COMMUNITY STUDIED:
ELDERLY IN 2030

1. Finacial Disabilty

The proportion of retirees who applied for short- to medium-term assistance from the Community Care (ComCare) Endowment Fund increased from 9.9 per cent in 2012 to 12.9 per cent last year(2018). The proportion of people aged 55 and above who applied for such help also rose during the same period: from 29.4 per cent to 35.2 per cent. With Singapore's inflation rate increases, they may not be able to make ends meet. As elderly, it is harder to get a job not only because of their deteriorating mobility but also because of their health-related issues. This causes many companies to shun the elderly and instead hire more capable younger people. Without a reliable source of income, the elderly do not have enough savings to cope with rising living costs and have to turn to look for government support. In a 2015 paper on elderly poverty in Singapore written for the Tsao Foundation, the poverty rate among the working elderly jumped from 13 per cent in 1995, to

28 per cent in 2005 - to 41 per cent in 2011. Moreover, once they are stuck in poverty, the cycle begins. The cycle of poverty is the "set of factors or events by which poverty, once started, is likely to continue unless there is outside intervention". But without outside help from family, the elderly are trapped in the endless loop with no way of getting out. This clearly shows the financial crisis that the elderly face is very prevalent in Singapore.

2. Unaware about the threat the illness poses to their health

In a research in the United States, 12.2% of 1369 people were said to delay medical care (observation) Moreover, many people do not know the seriousness of their illness, leading to laziness and unwillingness to seek medical professionals. This is not a good sign as it shows that many people think that medical professionals are unable to help them as they feel that they themselves are more than capable to do so. All these may lead to illnesses not being attended to in time or at all, causing them to aggravate over time. (why) From a report in Today News, Prime Minister Lee said that people may not think that Diabetes is a major problem, but in actual fact, it is in Singapore. Moreover, he commented that Diabetes is an " Invisible disease" in its early stages as there are hardly any

symptoms. This shows that not only are people unaware of the seriousness of their illnesses, the illness itself hardly has any obvious symptoms for patients to notice. This would lead to laziness amongst people as they do not know the seriousness of their illnesses. Moreover, many people do not trust that medical professionals are able to treat them. Based on a study reported on the Straits Times, researchers viewed 177 patients aged 18 to 75 who had been hospitalized at NUH after taking too much paracetamol between January 2011 and December 2013. Amongst these people, 22.6 per cent of the cases were unintentional. This shows that still, a significant number of people are overdosed on paracetamol due to their mistake. A large number of these mistakes may be due to them having headaches and they want to relieve their pain. However, with them overdosing shows that they either did not follow the instructions of the doctor or did not see a doctor and tried to solve their health problems on their own. This further emphasizes that many people think that they do not need to seek medical help from professionals. All these prove that people thinking that they are capable to cure themselves without seeking medical professionals is a present problem in Singapore.

3. Downplay the effects of their illness

Based on the Straits Times, 1 in 4 Singaporeans aged above 65 developed chronic diseases in past years. Their illnesses will spread and they will eventually die. Even if they do find out about their illness, it would be too late for timely treatment. Worse still, if they have other illnesses, it may cause chronic illness to aggravate, damaging their health in the long run. As the body's immune system depletes, the chronic illness gets worse, possibly leading to fatalities. (Why)Based on Livescience, In 2010, Lung and bronchial cancer take up to 792,495 lives in the United States. This shows that many people are unable to treat their illnesses in time, causing death. This shows that it is highly possible that these patients who eventually passed on were unaware of their illness, causing them to meet medical professionals to late for timely treatment. In accordance with the cancer registry annual report, 2015 from the Health Promotion Board, 1 in every 4 to 5 people in Singapore develop cancer in their lifetime. With the chances of one developing cancer so high, 29.7% of people died due to cancer. This shows that many people are unaware of their illness despite already warned about the chances of developing them. All these prove that being unaware of their illness and finding it out too late for timely treatment is a significant problem in Singapore.

4. Malnutrition

The prevalence of undernutrition in older people living in the community ranges between 15 per cent of community-dwelling elderly and 85 per cent among those in a nursing home. This shows that undernutrition is common among older people over 60 years of age. Without the right diet, many elderly are unable to get the required nutrients due to them needing such diverse and unique diets but there being a lack of help in nutrients. Not only that but also social circumstances, such as isolation, which leads to them eating alone resulting in them having no desire to cook proper meals. (why) In a research made by the National Center for Biotechnology Information, the documentation of nutritional care was found to be unsatisfactory and consisted mainly of information on different eating abilities or disabilities. According to the participants, elderly patients were hardly ever screened for nutritional risk. Other documentation of nutritional information, such as weight, appetite and nutritional needs occurred randomly, according to the nurses, and was perceived as incomplete. Another research by SingHealth shows that other problems include medical reasons such as chronic organ dysfunction and abnormalities of the gastrointestinal tract, such as constipation or ulcers. This would lead to a lack of appetite if left untreated, contributing to the problem of undernutrition. This would lead to them suffering from undernutrition. Thus suffer from a weak immune system, which increases the risk of infections. Poor wound healing,

muscle weakness, and decreased bone mass.

5. Lack of exercise

Out of 2558 elderly living in Marine Parade, 400 say they suffered a fall in the preceding 12 months. Worse, more than half of these folk aged 60 and older confess they do not exercise. Deaths from a lack of exercise are also about four times the 1.2 million from road accidents each year. Research by the Better Health Channel suggests that a lack of exercise can lead to reduced muscle mass, strength and physical endurance reduced coordination and balance, joint flexibility and mobility, and much more. It can also cause increased body fat levels and blood pressure, resulting in a higher chance of heart-related illnesses. Despite the movement towards the elderly having healthier lifestyles, many elderly are still afraid of exercising due to common myths such as exercising is hazardous for older people because they may injure themselves. But this is not true and in fact, helps improve cognitive function, but being stuck with that misconception for such a long period of time and having limited access to technology, thus, they are unwilling to exercise. Moreover, research conducted by the Research Ethics Committee of the Faculty of Health Sciences, Universiti Teknologi MARA (UiTM), Malaysia, interviewed a total of 120 respondents (60

middle-aged, 60 elderly) about their amount of exercise they do. 38.4% of the elderly state that they have not motivation. This is partly because of the lack of inclusiveness, many sports and activities tend to attract young adults, so older people may feel unwelcomed. Another problem also lies with their mobility, tending to someone so slow would need a lot of patience but with the current day and age, many people are not willing to include the elderly onto their team because of their disadvantages. This further discourages them from exercising, resulting in the worsening of the problem.

Underlying problem:

Given that the elderly in SG does not take active measures to ensure that they stay healthy, how can we help people, specifically elderly, to be alerted of their ailments ahead of time and ensure that they take measures to maintain their health in Singapore to live healthier lives from 2030 and beyond?

1.Lovehp

Although we are targeting the elderly, this solution is accessible to all members of the public. We are aiming to introduce an application(app). We will reach out to local app developers so that they can help to create an app and present it to the MOH. We will implement this to mainly elderly but it is alright with

any The app will talk to people, detect illnesses through vibrations, check steps, blood pressure. For example, it can direct you to the nearest doctor, help you make appointments, help you with online payments, access your medical record for convenience. It also includes personalized Health tips based on medical records to introduce suitable physical activities for you. It also monitors the elderly's condition and source information to provide the elderly with a healthy meal.

After some lab testing, the final end product can be uploaded to Google Play and the app store. The app can be downloaded over various platforms and use vibrations to sense the body condition, diagnosing him accurately so that he can be aware of illnesses faster and proceed for timely treatment. Since the elderly are old and they may not find it convenient to go to the doctor. This app will find the nearest clinic for the best price so it will be more convenient and cost-efficient. The government will then recommend the public to use the app. For the elderly, they can approach to download the app. This app would allow the elderly to track their health conditions efficiently and accurately.

The app can happen anywhere in Singapore so long as you have a phone. The app will commence construction in 2022 and will send out once it has been completed and will have frequent updates if there is any.

2. A-Trak:

Firstly, we will target the elderly but anyone can use it. We plan to introduce a watch into the community. With smart sensing coming up, this watch is able to sense any illnesses or diseases by using signals to inform the wearer about the illnesses. The watch can also remind you to take meds, remind you to go for medical appointments. Apart from tracking health conditions internally through smart sensors, A-trak can also track sweat and its components to analyze what that says about your health. Moreover, the watch itself is used as a step tracker, allowing the elderly to track their daily physical activities. All these will benefit the elderly and help them analyze their health accurately for them to keep track of.

Since so many people refuse medical help or do not know that they have an illness, the watch will remind them of their illness and ask them to go to the doctor.

You can purchase the watch at the ministry of health. However, this can only happen in Singapore because the watch has not been implemented this far yet. The watch will start manufacturing in 2029 and will be implemented in 2030.

3. Smart toilet:

This will be implemented for anyone who is willing to buy it. This a smart toilet that can track your health using waste materials. Given that waste materials are able to give important medical information such as water intake, amount of fiber, etc. Apart from that, it is also able to diagnose a patient with colon cancer, constipation, etc. It will monitor the elderly's health through their waste materials so that the elderly would be aware of their body condition. If anything is abnormal, the general practitioner will be informed. The doctor will be able to treat the illness fast without a diagnosis and hassle. Therefore, the elderly will be able to be cured efficiently.

Given that people may not know or neglect their illnesses, this toilet will be able to tell you when you have any illness so that you can go for fast and timely treatment.

This smart toilet can only work in homes and will be a bit troublesome as each person will have to change their email address as each person's data is different. This toilet will take longer to manufacture. We will commence manufacturing in 2027 and should be finished by April 2030 will be implemented in December 2030.

4. Holographic doctor:

We will implement this mainly to the elderly but it is fine with any age group. This a holographic doctor that will project a 3D image of the doctor to prevent laziness so the doctor can give you regular check-ups so you can be notified if you have an illness to treat so you can be healthier. Eventually, this product will branch out to more people over Singapore so we can promote a healthier lifestyle in Singapore.

Since the elderly's bones get weaker, they will find it hard and inconvenient to go to the doctor, so this holographic doctor will act as a physical doctor but in the comforts of your home. However, the doctor will not be able to check your heartbeat or blood pressure.

This product will be placed in your house and in the doctor's office. The cost will be expensive as it is not easy to get materials to create this product. We will start creating this during May 2030 and be finished in about July 2032.

5. Care for Share

This will be implemented as a program to support the elderly.

Affiliated stores such as NTUC and FairPrice will be notified of this change once we consult the Ministry in charge of the department. As the elderly, it is hard to receive sufficient nutrients to help their feeble body and it equally as tough to travel to the shop under such blistering heat. However, this program will allow the elderly to not only have discounted prices while shopping at partnering stores, they will also be granted will free delivery to help them relieve the hassle of walking to the shop.

This would not only help out the elderly physically wise, but it will also serve as a motivation to order healthier and more nutrient-packed food so that they can live healthier than before. But since certain foods will be needed for different types of illnesses, the elderly would have to consult a doctor for the recommended diet. Thus, this will kill two birds with one stone as they will also go for a check-up at the hospital which would inform them of any additional ailments that they may have gotten.

	Fastest to implement (x5)	Willingness to support(x4)	Cost(x2)	Side effects(x1)	How much it can benefit(x3)	Total
A-Trak	2	4	5	3	5	**54**
Lovehp	**4**	5	2	5	4	**61**
Care for Share	2	4	4	3	3	44
holographic doctor	1	2	1	1	3	25
smart toilet	5	1	3	2	4	**45**

ACTION PLAN:

We have chosen to use LoveHP. Since so many elderly do not take active measures to maintain their health. This device can find illnesses in the body through vibrations and will alert the users about the illness and how-to advise them how to solve them immediately so that they will be able to go for timely

treatment before their illnesses aggravate. In a survey that we had carried out, of which was targeted at people aged 50 and above by 2030, 91% of the respondents think that health tips are very agreeable and acceptable. Moreover, 86.7% of respondents agree with this function showing that the majority of the elderly population would possibly use this app.

This app is different from the health buddy app designed by MOH, this device will also contain an inbuilt chat-bot which is user-friendly and can even keep the elderly company. It also contains information about directing the elderly to the nearest doctor, helping the elderly make appointments at their own convenience retaining previous health records for convenience and many more. 89.5% of our respondents would agree with the app accessing their medical data. This would mean that this app will be capable of assessing the elderly's condition, and by finding information from various health sites, compile a list of healthy yet easy food for the elderly to cook and eat. It even has a personal trainer inbuilt that traces the elderly's condition and create a suitable physical training schedule for the elderly to follow. Best of all is that it is capable of running on a variety of platforms. This app is able to solve medical payments from hospitals and clinics without the patient having to worry about late payments and taking away the need for paying cash. It is also linked to medical insurance and is able to be accessed conveniently by the patient whenever necessary. In our survey,

about 90% of the respondents think that automatic and cashless payment would be really good and convenient. Likewise, for the other function, about 94% of respondents thought that access to medical insurance conveniently would be great and that they would like to have such a function.

An app company will be reached out to design the app and will branch out to the government for approval before sending it out to the public. Due to its efficiency and convenience, our app would be well-received and soon the elderly in Singapore will be able to make use of the app. Our timeline is to start manufacturing the app in 2026 as we want to prepare for the future. We will launch the app after it has been tested and do regular updates to add new functions. It will be officially launched in 2030.

Some resistors, of whom may be people who do not use their smartphone regularly or do not speak good English, will understand with ease the device as it is accessible in multiple languages. Moreover, a chatbot will be found in the device so that users will be able to make inquiries. For those who do not trust in the diagnosis from the application, there is nothing to worry as this app is equipped with a function. This app is able to recommend the nearest clinic for these patients so that they are able to get a second opinion.

Some potential organizations that will support this movement

would be Care for the Elderly Foundation (Singapore). As they already have experience with the elderly, we can use the information to tailor our app to be more suitable for the elderly to use. They would be able to garner the relevant funding to produce the app. Not only that, but their reputation would boost Lovehp's credibility, helping out in ensuring that people are rest-assured.

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