



# SLOWbot pilot report



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## Introduction

### Slow Ageing history

The founder of Slow Ageing, Kate Marie, initially planned to build a decision support platform in 2003 so that doctors could deliver an ‘anti-ageing’/chronic disease prevention program to their patients. This however stalled when access to finance dried up after the post-dot.com bust, closely followed by the GFC.

The ‘*Fast Living, Slow Ageing*’ book was originally planned to be a content marketing activity to support the tech platform. Fortuitously this was funded separately as an independent activity and was first published 2010 and launched by Australian Hearing to help them better engage with their audience and to align ‘healthy hearing’ messages with more traditional health messages such as ‘healthy eating’ and ‘healthy exercise’.

The target audience for the book is women 45 + years and has been an Australian best-seller. It is now in its 5th edition with a total distribution of 25,000. The book is held by many Australian libraries and thousands of copies have been distributed into GP and other medical waiting rooms for patients to read.

The past two years have seen us laying the foundations to develop and market a data-driven, precision lifestyle intervention platform directly to consumers and via GP practices. The system will be ‘evidence-based’ and enable GPs and other health professionals to ‘prescribe’ a lifestyle intervention to their patients and be able to measure its impact.

Recent advances in technology has enabled the revitalisation of the original vision to build a platform that enables people to use their personal medical and wellness data for the purposes of health insights as well to collect, curate, manage and ultimately monetise their personal data in a secure fashion.

### SLOWBot project

In 2018 we collaborated with FBK (Fondazione Bruno Kessler), one of the largest research centres in Europe, to explore chatbot and other technologies to educate and help women to achieve healthy ageing. We called the project ‘SLOWbot’.

Our research identified that even though there are thousands of health-related apps, our audience (the over-fifties women) mostly weren’t using health apps and preferred email and web-based systems.

In May 2018 we helped FBK coordinate a workshop ‘WellBeCoach’ at the Pervasive Health 2018 conference held in New York and presented a paper ‘SLOWBot (chatbot) Lifestyle Assistant’.

The paper covered:

- the identification of the kinds of barriers and issues experienced with gathering predictive data
- the set-up of the types of personalised health and lifestyle programs that participants were more likely to adhere to

- the need for improved health literacy in participants.

## Development of the SLOWbot project

To develop the SLOWbot we used modified 'out of the box' chatbots, smart forms, Google tools, ActiveCampaign (automated email marketing system), phone calls and a Facebook group to deliver a 'healthy longevity' eating plan. The aim of the project was to identify the most effective and efficient way to successfully engage with our audience with the purposes of gathering personal data and to explore ideal technologies that could be deployed to help women adopt lifestyle interventions (to prevent chronic disease and to extend healthspan), with the first intervention being a healthy eating program.

We named the program the 'SLOWAgeing longevity program' to leverage the success of the *Fast Living, Slow Ageing* book and targeted women aged 45 - 70 years old. As part of the research the participants agreed to:

- Allow the collection of personal lifestyle and wellness-related data
- To have a one-on-one phone call with Kate Marie so we could gain personal insights that might otherwise not be apparent
- Participate in a two week 'healthy longevity' eating program (we used a 'modified Mediterranean' diet)
- Work on increasing their health literacy through active participation in a closed Facebook group and via various data collection and feedback activities
- Supply feedback to support the commercialisation process such as willingness to pay, whether they'd be prepared to recommend the program to friends and willingness to share personal data with third parties for the purposes of research and personal financial gain.

## SLOWbot MVP – delivery of a 'one size fits all' eating plan

At the time of project commencement, we had data from more than 2,000 respondents to our '[Slow Ageing](#)' survey that we'd been running for the previous two years (on attitudes to ageing) and we knew that a high percentage of our target audience were strongly motivated to implement 'healthy longevity' interventions. We also discovered via our initial data collection for the research project that 67% of our audience hadn't used a health app previously. The research on 'Gen Jones' also highlights that our audience prefers desk top and email-based systems even though they are typically quite technically adept.

This understanding, coupled with fact that the ultimate goal to build a machine learning system to deliver a 'precision' approach to lifestyle intervention delivery would be enormously expensive, led us to build only a 'minimum viable product' (MVP) for the purposes of the initial research and not invest in a bespoke delivery system.

We also discovered that there wasn't an eating program on the market aligned with the SLOWAgeing approach and which would be accepted by the mainstream medical community. We used the principles of the SLOWAgeing approach and aligned with the Mediterranean diet which enabled us to promote our diet as a 'modified Mediterranean diet'.

The goal of SLOWbot was to prove that women were prepared to share and use their data if they could recognise the benefit. It also provided a starting point for us to identify the data that would offer the most insights and the technologies/approach required to implement a full program.

The SLOWbot pilot ran for 2 weeks from June 4, 2018 to June 17, 2018. The eating plan was distributed to participants on May 23, 2018 via a closed Facebook group and email address as part of the onboarding process.

## Development of the pilot

We collaborated closely with FBK to develop the pilot. Our role was to build the healthy ageing diet and exercise plan (the SLOWAgeing longevity program) and FBK's part was to develop the bot app and collaborate with us to develop the nutritional ontology (based on the phytonutrient/nutrigenomic effect of food).

The pilot originally was to be the foundation for the development of the SLOWAgeing longevity program and was set up to:

- Acquire a manageable number of motivated participants for accurate analysis
- Deliver a calorie controlled and modified eating plan
- Collect participant personal data
- Gain insights into audience preferences
- Reveal participant communications and motivation preferences
- Identify obstacles that prohibit participants from reaching their health goals
- Deliver relevant content and messages to assist participants to overcome barriers
- Monitor success
- Acquire additional market interest data to support product development viability
- Guide us on improvements for the beta-version

## Use of emerging technology to interact and gather personal data

We used chatbot technology to interact with participants and to collect data, as we wanted to gauge the interest/acceptance by participants for this type of technology and prove its value through the collection of a relatively small sample of high-quality data.

A deep understanding whether our audience would interact with this kind of technology was vital to the immediate future of the iaso system which underpins the delivery of the SLOWAgeing program, as the intent is ultimately to use artificial intelligence (AI) beyond the capabilities of a basic chatbot, and be able to integrate the iaso system with IoT, voice enabled technologies such as Alexa and be able to collect enough 'granular' data so we could use machine learning/predictive analytics to gain insights and build a surveillance system and recommendations engine that was 'hyperpersonalised'..

Furthermore, we wanted to use the pilot to gain an understanding of future data management requirements, given the huge amount of data and its diversity that would be required to run the iaso system and deliver bespoke longevity programs based on each individual's preference.

## Algorithm and scoring

As part of the first stage, different indicators were established by FBK to capture data about the participants in order to set up a rudimentary user profile. The information sought included:

- The participant's current health concerns
- Socioeconomic and demographic data
- Physical activity and mobility status
- Nutrition status
- BMI

- Alcohol consumption
- Smoking history
- Social activity

A scoring system was used to assess the participant based on their answers to determine their health classification – unhealthy lifestyle, quite healthy lifestyle and healthy lifestyle, and this then provided the foundation for the development of an in-depth range of questions to personalise the participant’s journey.

## Participant acquisition

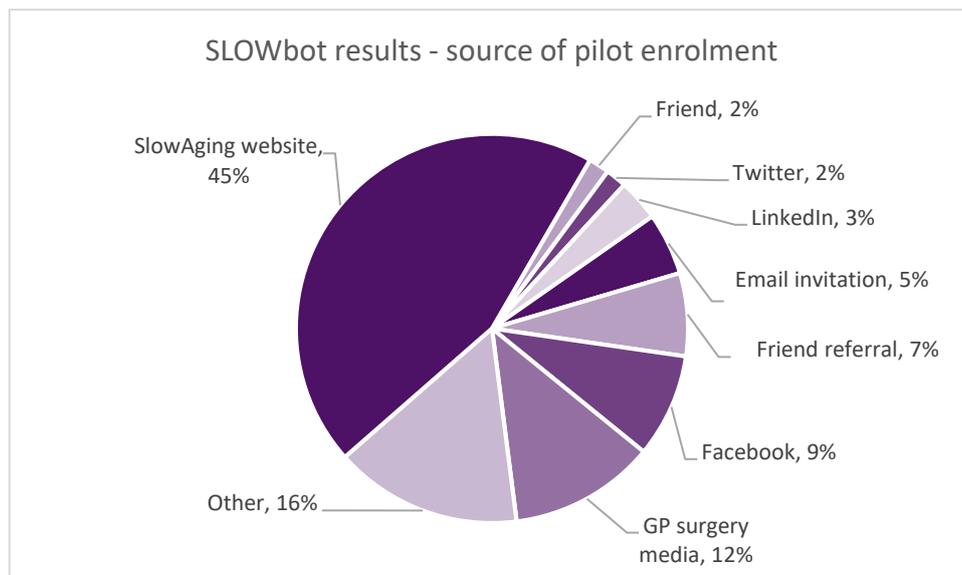
### Marketing channels

The following channels were used to promote the SLOWbot pilot:

1. YouTube channel [video](#).
2. Website [invitation](#) pilot featured on the SLOWaging.org homepage.
3. We had a mailing list of 5,000+ who were emailed invitations to participate.
4. Social media promotion - Facebook, LinkedIn and Twitter.



Our target for the pilot was 70 and the registrations completed within 8 hours of launch.

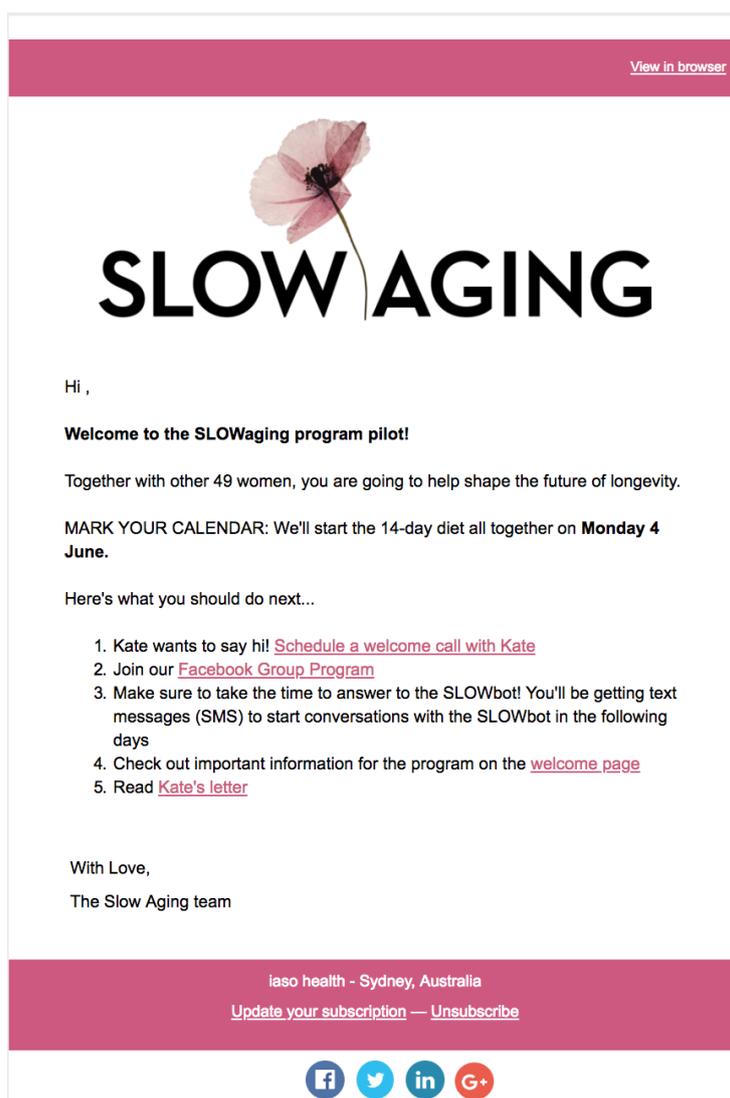


## Registrations

70 people registered for the SLOWbot pilot however some were ultimately disqualified leaving us with 50. We called the group the 'Founding 50'.

## Qualification and onboarding process

Applicants to the SLOWbot pilot were qualified via a chatbot hosted on the website and which integrated with ActiveCampaign. Qualified applicants were directed to the initial onboarding questionnaire via a welcome email.



## Completion of the onboarding process

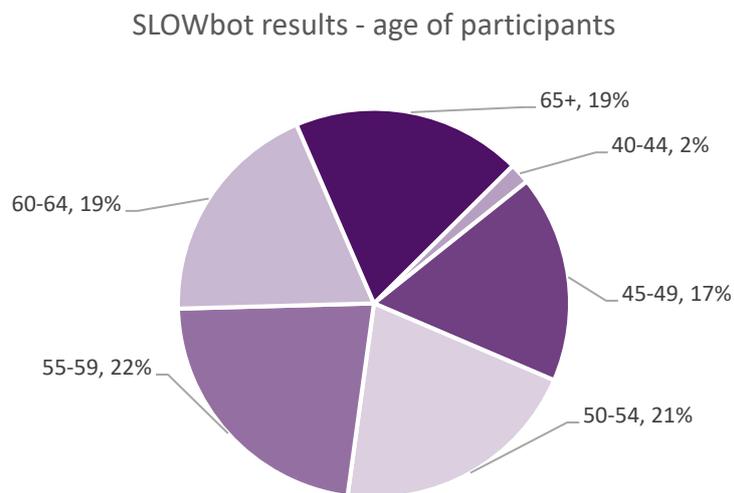
Once the participant had completed the onboarding questionnaire, further questionnaires were distributed via SMS daily over a 5-day period:

1. Participant data questionnaire – contact details, age, weight, diets tried, general wellbeing, etc.
2. Nutrition and physical activity baseline
3. Perception of wellness

4. Readiness to change
5. Personal health context (included social determinants of health and an evidence-based health literacy assessment)

## Participant background

### Age & weight of participants



The average age of the participants was 57 with:

- 43% in their fifties
- 38% in their sixties
- 19% in their forties

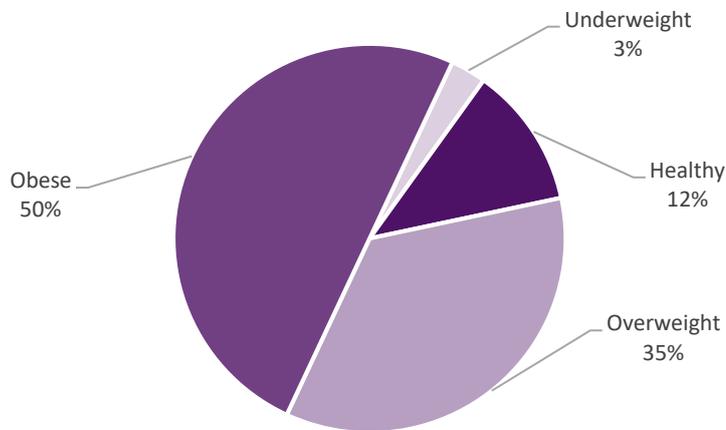
### Weight

The average height of the participants was 162 cm, varying from 150cm to 172cm.

At the commencement of the pilot participant weight ranged from 49kg to 104kg, with the average being 79kg. 87% of participants reported that they lost weight during the two-week pilot.

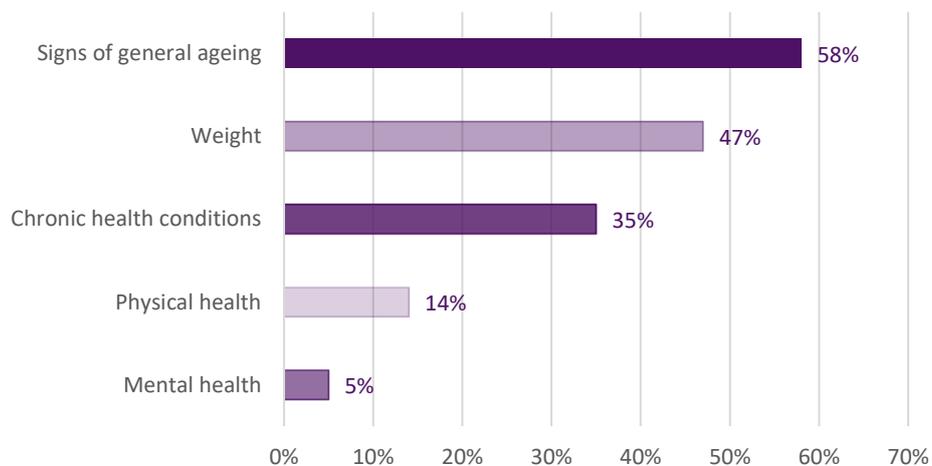
The waist circumference ranged from 66cm to 123cm, with the average being 94cm. According to the Heart Foundation, a woman's health is at risk if their waist circumference exceeds 80cm.

SLOWbot pilot - participant BMI statistics



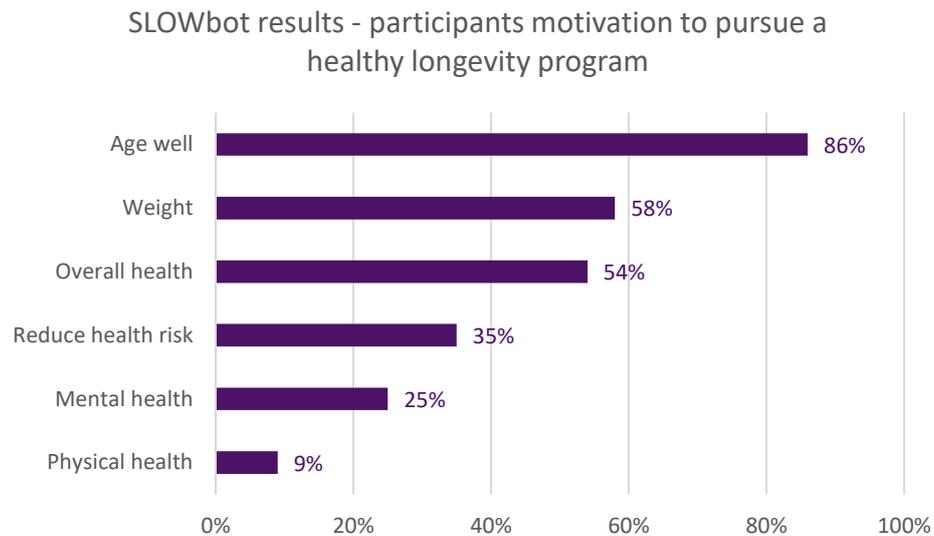
### Participant immediate health concerns

SLOWbot pilot results - participants' main health concern



- Of the 58% participants who were concerned about the signs associated with getting older, 25% were worried about their ageing skin.
- Of the 35% participants concerned about chronic disease, 18% were worried about cardiovascular disease, 9% cancer and the remaining 10% split between arthritis, diabetes and joint degeneration.
- Of the 14% participants concerned about their physical health, 9% were worried about their general health and wellbeing, with the remaining 5% split between energy levels, muscle tone and losing physical capabilities.

## Motivation to participate in the healthy longevity program



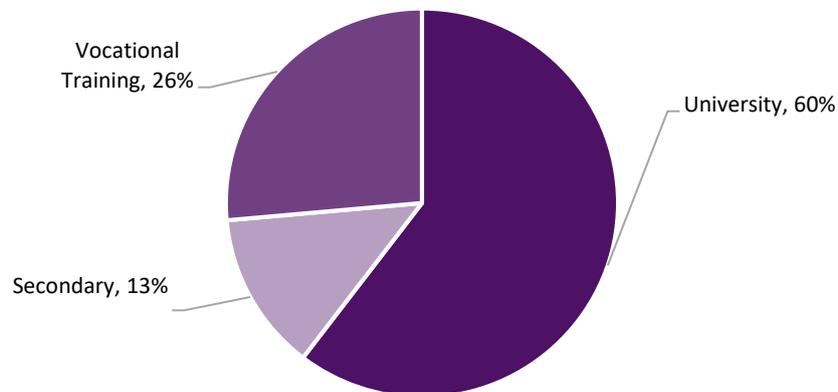
- Of the 86% of participants who were motivated to age well, 19% were seeking longevity whilst the remaining 67% simply wanted to 'age well'.
- Of the 58% of participants who were motivated by weight, 19% wanted to lose weight and 39% wanted to control their weight.
- Of the 54% of participants motivated by overall health, 21% wanted to improve their lives, 16% wanted to improve their overall health and wellbeing, 16% wanted to keep their zest for life with the remaining 2% wanting to eat healthier.
- Of the 35% who were motivated to reduce their health risk, 25% were motivated to decrease their risk of chronic disease or help with existing ones with the balance of 10% motivated to control hormones or manage menopause.
- Of the 25% motivated to maintain mental health, 18% want to look after their brain health.
- Of the 9% motivated by their physical health, this was split between maintaining/improving energy levels, independence and muscle mass.

### Demographic data

- 85% of the participants were born in Australia, with one participant of Aboriginal or Torres Strait Islander origin.
- All but one participant resided in Australia.
- All participant's first language was English/Australian
- 11% lived alone.

## Education levels

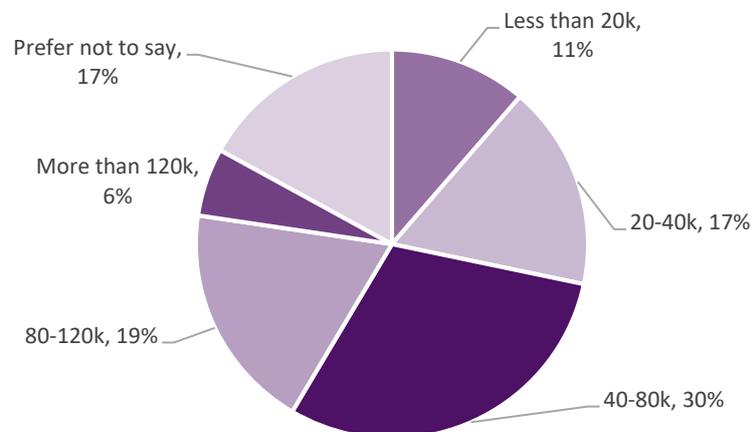
SLOWbot participants - education level



- 19% of participants were studying, though not all were university or vocational courses.

## Annual income

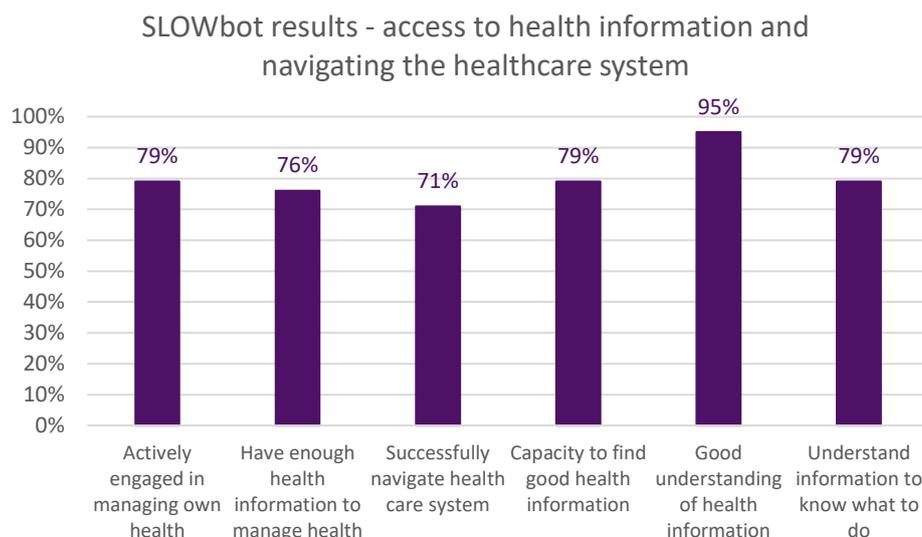
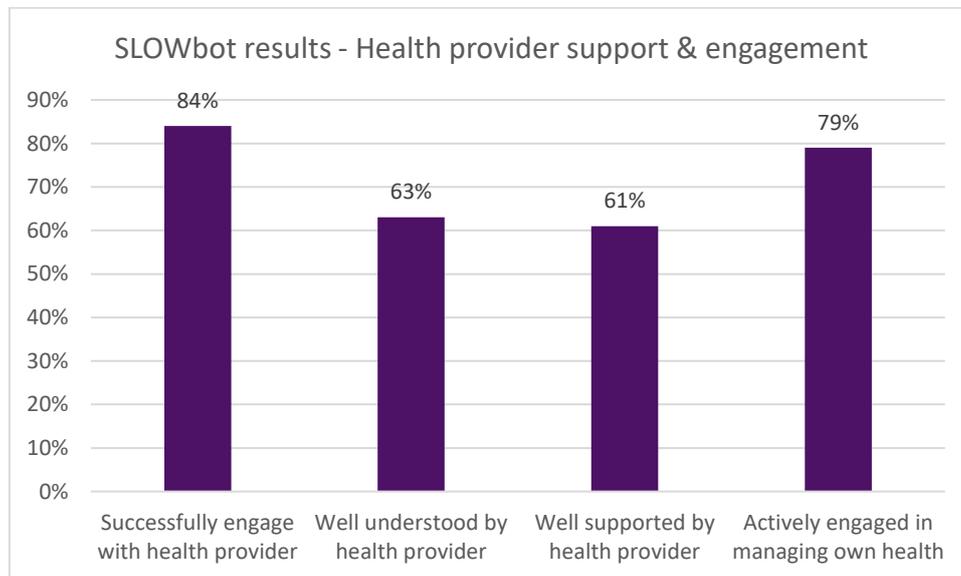
SLOWbot participants - annual income after tax



- 50% of the group were in the lower income bracket, with an annual income of \$40,000 or less after tax.
- 23% were in the middle-income bracket
- 27% were in the high-income bracket, with an annual income of \$80,000 plus after tax

## Health literacy

### Overview – Health provider support and engagement



1. 94% of the participants had visited their General Practitioner at least once in the 12 months prior to the pilot.

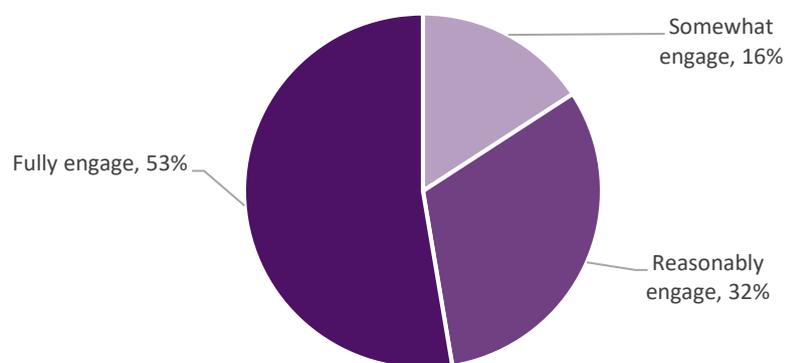
### Observations/recommendations

1. 84% of the participants reported that they could engage well with their health providers however, just over 60% felt well understood or well supported. **Recommendation:** seek further feedback during the beta-program to identify what the issue is by asking some questions about their primary care provider, for example –
  - Are they afraid to take up their doctor's time by asking questions?
  - Are they concerned that their questions may appear stupid?
  - Are they worried about asking their doctor to repeat or explain things in a more simple fashion?
  - Is their doctor a poor communicator?
  - Does their doctor provide them with fact sheets about their conditions?

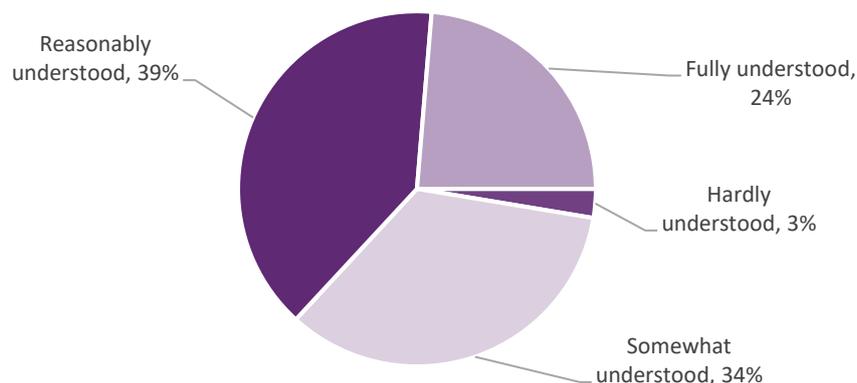
2. 79% of the participants were actively engaged in managing their own health, which meant that just over a fifth were struggling. **Recommendation:** seek further information during the beta-program to ensure that the participants are not just accepting every treatment or symptom management offered by their doctor and see whether they have the confidence to query or ask for some time to think about the treatment being offered before taking medication.
3. Three quarters of the participants felt they could navigate the health system and source good health information, whilst 95% reported that they understand the health information provided them. **Recommendation:** ask participants where they are finding their health information and if online, request details of the source.

### Supportive graphs – health literacy

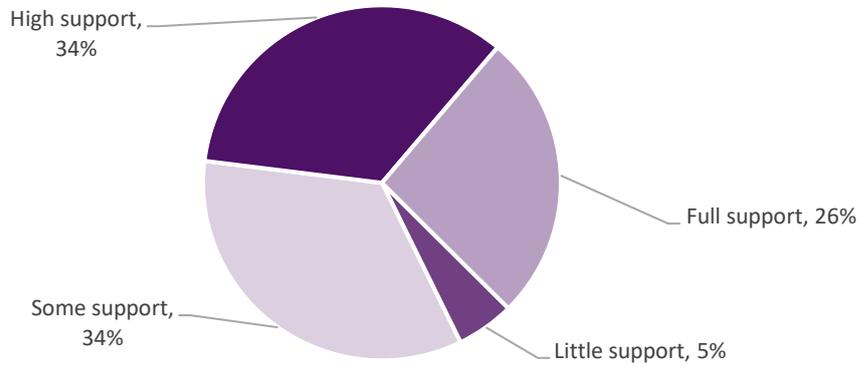
SLOWbot results - degree participants felt able to successfully engage with healthcare providers



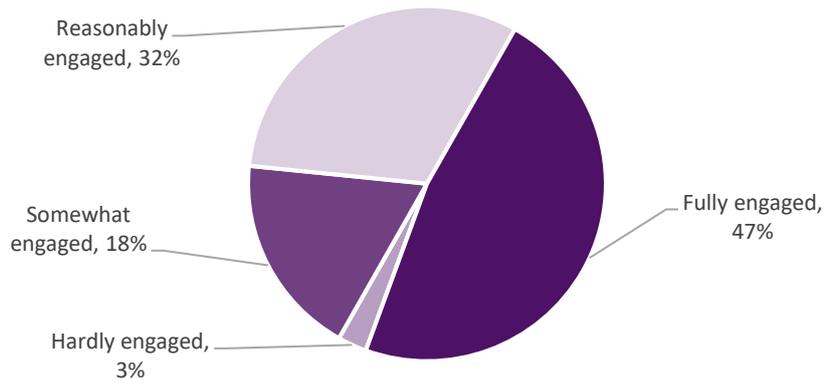
SLOWbot results - degree participants felt understood by their healthcare providers



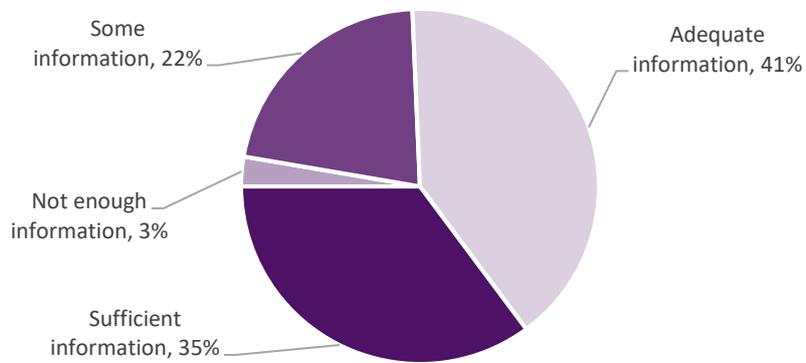
### SLOWbot degree participants felt supported by their healthcare provider



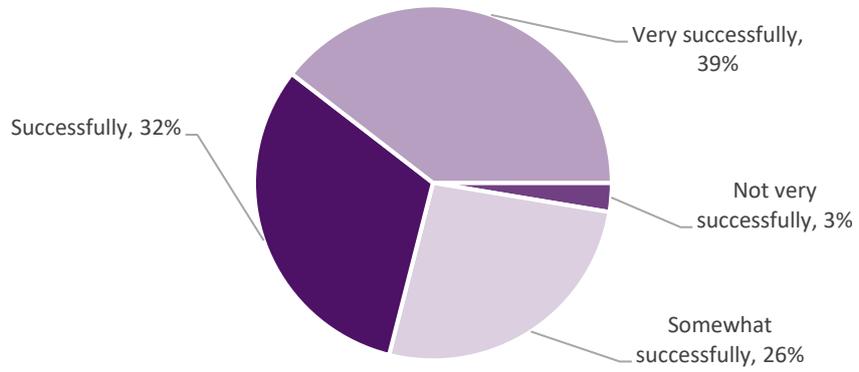
### SLOWbot results - degree participants were actively engaged in managing their health



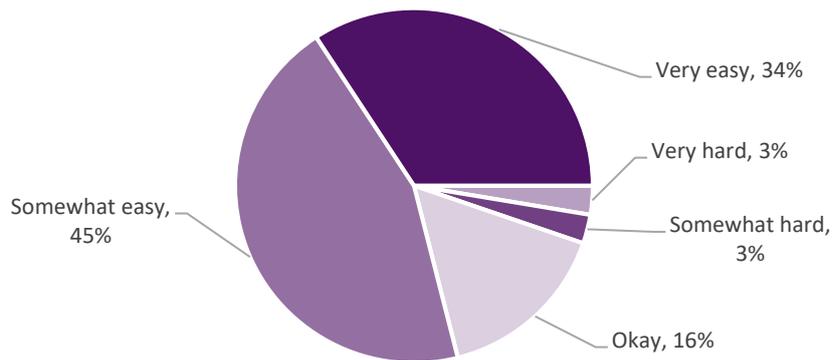
### SLOWbot results - degree participants felt they had sufficient information to manage their health



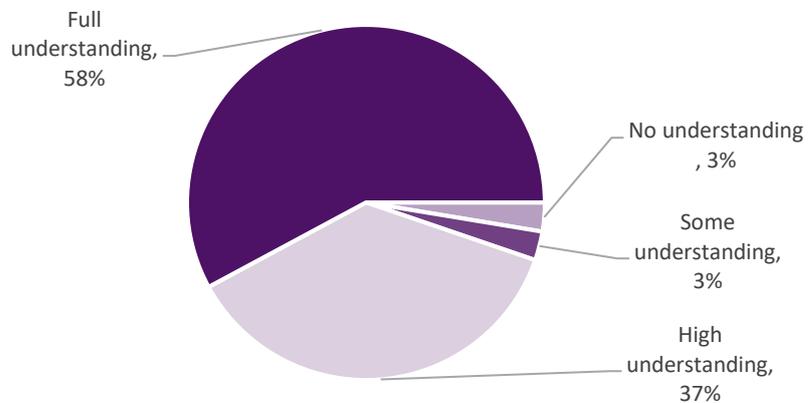
SLOWbot results - degree participants were able to navigate the healthcare system



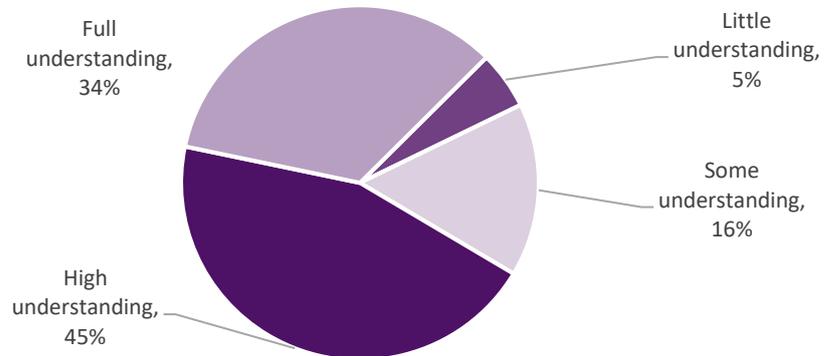
SLOWbot results - degree participants were able to find good health information



SLOWbot results - degree participants understood health information

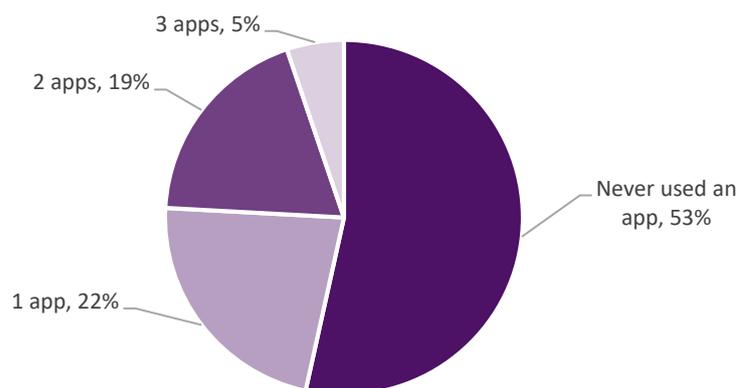


### SLOWbot results - degree participants understood health information well enough to know what to do

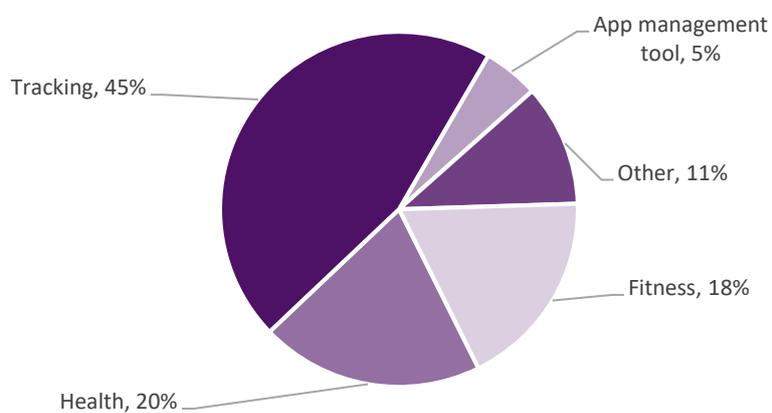


### Health and/or fitness apps used or in use by participants

#### SLOWbot results - health or fitness apps in use or had been used by participants



#### SLOWBot pilot - category of health and fitness apps used or in use by participants

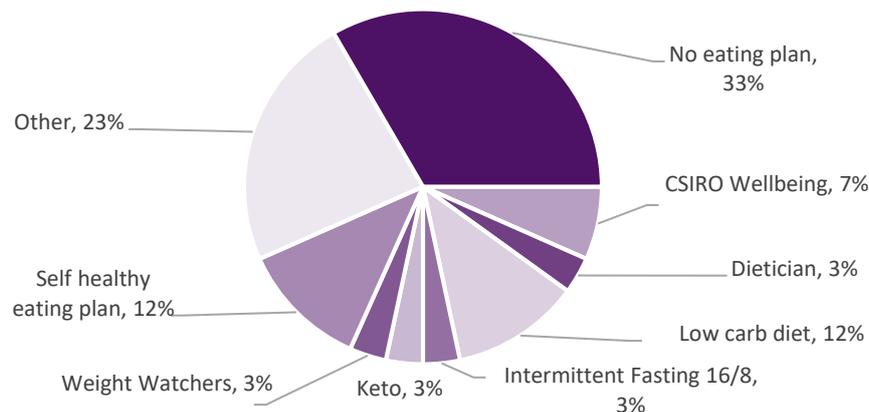


## Observations

- Of the 45% participants who used health tracking tools, 60% used Fitbit and 30% MyFitnessPal.
- Apple Health was the only health management tool used by participants.
- Fitness apps included activity trackers such as Garmin Connect, Strava, MapMyRun and Misfit as well as workouts by Freeletics and Yuri Elkaim.
- The 20% of health apps in use were in the following categories: nutrition, weight loss and fitness programs by CSIRO Health Watch, Vegeze, Michelle Bridges 12WBT, Samsung Health, Fat Secret, 8Fit and Asana Rebel.
- The other types of apps in use were for meditation: Calm, Gaia and Smiling Minds, motivation by Danette May and a sleep tracker by Sleep Well.

## Past dieting experiences

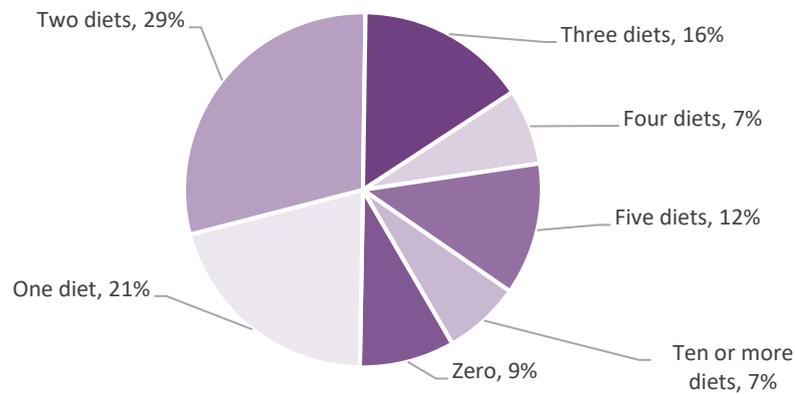
SLOWbot results - types of dietary approaches and programs participants did in past year



The types of diets, eating plans or weight loss methods tried by the 23% of participants shown as other:

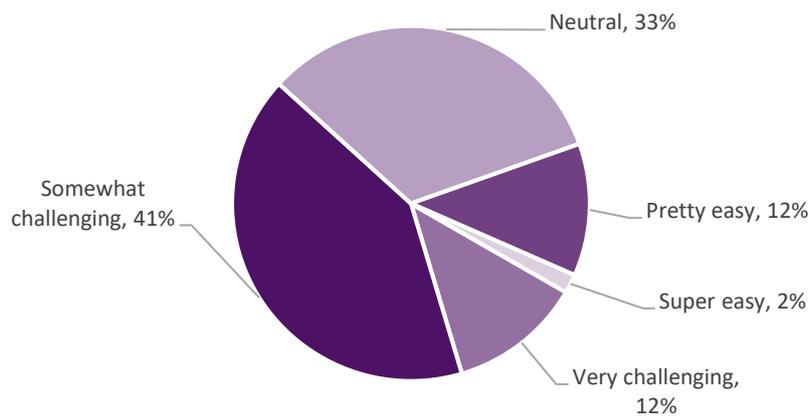
- Cabbage soup diet
- Calorie counting
- Calorie restriction, 5:2 diet
- Clean eating
- Diet books
- Dr Michael Mosley 8-week blood sugar diet
- Gastric sleeve
- Imprint
- Low GI Mediterranean
- Michelle Bridges WBT
- Eating Smaller portions
- Vegan
- Whole food
- You Plate It

### SLOWbot results - number of diets tried by participants over the past 10 years

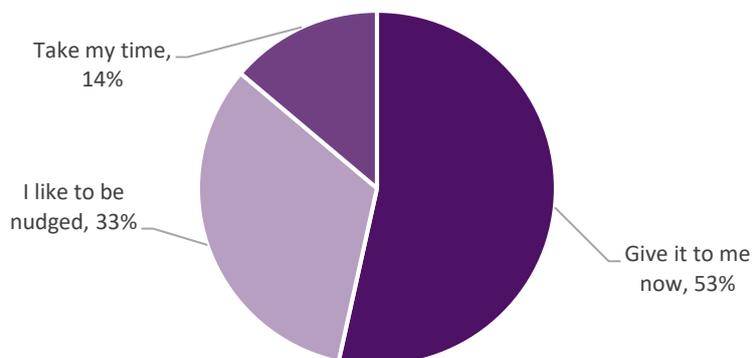


### Challenges, change and taking risks

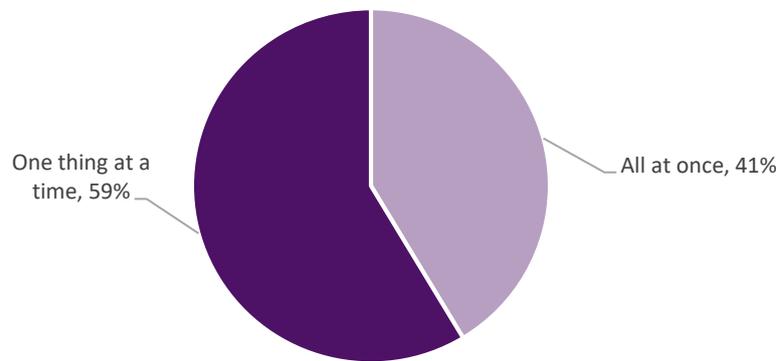
#### SLOWbot results - participant feedback on challenges with adhering to the eating plan



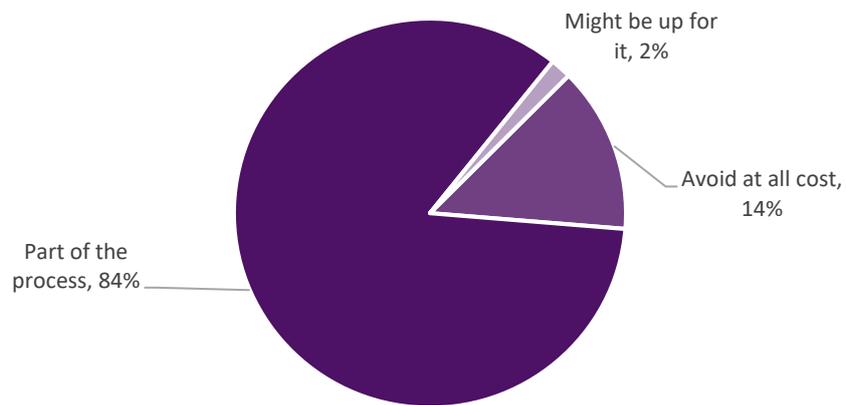
#### SLOWbot results - participants' preferred approach to implementing change



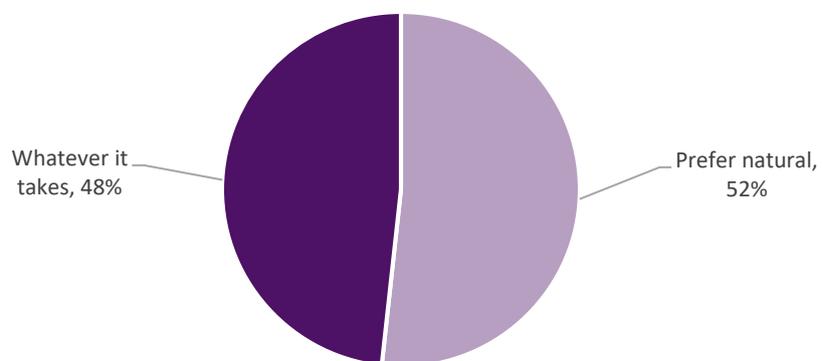
### SLOWbot results - preferred pace when implementing change



### SLOWbot results - participant feedback on taking risks



### SLOWbot results - general approach to medical interventions

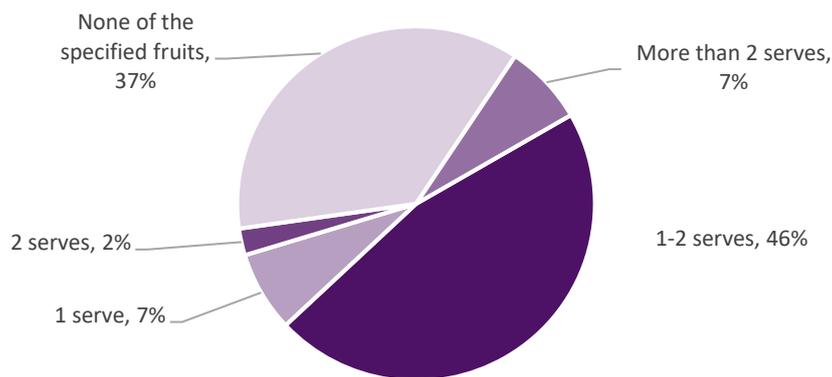


## Observations/recommendations

1. The data from challenges, change and risks will be used to build up participant profiles so iaso can deliver a personalised program specific to the their preferences in the long-term.

## Nutritional baseline

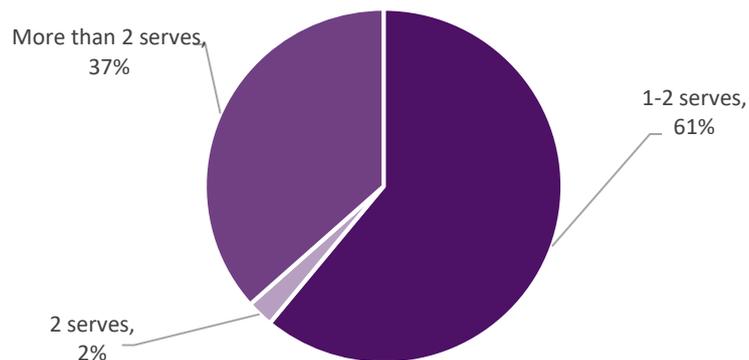
SLOWbot results - average number of serves of SA approved fruit consumed by participants each day



The question is specific to the fruits approved under the Slow Ageing eating plan with one serve equal to ½ cup berries or one whole orange, apple, pear, kiwi, mandarin or grapefruit.

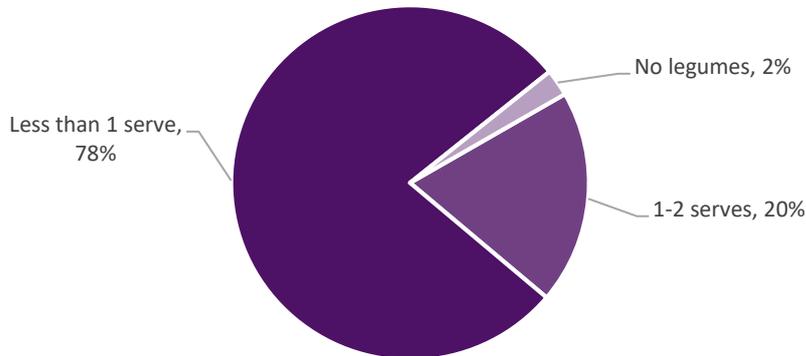
A serve equals one cup of uncooked above-ground vegetables or ½ cup cooked.

SLOWbot results - average number of serves of 'above-ground' vegetables consumed daily



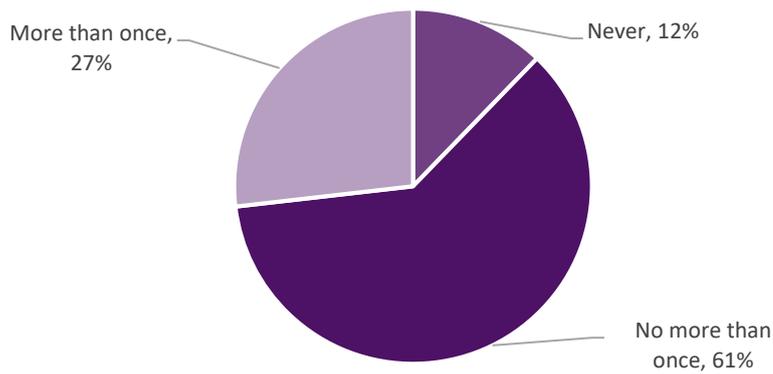
SLOWbot results - average number of serves of legumes consumed daily

A serve equals ½ cup.

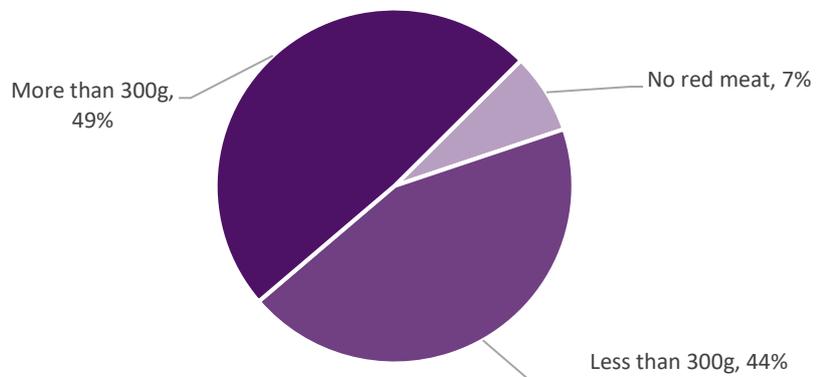


SLOWbot results - average number of serves of cured meats each week

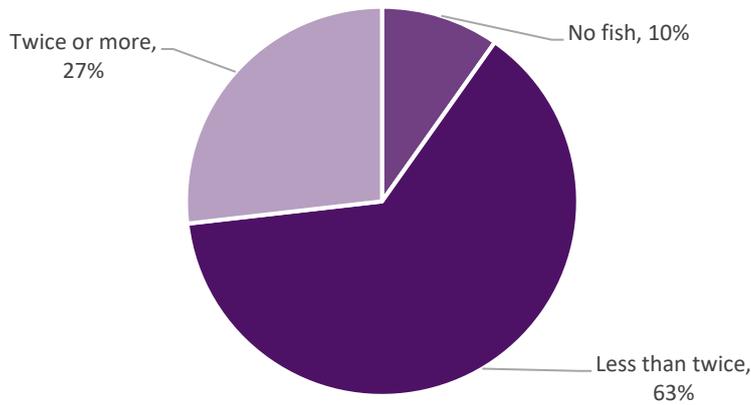
Examples of cured meat – salami, ham, bacon, etc.



SLOWbot results - average red meat consumption each week

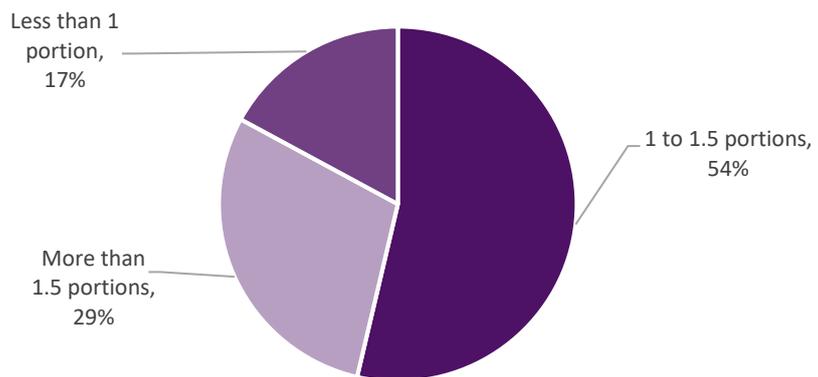


SLOWbot results - average serves of fish each week

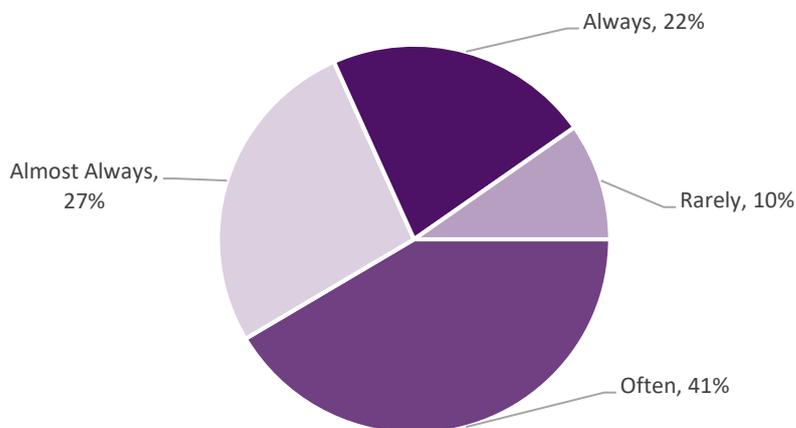


1 portion =  
150ml milk,  
125g of  
yoghurt, 100g  
cheese

SLOWbot results - portions of milk or milk derivatives consumed daily

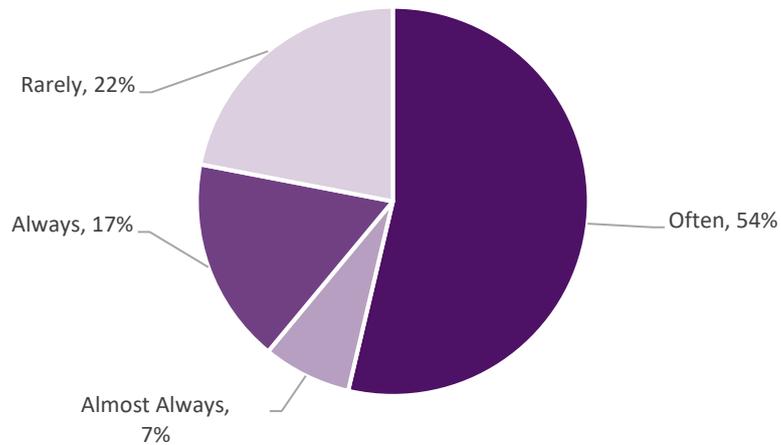


SLOWbot results - daily inclusion in of olive oil in diet

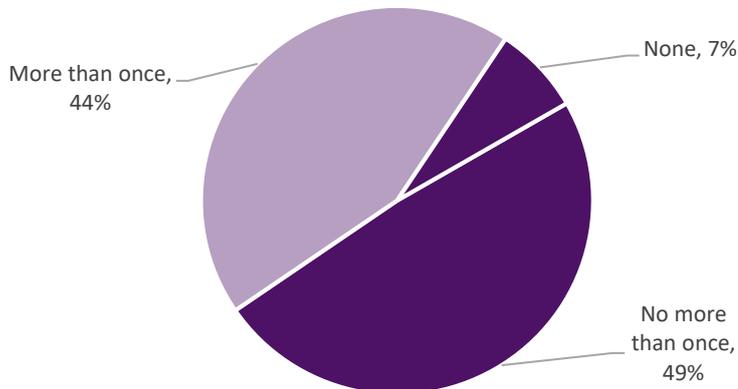


Types of nuts include macadamias, almonds, pecans, walnuts, brazil nuts, pistachios, cashews and hazelnuts.

SLOWbot results - daily inclusion of nuts in diet



SLOWbot results - 'discretionary' foods consumed weekly



Discretionary food includes sweets, cakes, chips, soft drinks and bottled juices.

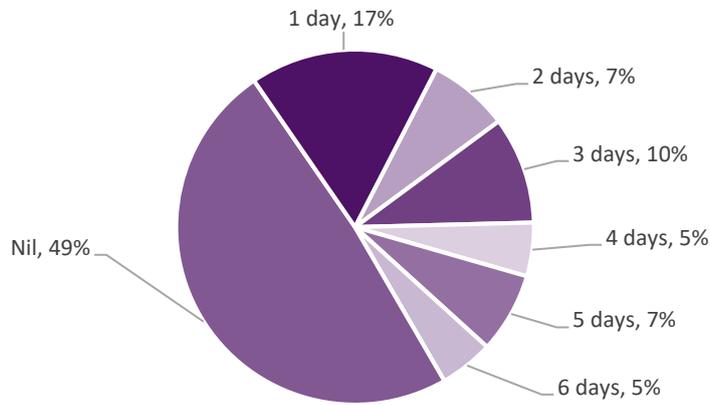
### Observations/recommendations

1. These nutritional baseline questions provide an overview of what the participants regularly consumed as part of their diet before they started the program and provided insight as to how they should be able to adapt to the Slow Ageing eating plan. It didn't however provide the whole picture. **Recommendation:** for the purpose of individual profiling it may be worthwhile collecting data about what their regular diet consists of, particularly regarding consumption of bread and cereal, other non-nutritionally dense carbs and sugar.
2. As part of the participant recipe feedback the fish dishes weren't always well received so finding out how they cook their fish may give additional insight during the recipe creation process. **Recommendation:** 10% of the participants didn't eat fish regularly so further

information should be sought about why, e.g. do they not like the taste, to ascertain how to better encourage them to consume fish.

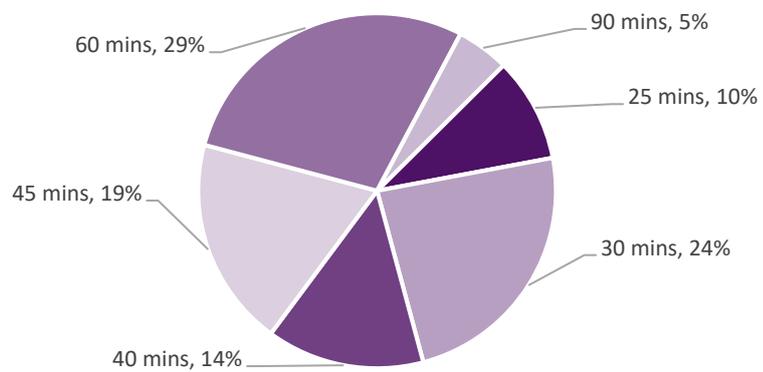
### Physical activity baseline

SLOWbot results - days per week participants engaged in intense physical activity

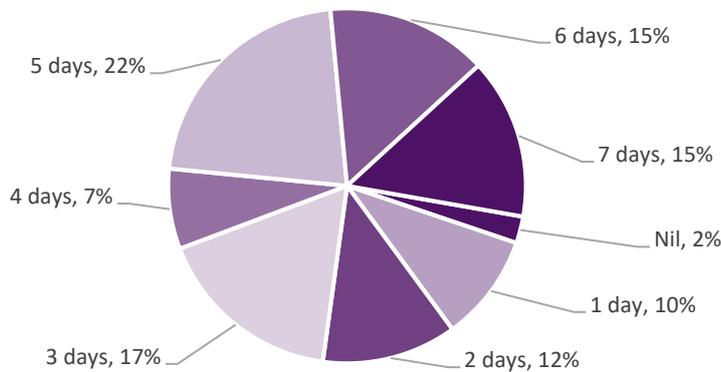


Criteria for intense physical activity is weights, dancing, swimming, jogging, fast cycling or other aerobic activity.

SLOWbot results - average intense exercise session duration

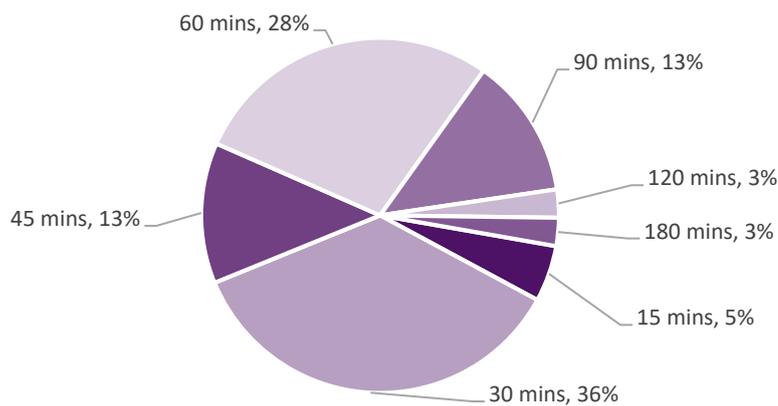


SLOWbot results - days per week participants engaged in moderate physical activity

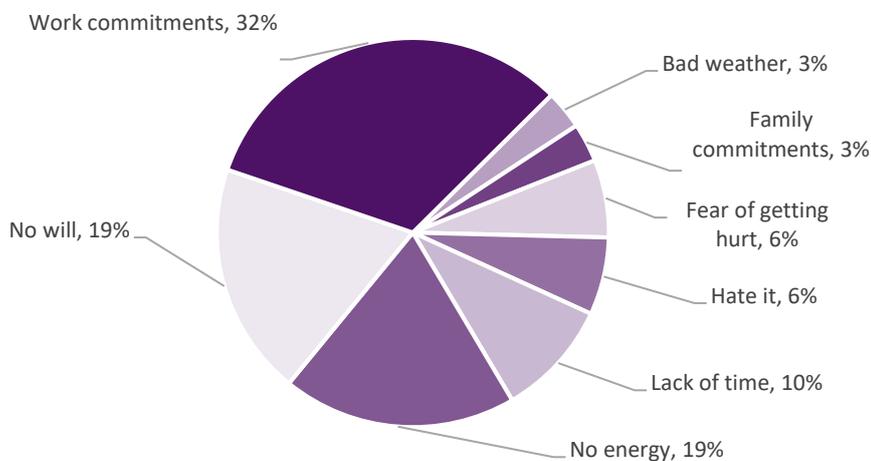


Criteria for moderate physical activity swimming, cycling, regular walking, gym, gardening, Pilates, yoga or housework.

SLOWbot results - average moderate exercise session duration



SLOWbot results - obstacles to exercising more



17% of participants indicated that there are no obstacles to them exercising more and 5% think the current level of exercise is sufficient.

## Observations/recommendations

1. 10% of participants said that pain, primarily caused by arthritis interfered with their ability to exercise.

**Recommendation:** As fitness regime to be developed including exercise types and programs suited to participants limited by arthritis.

2. 10% of participants found it hard to put their needs first, and said they typically put others first.

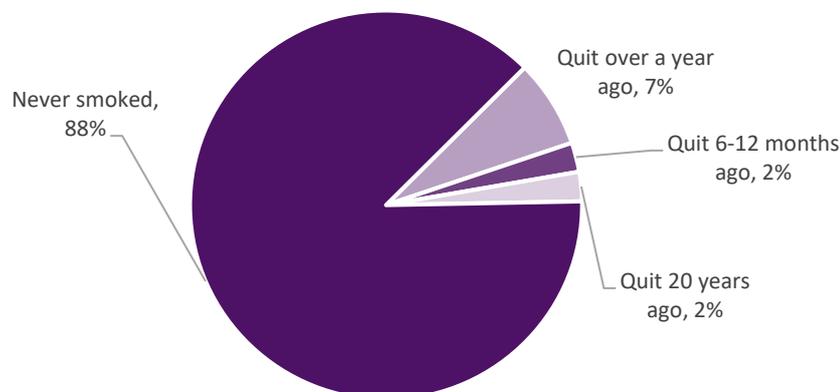
**Recommendation:** Establish the reasons or what motivates the participant to put others first – is it due to feelings of guilt, are they afraid they won't be liked, does it give them a sense of purpose, do they adopt the position of 'caregiver' because this was drilled into them during childhood, etc. This understanding will be an important part of their profiling as should assist us to have more impact in educating on the importance of selfcare.

3. 42% of participants did not exercise due to work commitments or lack of time.

**Recommendation:** Offer suggestions on actions participants can take to increase activity – walk around whilst on phone, park further away from shops, set an alarm whilst working at desk to get a glass of water regularly during the day, exercise whilst watching TV, etc.

## Tobacco and alcohol use

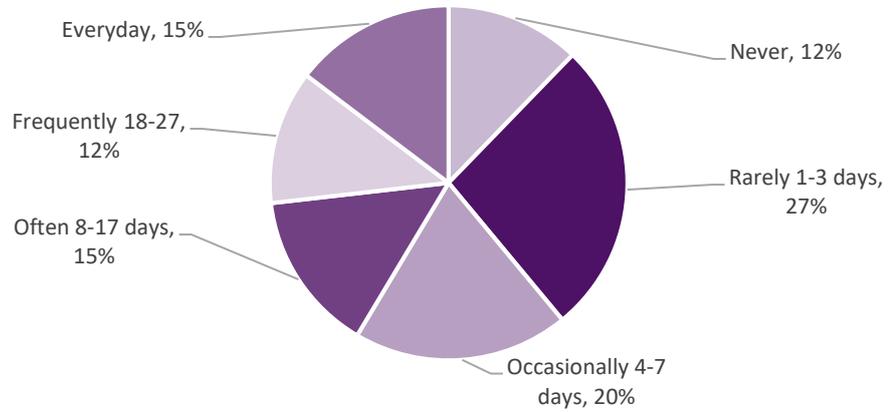
SLOWbot results - cigarette use by participants



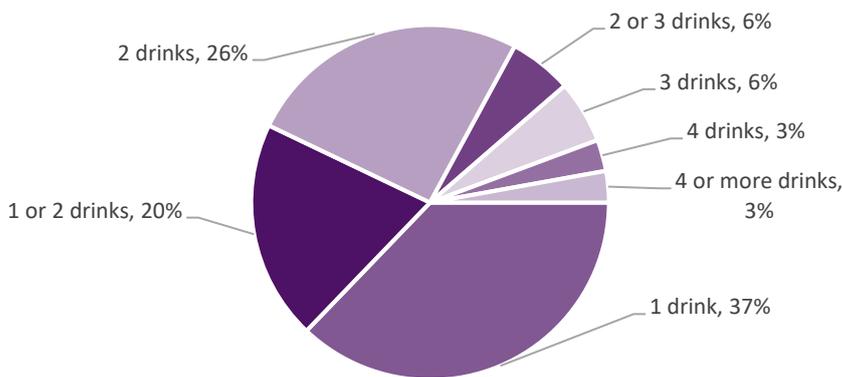
At the time of the pilot none of the participants smoked.

11% smoked at some point in their lives.

SLOWbot results - number of days each month participants consumed at least one unit of alcohol

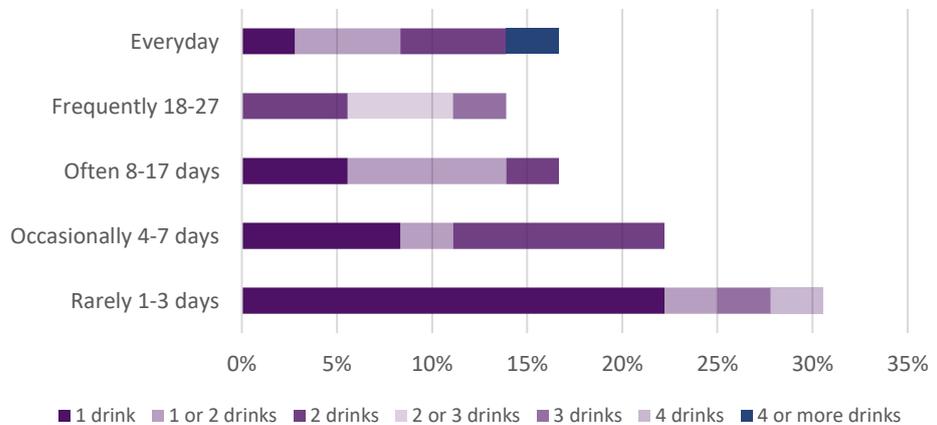


SLOWbot results - average units of alcohol normally consumed



This graph compares the number of days over a month period the participant consumed alcohol against the number of alcoholic units.

SLOWbot results - combined analysis of frequency and volume of alcohol consumption over 30 days



- This highlights somewhat that some participants may have an alcohol dependency issue, i.e. where the participant is drinking 4 or more drinks each day or potential binge drinking or where the participant rarely drinks but consumes 4+ drinks in the one day.

### Observations/recommendations

A deeper dive into participant drinking habits would be worthwhile as this was only a broad overview of their drinking habits. It didn't reveal:

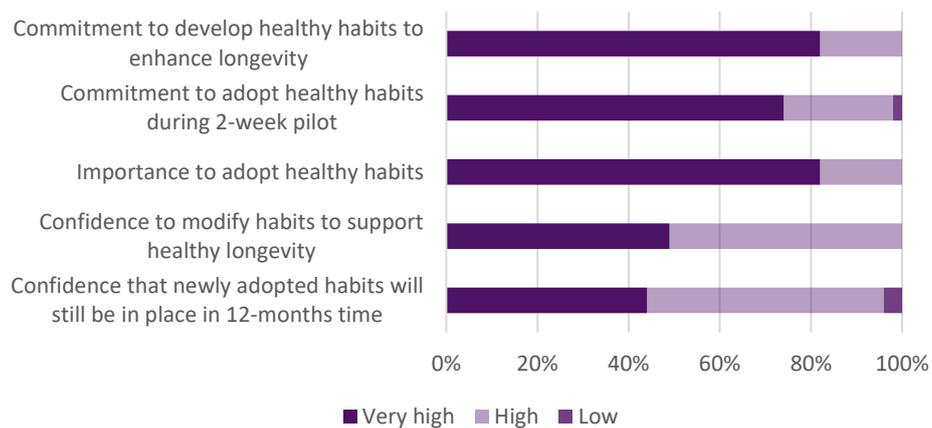
- What the participant was drinking, as this can greatly affect the alcohol content – e.g. a light beer is usually under 3%, whereas a glass of red is 12%.
- Whether the participant engaged in binge drinking; if we knew this then it provides an opportunity to educate on the negative health effects.
- Where the participant is drinking – in a social environment or alone at home which could indicate isolation, loneliness or depression.

The more information collected on participant drinking, tobacco and drug intake (*the pilot didn't collect information about the participant's recreational drug use*), the better the program would be at guiding them and might then reduce or prevent any associated health problems if they were abusing one and/or the other.

In addition to this, this information could assist with profiling the participants as it could be indicative of an addictive or compulsive personality.

### Readiness to change analysis

SLOWbot results pre-pilot - participant's commitment and confidence to adopt healthy habits



On completion of the program, participants were asked to what extent they would adopt anything new they'd tried in the pilot. The response was positive:

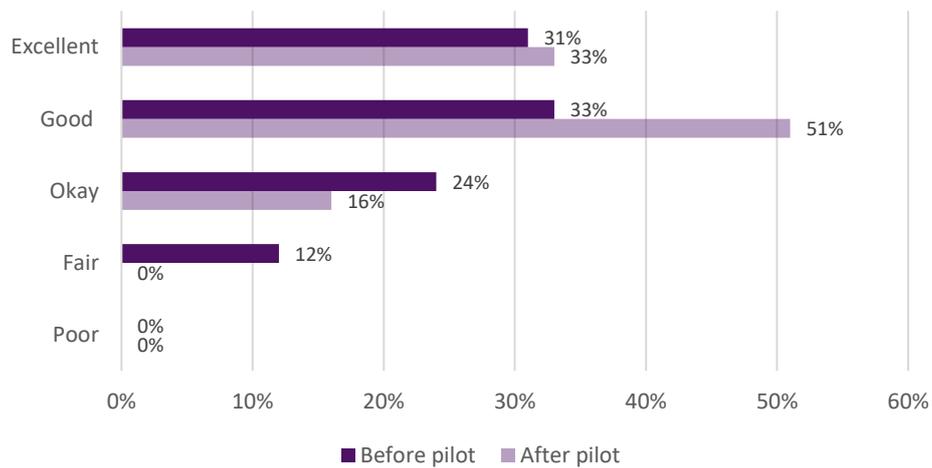
- I'll do a mix of old and new 44%
- I might incorporate 1 or 2 things from the pilot 41%
- I'll continue with ALL the new learnings 8%

## Perception of wellness – results pre- and post-pilot

The following captures participant rating of the program; we asked the same questions pre-pilot and at the end of the two-week program.

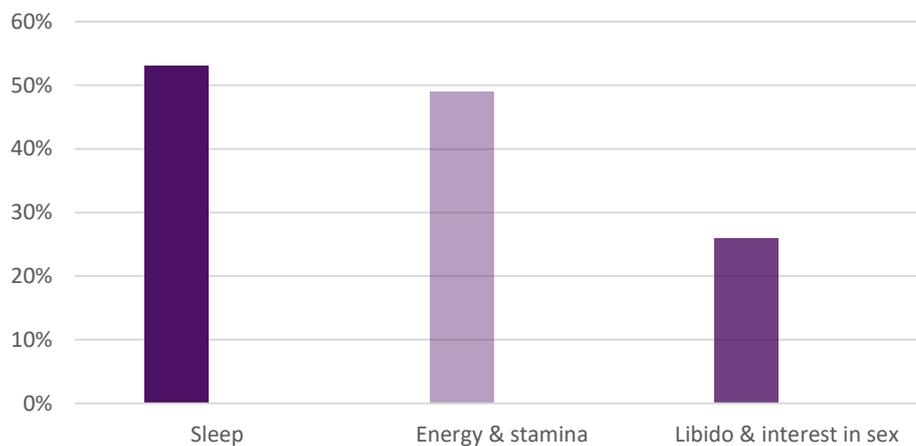
### Attitude and outlook analysis

SLOWbot results - attitude & outlook before & after pilot



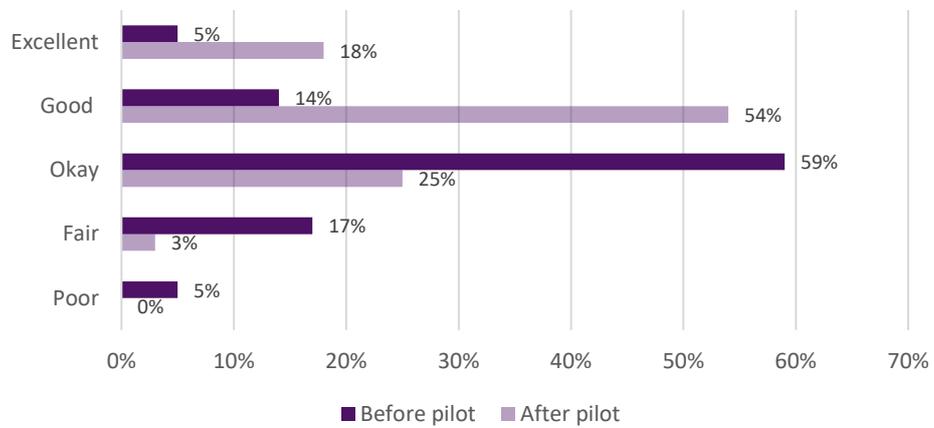
### Energy, stamina and interest in sex

SLOWbot results summary of level of improvement for energy, stamina & interest in sex

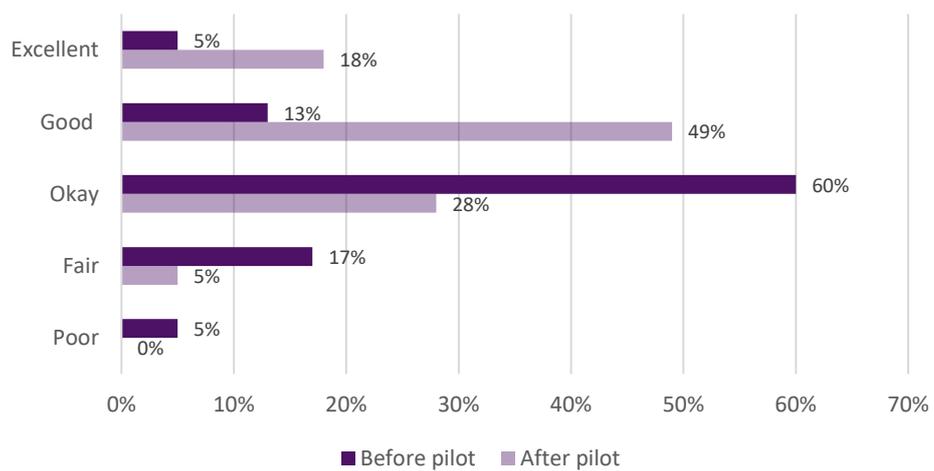


## Energy, stamina & sex - interest comparison graphs

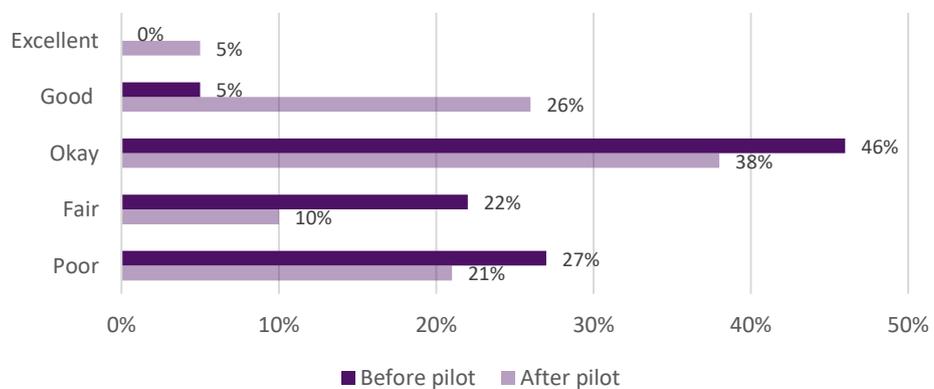
SLOWbot results - sleep analysis before & after pilot



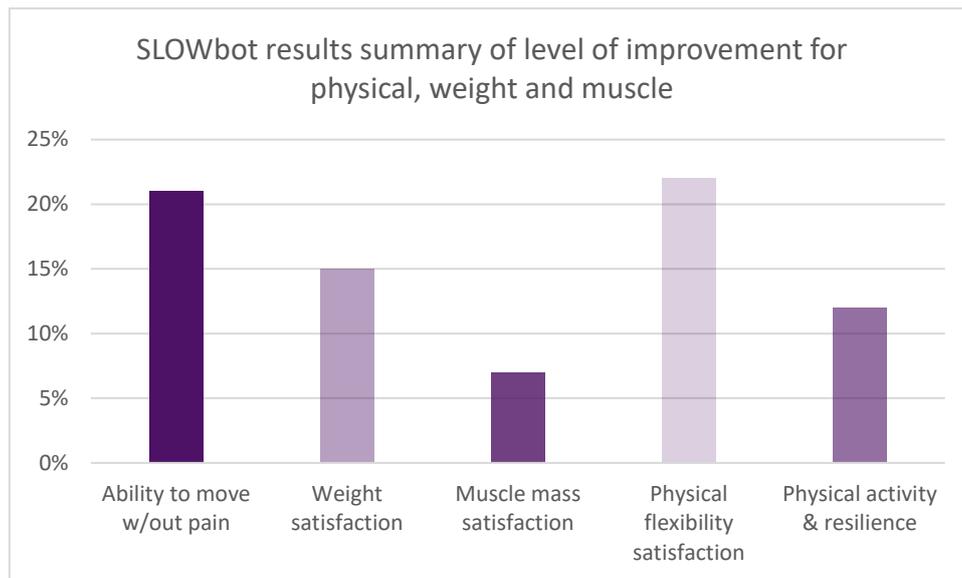
SLOWbot results - energy and stamina before & after pilot



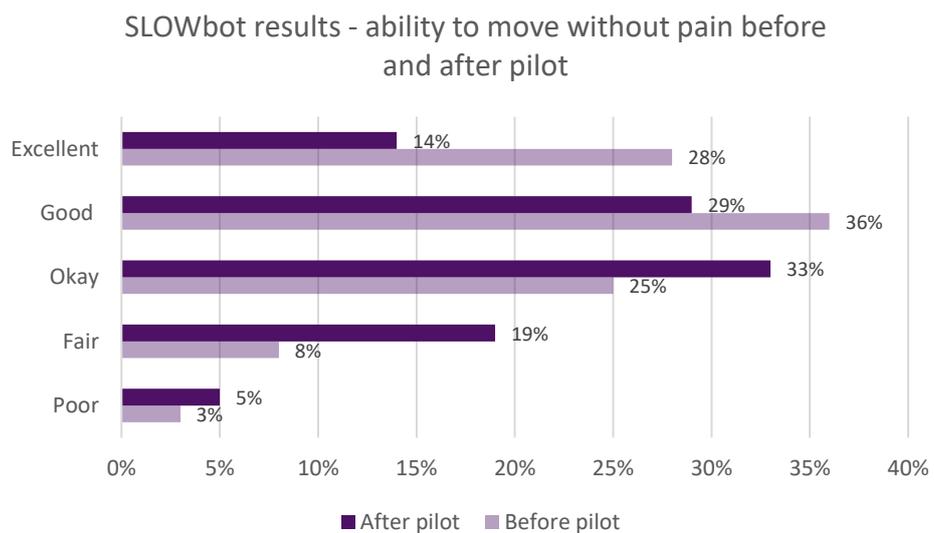
SLOWbot results - libido & interest in sex before & after pilot



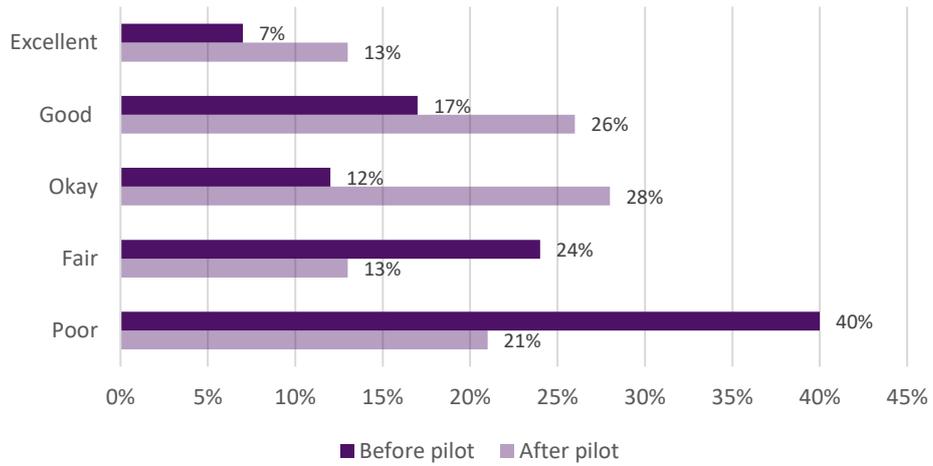
## Physical function, weight and muscle mass satisfaction analysis



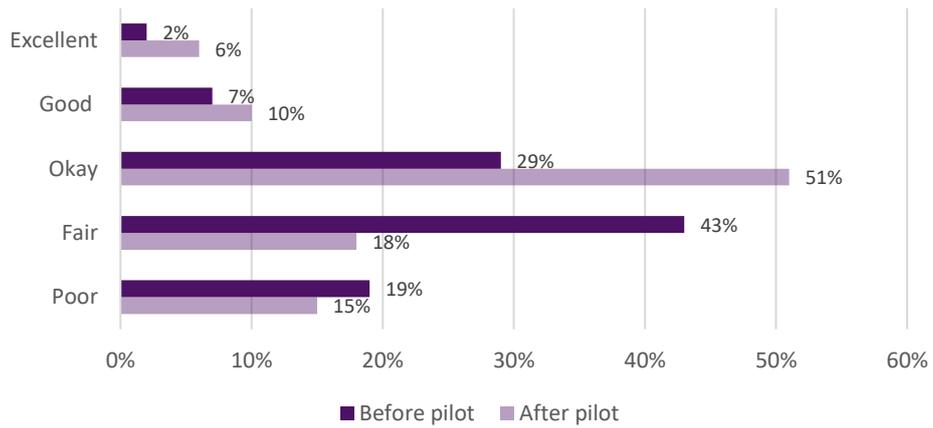
## Physical function, weight and muscle mass satisfaction



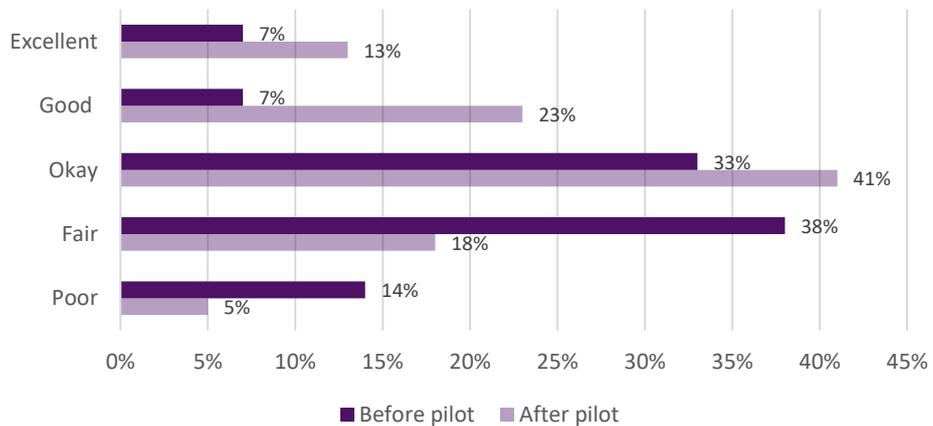
### SLOWBOT results - weight satisfaction before & after pilot



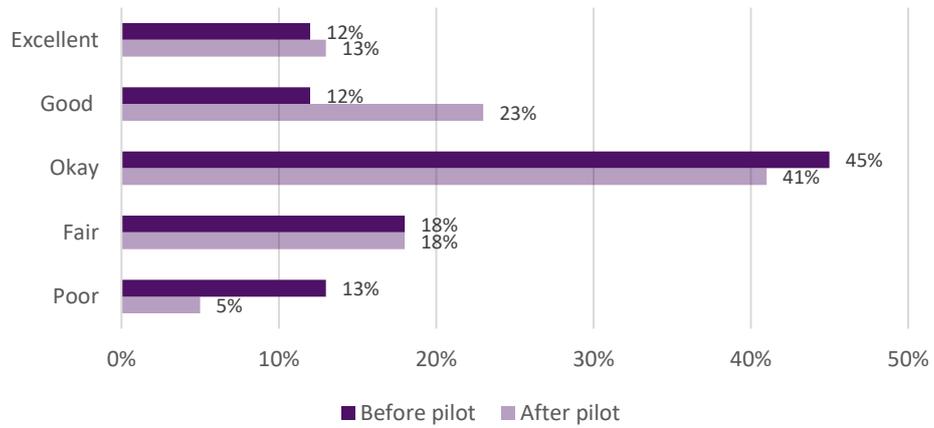
### SLOWbot results - muscle mass satisfaction before & after pilot



### SLOWbot results - physical flexibility satisfaction before & after pilot

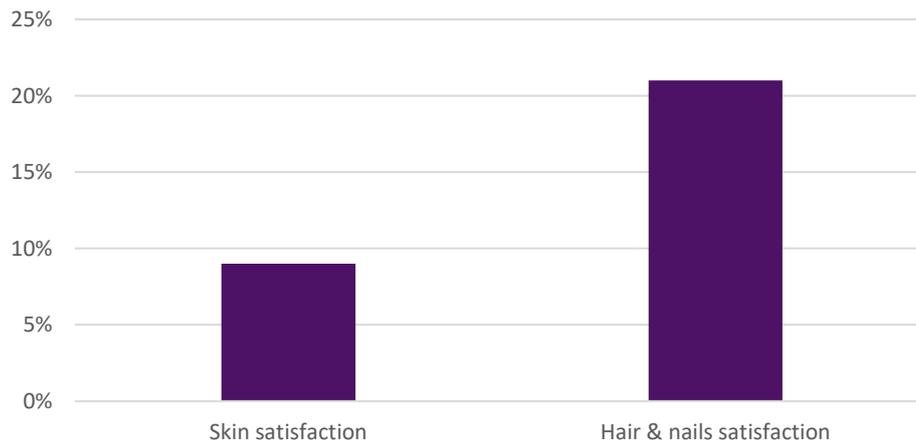


### SLOWbot results - physical activity & resilience ability before and after pilot



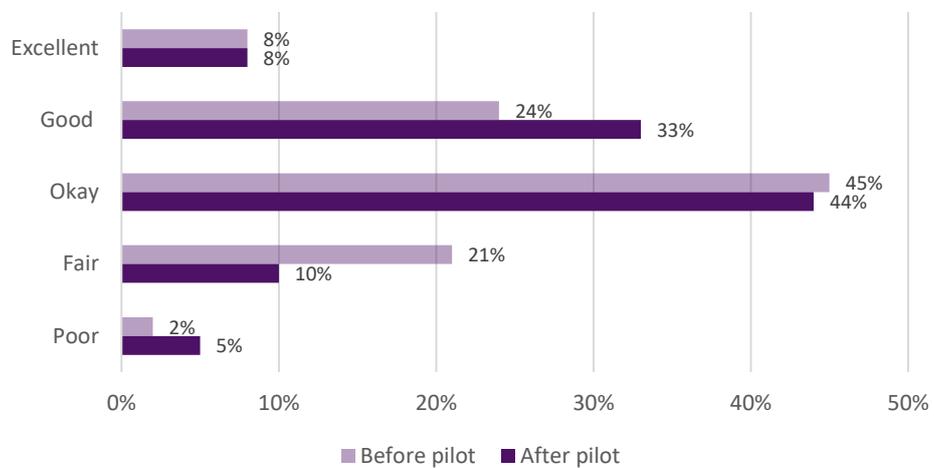
### Hair, nail and skin improvement analysis

#### SLOWbot results summary of level of improvement for hair, nails and skin



## Skin satisfaction analysis

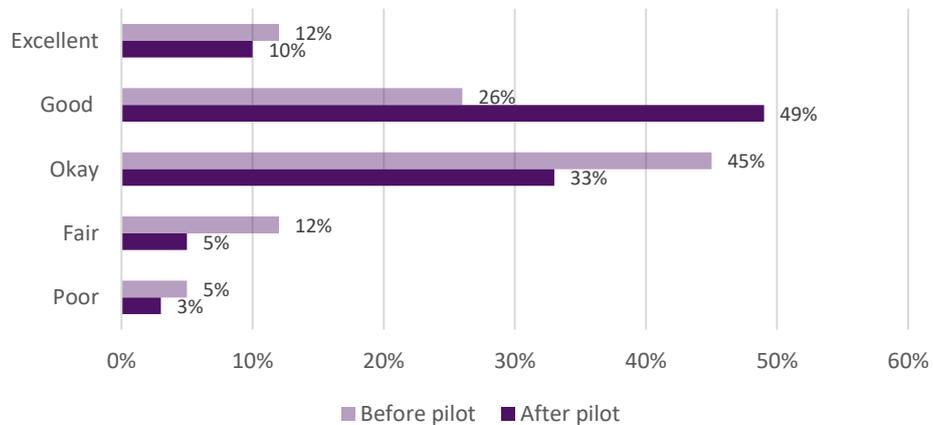
SLOWbot results - skin satisfaction before and after pilot



Outcome – overall a 9% improvement with skin satisfaction rating, however 3% reported that their skin was worse at the completion of the program when compared to the beginning.

## Hair and nails satisfaction analysis

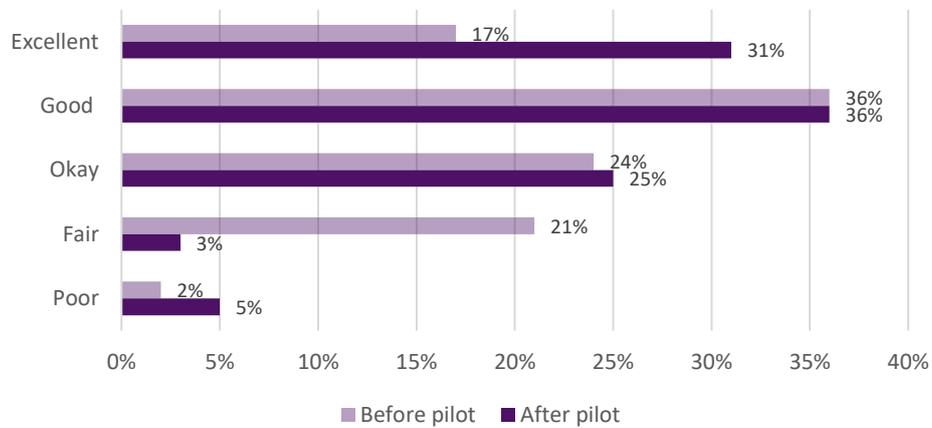
SLOWbot results - hair and nail satisfaction before and after pilot



Outcome – overall a 21% improvement with hair and nail satisfaction rating.

## Connection and support

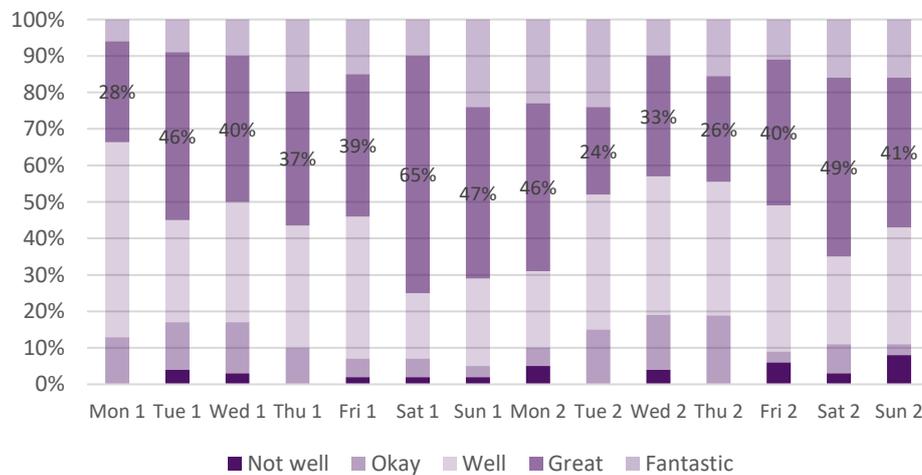
SLOWbot results - adequacy of support available before and during pilot



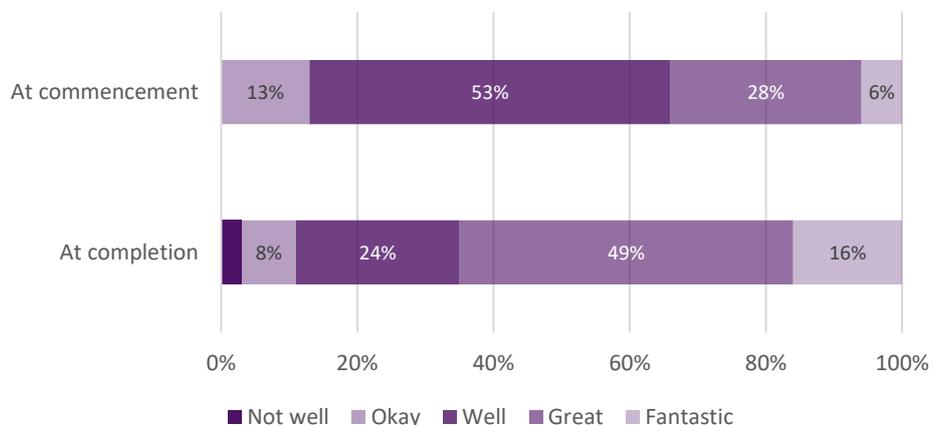
## Daily wellness

Overall, when results were compared from the beginning to the end of the pilot, 31% of participants reported an improvement with their feelings of wellness.

SLOWbot results - participant daily wellness feedback



### SLOWbot results - participant feeling of wellness at start and end of pilot comparison



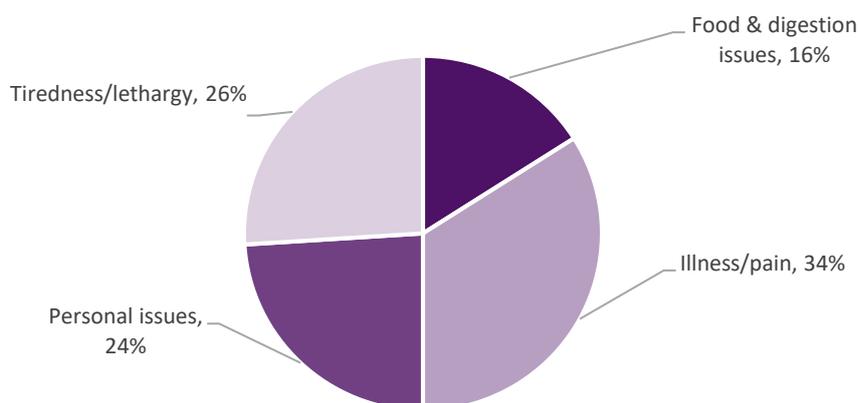
### Participant wellness ratings

Each day the participants were asked to rate how 'well' they felt each day, with five options ranging from 'quite awful' to 'normal' or 'fabulous'. Over the course of the pilot, 3% felt quite awful, 9% just okay and 32% normal. We then asked this pool of participants to provide a brief text explanation if they were willing, as to why they felt this way.

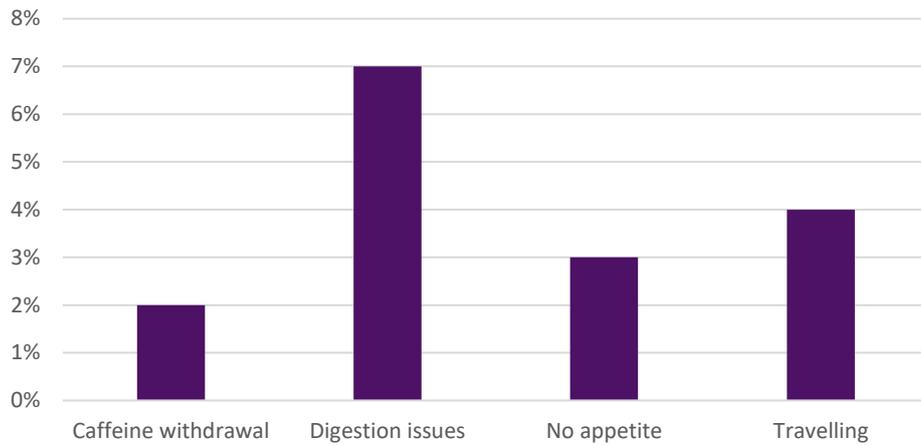
If they reported that they were feeling 'normal' or awful, the participants were asked whether they would be happy to share what was impacting them; 40% were willing to provide more detailed feedback.

This feedback was categorised into four main areas, being tiredness/lethargy, food and digestive issues, personal issues and illness/pain. Please note, that these results have been collated at a group level, so the same individual may have reported the same problem for several days.

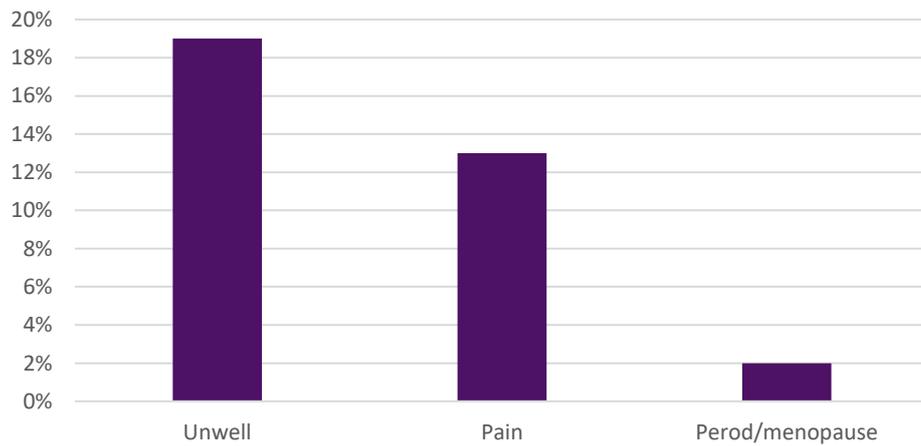
### SLOWbot results - Participant reasons as to why they didn't feel well from daily poll



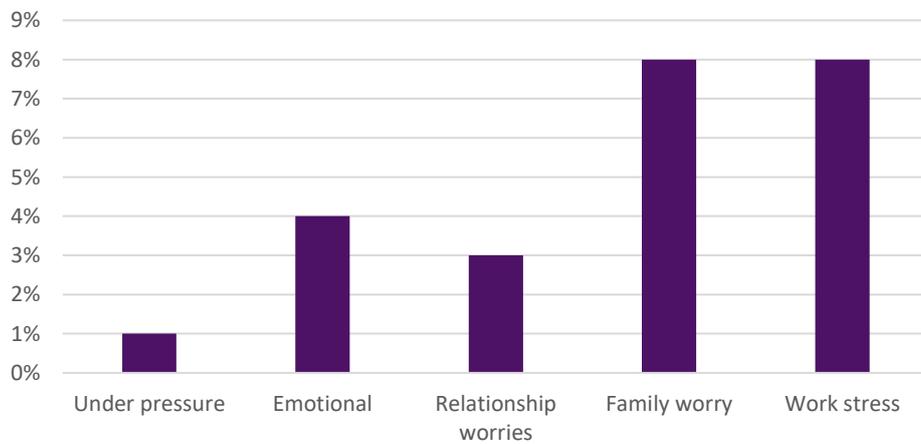
### SLOWbot results - daily wellness comments related to food



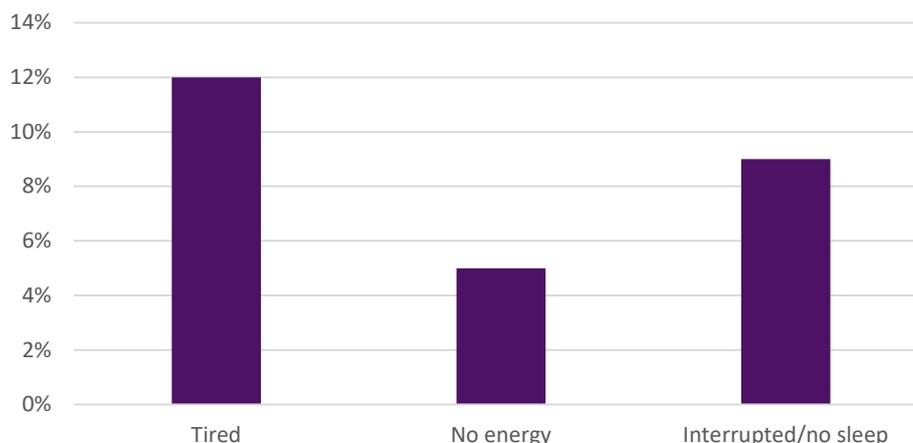
### SLOWbot results - daily wellness comments related to illness and pain



### SLOWbot results - daily wellness comments related to personal or work issues



### SLOWbot results - daily wellness comments related to lack of energy and general tiredness



#### Observations

##### *Reasons why participants didn't feel well:*

##### Food and stomach conditions

- 50% of digestion issues were reported to be 'upset stomachs', with the other problems being indigestion, reflux, burping, bloating and cramps.
- Primarily, the reason participants reported travelling as an issue was in relation to not being able to adhere to the eating program during flights or being on the road.

##### Pain and illness conditions

- 53% of the unwell participants reported that they had a general winter cold or head cold; note that the pilot was run the first two weeks of winter; 21% said they were generally unwell, 16% had flu like symptoms and 11% a chest infection.
- The reasons participants experienced pain was evenly split between headaches, arthritis and back pain following surgery.

##### Personal or work issue

- 45% of the unwell participants experiencing family worry had parents in hospital or in care and nearing end of life; 36% had concerns about the health of their children due to illness or injury.
- 80% of the unwell participants were experiencing work stress due to long hours and increased pressure during a very busy time.
- 60% of the unwell participants felt 'emotional' and thought it might have been triggered by their involvement with the eating plan.

##### Lack of energy and tiredness

- 29% of the unwell participants who reported being tired, mentioned they had also started to feel unwell – sore throat, mild headache, etc. The remaining 71% reported they were either tired or exhausted with no further explanation.
- 50% of the unwell participants had disrupted sleep due to external sources (e.g. worried about house being damaged in storm, sick children, etc.). 30% slept badly because they were unwell. 10% had disrupted sleep but not sure of reasons.

## Recommendations

1. For participants who suffered from food and stomach conditions during the pilot, further information should be sought re pre-existing food problems so their eating plan can be adjusted/personalised to avoid these foods while ensuring they reach their nutritional targets. If funding allows, expert advice should be sought.
2. Caffeine is being introduced with the beta-version which may alleviate the number of headaches experienced.
3. Energy levels for some participants were of concern. It is not unusual for the body to go through a period of adjustment when changing eating habits so it would be worthwhile monitoring participants reporting lethargy to ensure they are eating enough (at least 1,200 calories), getting enough iron and B vitamins in their diet, eating the approved snacks if hungry, getting daily exercise and evaluating their sleep patterns.

## SLOWbot pilot - SLOWAgeing eating plan

The rules of the eating plan used in the two-week SLOWbot pilot consisted of:

- 'Healthy ageing' foods/nutrients as researched and described in *'Fast Living Slow Ageing'* co-authored by Kate Marie and Professor Merlin Thomas
- Mediterranean diet principles
- The full exclusion of foods containing dairy, legumes, grains and starchy carbs
- Primarily healthy proteins and fats, herbs and spices as well as vegetables and fruits low in sugar and high in polyphenols
- Restriction of red meat



The [full eating program](#) was published on the Slow Ageing website.

The same eating plan was distributed to all participants and they were encouraged to follow the program as closely as possible, and asked to provide feedback on the food via daily questionnaires so as to:

- Confirm that they had the prescribed meal
- If they didn't have the prescribed meal, details of whether they selected another recipe from the program, skipped the meal or had something not on the program
- If they did have the prescribed meal, did they enjoy it

## Participant education and support

The [Slow Aging Facebook group](#) had 37 participants and was the primary vehicle for communication with and between participants. We used it to deliver educational materials and answered questions put forward to Kate Marie and Ann-Mary Amber Hromek, dietician.

### Education delivered

Education topics were identified from questions asked by the Facebook Slow Ageing Group or by reviewing the data that was being supplied daily by the participants.

Kate Marie created and delivered the educational content to help build relationships and trust as well as encourage continuing dialogue with the pilot participants.

The main source of material was [Healthline](#) however a variety of other sites were used as well including [Dr Axe](#), [FoodWatch](#), [Dr Stephen Sinatra's Heart Health](#) and [Nutrition Facts](#) to name a few.

Some of the topics included autophagy, drinking water, fruit and polyphenols, exercise and intermittent fasting.

A [40-minute webinar](#) was produced on June 7, 2018 featuring one of the co-founders, [Prof Merlin Thomas](#), an internationally recognised clinician-scientist working in the field of diabetic complications at the Monash University, who presented information about the health benefits of intermittent fasting.

Two videos regarding the benefits of DEXA (dual-energy x-ray absorptiometry), being resources from the Slow Ageing library, and featuring Kate Marie and [Dr Jarrod Meerkin](#), an accredited exercise physiologist. The videos presented were:

- [Kate Marie undergoes a DEXA scan with Jarrod Meerkin from MeasureUp](#); and
- [Dr. Jarrod Meerkin talks DEXA scanning, bone health and sarcopenia](#)

Kate Marie also referred the participants to a book that was useful in helping her to change bad habits- *The Power of Habit: Why We Do What We Do in Life and Business* by Charles Duhigg.

In total, 19 educational posts were shared with the Facebook community.

### Questions and answers

Participants were able to submit questions to Kate Marie, Ann Mary Hromek Amber, the clinical dietician and to each other via the Facebook Slow Ageing Group.

The types of questions put forward related primarily to:

- Which stores stock some of the healthier pantry items
- The types of fluids allowed – tea, coffee, alcohol, etc
- The challenges of eating out
- Which foods are suitable to swap out with other foods to achieve similar health benefits

### Support

Participants were encouraged to share their thoughts and show support for each other through the pilot, particularly when they were feeling emotional, unwell or finding the eating plan challenging.

32 out of the initial 57 participants joined the Facebook group

## Observations/recommendations

1. Not all participants are willing to join a Facebook support group and even those that do, not all become actively involved. **Recommendation:** With the beta-program, it could be worthwhile to set up a secondary system for support for those who do not have a Facebook account or are not comfortable joining a group. As an example, any questions raised and answered through the Facebook group could be made available either on the platform or on the Slow Ageing website and a notification sent to the participant to alert them of the new content.
2. The educational content supplied was a mix of advice from Kate Marie directly, based on her experiences and the Slow Ageing principles, as well as pointing the participants to articles that are deemed to be of interest. **Recommendation:** offer education based on participant profile – e.g. those that like proof that things work, more mainstream, strongly branded sources of content whereas those that don't mind taking risks, offer articles about supplementation, positive research, etc.

## SLOWbot pilot – exit survey outcomes

54 women started and 37 women finished the SLOWbot pilot program, a drop-off rate of 31%.

Some of the reasons given by the participants as to why they couldn't complete the program included treatment for other medical conditions and travel, however most of the 17 who dropped the program without explanation.

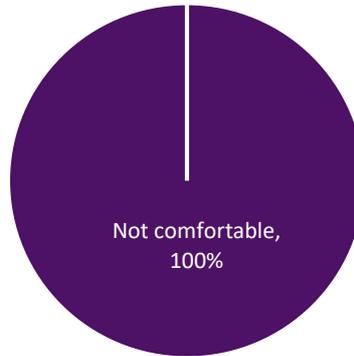
An exit survey was presented to the participants at the completion of the 2-week pilot and the following are the key outcomes:

- 87% of participants lost weight during the 2-week pilot.
- 69% would like further help with weight management.
- 85% would recommend the program to their friends.
- 52% of the participants reported that they will adopt most or all the new learnings with 41% stating they will do a mix of new and old.
- 72% of the participants felt that SLOWbot had supported them to improve their understanding of longevity foods.
- 36% of the participants reported that they now have a better understanding of the benefits of specific longevity foods and 56% "learnt a couple of things".
- 41% of the participants found it hard or very hard to follow the eating plan whereas 31% found it easy or very easy.

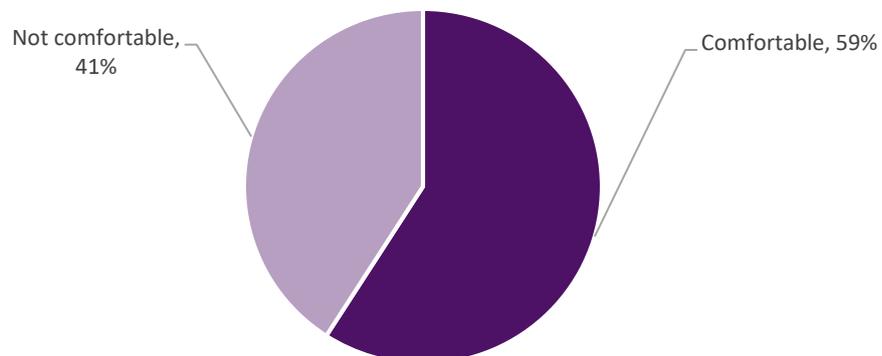
## Commercialisation data

### Attitudes to data management

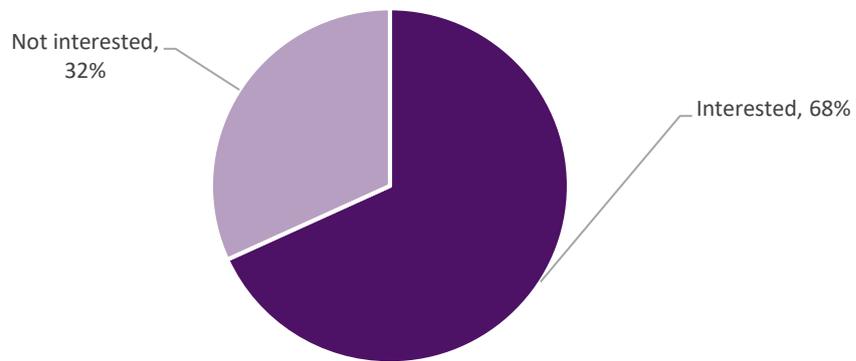
SLOWbot results - participants feedback on companies using their personal data without their knowledge



SLOWbot results - participants feedback if companies using their personal data are transparent & give benefits

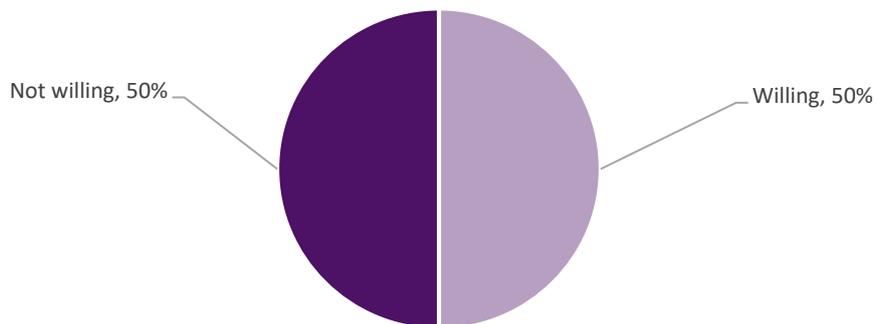


SLOWbot survey - participants interest in selling their personal data if de-identified

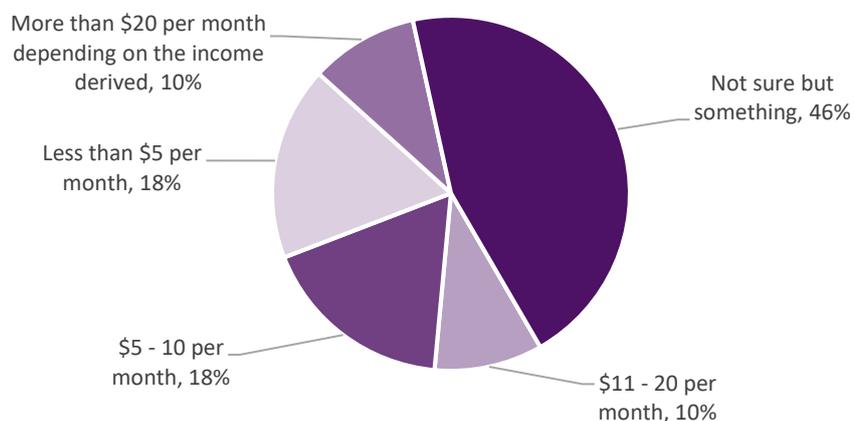


Willingness to pay & pricing

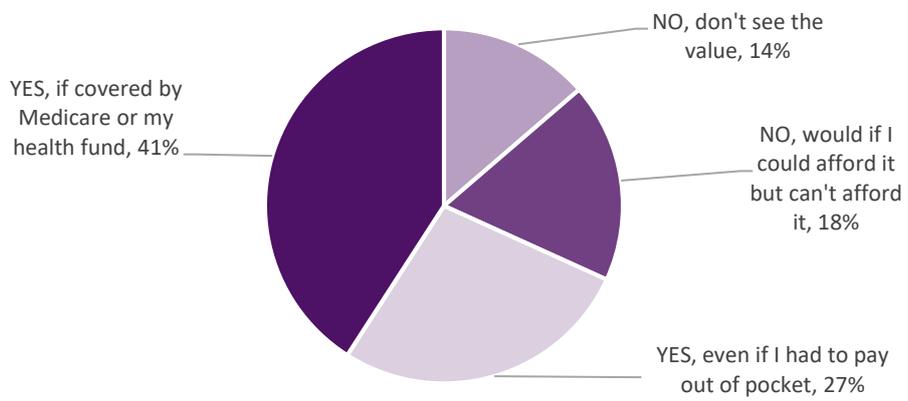
SLOWbot results - participants willingness to pay a fee to store & manage data if they could receive income for its use



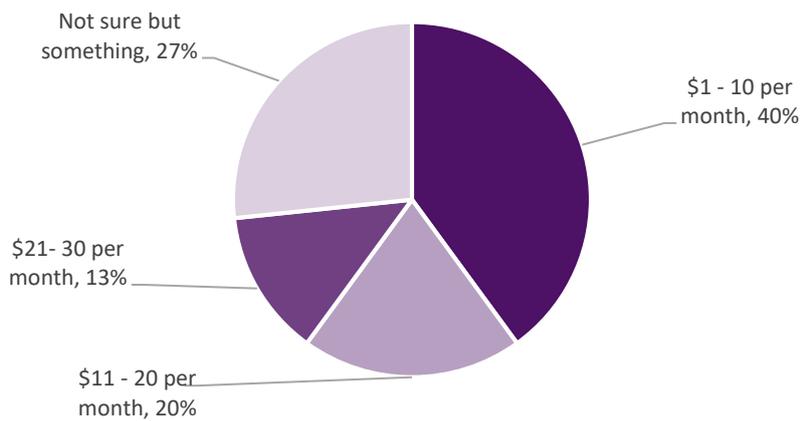
SLOWbot results - participant feedback on fair fee for personal data management and storage



SLOWbot results - participant feedback on fair fee for a longevity planning support program



SLOWbot results - participant feedback on reasonable monthly fee for longevity support program



## Health insurance

45% or (19/42) of the participants reported having private health insurance plus extras.

Breakdown of health fund membership.

Fund	No
AHM for me	1
Australian Unity	1
Bupa	3
Defence Health	1
GMHBA	2
HBF	2
HCF	3
Medibank Private	1
NIB	2
St Luke's Health	1
Teachers	2

The participants were asked "In principle, if you had to pay a small monthly fee for a longevity planning support service that encompassed dietary, exercise, testing and assessment guidelines and other help with areas such as brain health and sleep, would you be willing to pay?"

*41% responded that they would be involved if covered by Medicare or their health fund.*

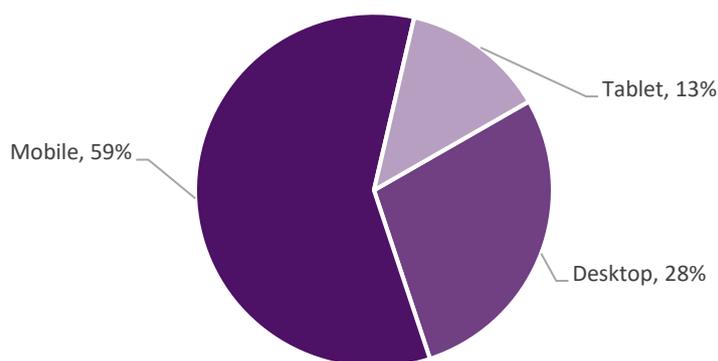
### Observations/recommendations

The data collected for the longevity support program pricing is only an initial guide as the pilot program features were somewhat unsophisticated and it would have been hard for the participants to envision the final program. As the platform develops, the insights and benefits will become clearer and it would be expected that more participants would agree it is worth more.

## Data collection – methods & communication

Average time spent daily by participant recording feedback via Typeform questionnaires – 3 minutes 55 seconds

SLOWbot results - device used by participant to supply questionnaire responses



### Typeform

Daily feedback on meals consumed, wellness, sleep and confidence

- SLOW Program Day 01 through to Day 14
- SLOW Program Exit Survey
- SLOW Program Facebook Survey and Pricing

SMS sent to alert participant that a new survey is ready to be completed.

### Active Campaign

Emails sent:

- SLOW Program Day 01 through to Day 14
- Reminders to participants to fill in the daily surveys if overlooked
- Sense of community connectedness & support follow-up
- Complete the final survey and get your book!

## iaso team

iaso

### Founders:

**Kate Marie**

Longevity evangelist



**Kate Marie** is an innovator and agent of change, which combined with her marketing nous and ‘big ideas’ mindset, enables organisations to identify ways to shore up ways to engage with their constituents for the long haul, enjoy organisational resilience and be future-ready.

Kate has led several start-up projects including her own which aims to empower women to become part of a global movement to change approaches and attitudes to ageing. In addition to a rigorous exercise regime Kate is willing to trial almost any intervention to improve her own health and slow the ageing process and is happy to share the outcomes with others.

Kate and Professor Thomas co-authored the Australian best seller ‘*Fast Living Slow Ageing*’ and ‘*Slow Ageing Guide to Skin Rejuvenation*’.

**Professor Merlin Thomas**

Scientific lead



**Professor Thomas** is Professor of Medicine at Melbourne’s prestigious Monash University, based in the newly created Department of Diabetes and is recognised as a physician, scientist, opinion-leader and teacher, locally and internationally.

He specialises in endocrinology and kidney medicine and works extensively with patients with diabetes and their doctors. He also runs a research laboratory focused on diabetes and its complications. He does however, have a broad interest in all aspects of preventative medicine and longevity.

He has published over 270 articles in many of the worlds’ leading medical journals as well as best-selling books including “*Fast Living Slow Ageing*” and “*Understanding Type 2 Diabetes*”.

### Others on team

- Dr Chris Mitchell, Clinical lead
- Paul Quinn, Director – Technology
- Cheryl Korondy, Operations, Data Manager
- Margo Field, People, training, growth & culture
- Ann-Mary Amber, Consultant - Clinical nutrition
- Dr Jarrod Meerkin – Consultant – Exercise physiology

