partly due to their education level as well as economic status. They will just live with the conditions they have." (Ms Joyce, Manager SingHealth)

On the other hand, it was also suggested that preventive care objectives could be made more salient to participants given that screening is supposed to provide early detection and enable people to maintain or sustain their functional health.

"I mean the intention [for preventive care] is there, but it's just kind of tell people like we want to screen whether you have functional issue, if you have then we intervene. That's the thing. The way we ought to do it is we screen but we should also educate at the same time so it's preventive. However, that part [to educate] didn't come out strong." (Prof Sim, Senior Consultant SingHealth)

FGD service providers highlighted that the level of understanding about functional deterioration and its management and prevention amongst older persons is low. For example, the implications of hearing loss and the expectations about interventions such as hearing aids are not well understood.

"Hearing problems may seem like it's just ageing but quite many of them also end up with something that require more attention and need to be managed by Specialist Outpatient Clinics (SOCs) like a tumour or infection. Although it seems like a very easy and quick fix,

like if you go to the clinic then you can get your hearing fixed with hearing aids. But it is not like a one-time appointment that can fix everything. It is more than that. People don't know enough about the L2 follow-up process, what is the journey after that." (Dr May, Senior Principal Audiologist NUHS)

For oral health, participants highlighted the importance of going upstream to prevent tooth loss to complement the screening programme.

"…functional screening really should be about maintaining your current teeth because every form of treatment will inevitably fail at some point. From a health economics perspective, maintaining dental health is affordable whereas managing dental neglect is expensive. Once we start having dentures, potentially, number one you would need to change more than just one, besides that, the teeth next to the denture become more difficult for patient to clean, they will end up losing more teeth. We called it *restorative death spiral* because once you start the treatment, chances are you will keep going back to address the problem, and the problem will progress and become bigger. So, ideally you never wish to require treatment in the first place and that means prevention." (Dr Livia, Senior Consultant NUHS)

FGD participants shared that the target audience of PSS often comprise of older persons residing in rental blocks as they are known to the programme coordinators through their contact with the nearby AACs. It was further highlighted that PSS has attempted to reach out to older persons in purchased flats and/or landed properties. However, these attempts often fell short as they ended up being a small-scale event with a small number of participants, which affected the cost-effectiveness of these events.

8 DISCUSSION AND RECOMMENDATIONS

8.1 Enablers of and barriers to PSS

PSS participants who were able to successfully complete the programme were motivated, and they found their experience in the programme to be meaningful. However, there were others who did not have similar experiences and/or were unable to follow through with the programme. **Table 8.1** summarises the key intrinsic and extrinsic factors that have enabled or inhibited participants in their PSS journey.

Table 8.1 Enablers and barriers to PSS

	Enablers	Barriers
Intrinsic	• Enhanced understanding of healthcare and their own health condition	• Perception that deterioration is a part of ageing • Anxiety about attending functional screening • Financial concerns for follow-up treatment
Extrinsic	• Social support in programme enrolment • Low enrolment cost • Nearby, within the community; convenient • Subsidies available for assistive devices	• PSS seen as a random event that pop-up occasionally in the neighborhood, rather than as part of a system of routine check-ups • Limitation in L1; tests administered were perceived to be "basic" and some participants felt that they were unable to express their needs and concerns effectively • Difficulty in adjusting to assistive devices; lack of adequate follow-up services

8.2 Key takeaways

There are common issues pertaining to ageing and health perceptions, and variations across individual healthcare, financial, and social needs. Yet the collective need of older persons for a better explanation of their screening results suggests that health communication, public health education, and health literacy specific to vision, hearing, and oral health could be enhanced for PSS.

A more holistic approach integrating biomedical, rehabilitative, and social interventions that caters to the different situations and subjective demands of each person would orientate PSS towards a more person-centred health service. A step in this direction would be to enhance convenience for older persons by combining PSS with other community screening programmes. To further enhance support for older persons who

have questions or might face other health challenges in addition to functional decline issues, PSS could consider twinning with other health programmes like the community nursing programme, so that older persons could have access to health advice at the same sitting.

8.3 Recommendations and areas for improvement

Participants' experiences and understanding of PSS and their outcomes, especially after receiving interventions at L2 including spectacles and hearing aid prescriptions; dentures; cleaning and scaling of teeth; clearing of earwax; administering of eye drop; advice on how to care for one's eyes, ears, mouth and teeth, and referrals for further examination and action, suggest that PSS has been able to facilitate detection and treatment of functional impairment. Participants indicated activation by the advice and health counselling received, and expressed appreciation, self-responsibility, and peace of mind as a result of the programme.

However, it remains that PSS tends to be regarded as one-off events that pop up occasionally in the neighbourhood rather than as part of a systematised routine check-up, which participants anticipate and attend religiously. (This perception could be due to PSS being in pilot stage, and not currently a mainstream health programme for older persons).

Here are some recommendations to consider for the next phase or iteration of PSS:

- Increasing older persons' awareness and understanding of preventive health and early detection of functional decline via consistent health messaging and education that caters to diverse language needs and cultural contexts.
- Mainstream PSS by integrating functional screening into existing health screening programmes (e.g. chronic diseases screening) via a common platform, such as HealthHub, to enable better monitoring, tracking, early detection and timely intervention. The platform could also remind participants when their next screening is due.
- Tailoring health coaching and counselling that consider the concerns and needs of older persons, for instance by placing a trained community nurse at L1 screening events. This would enable older persons to access and follow-up with other health/ social care services required, relevant to their needs and concerns raised.
- Ensuring consistent standards of service across all sites to improve service quality, customer experience and overall trust in the programme.
- Increasing participants' awareness about costs of potential treatment/ intervention and subsidies available.
- Broadening community and family networks and engagements to enrol, inform and support older persons would increase and sustain participation in the programme.

Appendix A: Glossary for QoL Pie Chart

Participants' attitudes towards managing health	
Ageing Perceptions	Participants' understanding and experiences of ageing
Anxiety & Stress	Participants' concerns over health issues and seeking health and/or medical care
Awareness	Knowledge and understanding of PSS
Caregiving	Caregiving for family members
Coping Strategies	Making adjustments to daily routine, adopting new practices including exercise, and/or reliance on prayers and other religious practices
Digital Literacy	Use of digital tools and apps to access healthcare
Financial	Cost of treatment, availability and eligibility for subsidies concerns
Health Literacy	Ability to access, acquire, and apply knowledge and information for health purposes
Health Perception	Views and understanding of personal health
QoL Meaning	Meanings of "good life"
Social Participation	Involvement in community activities (e.g. leisure, work, exercise)
Social Support	Community and family support

Appendix B: Acronyms used for Cohorts

Cohort	Acronym	Definition
1	Co1	Registered for L1 but did not attend or rejected L1 at the point of community recruitment
2	Co2	Discharged at L1 and/or did not need a referral to L2
2 Vision (a)	2Va	Claimed spectacles voucher
3 Vision (a)	3Va	Did not claim spectacles voucher
3 Vision (b)	3Vb	Referred to L2 follow-up for vision issues but did not attend L2
3 Oral	3O	Referred to L2 follow-up for oral issues but did not attend L2
3 Hearing	3H	Referred to L2 follow-up for hearing issues but did not attend L2
4 Oral	4O	Attended L2 follow-up for oral issues, but did not complete L2; did not got for dental services, reject dentures or recommended SOC follow-up
4 Hearing	4H	Attended L2 follow-up for hearing issues, but did not complete L2; not fitted with hearing aids/ reject hearing aids
5 Vision	5V	Discharged from or completed L2 follow-up for vision issues, and received assisted devices or treatment; attended SOC appointments or discharged at L2
5 Oral	5O	Discharged from or completed L2 follow-up for oral issues, and received assisted devices or treatment; fitted with dentures or discharged at L2
5 Hearing	5H	Discharged from or completed L2 follow-up for hearing issues, and received assisted devices or treatment; fitted with hearing aids or discharged at L2

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