

HCI Project Written Report

Group ID: 4-09

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## Introduction

Our project is a package that has a cookbook that contains recipes of healthy foods for the elderly and instructional videos for maids/caretakers to cook for the elderly. This package is useful as Singapore has an aging society and many elderly in our research have medical conditions that are related to their diet. One of the most common problems found among the elderly is high blood pressure, which can be caused by diabetes, another problem found common among elderly due to high salt and sugar intake and high fat diet. Thus, we aim to create healthy food with low or moderate amounts of sugar, salt and fat.

## Literature Review

To explore the issues on high blood pressure in elderly, a subset of literature has been selected based on its relevance to the following questions:

- 1) What is high blood pressure?
- 2) What causes high blood pressure?
- 3) How to we reduce high blood pressure?
- 4) What are the effects of high blood pressure and its severity?

### **What is high blood pressure?**

High blood pressure is also known as hypertension. Blood pressure is the amount of force exerted against the walls of the arteries as blood flows through them. The heart is a muscle that pumps blood around the body. Blood that has low oxygen levels is pumped towards the lungs, where oxygen supplies are replenished. The oxygen rich blood is then pumped by the heart around the body to supply our muscles and cells. The pumping of blood creates pressure. If a person has high blood pressure, it means that the walls of the arteries are receiving too much pressure on a constant basis. (Stephens, 2018)

### **What causes high blood pressure?**

Some of the risk factors or causes are age, family history, physical inactivity/lack of exercise, high salt intake, high fat diet and diabetes. (Stephens, 2018)

### **How do we reduce high blood pressure?**

Changing your diet can help to reduce high blood pressure. (Stephens, 2018)

Managing the diet can be effective way of both preventing and treating high blood pressure. Lowering salt intake is important as studies have shown that even a moderate reduction in salt, or sodium, intake can lower blood pressure levels by 2 to 8 mmHg. There are also diets such as the DASH diet which is a diet is based on an eating plan that focuses on fruits, vegetables, nuts, seeds, beans, and low-fat dairy products. (Stephens, 2018)

### **What are the effects of high blood pressure and its severity?**

Some of the problems that can be caused by high blood pressure are strokes, heart attacks, heart failures, blood clots, aneurysm, kidney disease, thickened/narrow/torn blood vessels in the eyes, metabolic syndrome, brain function and memory problems. (Stephens, 2018)

Heart attacks, heart failures, strokes and blood clots can be fatal.

Severe stages of aneurysm can lead to life-threatening internal bleeding. (Han, 2018)

Severe hypertension can cause chronic kidney disease, which in turn limits the kidneys' ability to continue regulating blood pressure. You can have kidney disease, and that will cause high blood pressure. (A Place For Mom, n.d.)

Roughly half the people with untreated hypertension die of heart disease related to poor blood flow (ischemic heart disease) and another third die of stroke. (Mayo Clinic., 2018)

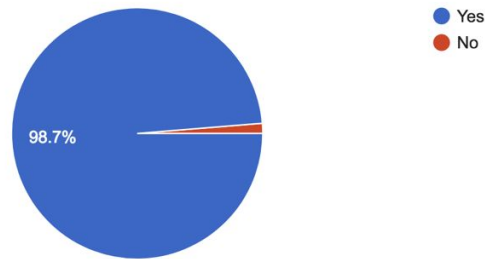
## **Methodology**

In March, our idea was approved by Ms Quah, as we had failed our first evaluation. Based on research conducted by the Health Promotion Board (HPB) in 2015, increasing intake of salt and eating less vegetables and fruits increased the risk of heart disease and stroke. Every day, 16 people die from heart diseases and stroke in Singapore and this accounted for 29.5% of all deaths in 2016. We conducted a survey and found out the common conditions that the elderly had is high blood pressure, high cholesterol, diabetes, constipation and other heart diseases. This was mostly caused by old age and unhealthy diets. Thus, we seek to lower the risk of getting these conditions by giving the caregivers healthy and nutritious food recipes for the elderly.

A needs analysis was conducted in March with 155 adults on the importance of elderly folks having a healthy diet. The majority of the adults responded that it is important for the elderly to have a healthy diet.

### Do you think it is important for the elderly to eat healthily?

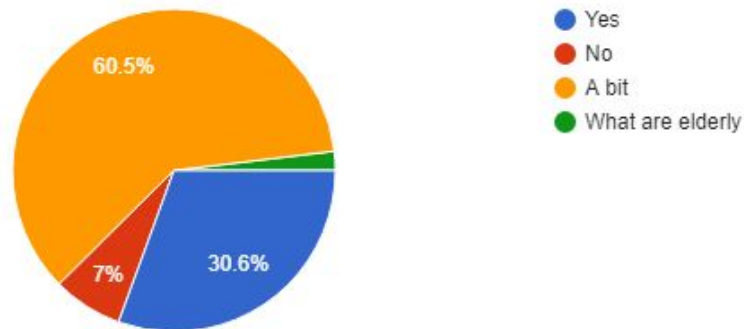
155 responses



However, most of them do not know much or anything at all about what the elderly should be having.

### Do you know much about what the elderly should be eating?

157 responses



Finally, we asked the adults what medical conditions the elderly in their homes had. 62.3% with high blood pressure. 22.3% with diabetes and 9.2% with constipation. The remaining percentage are more of history of heart attacks, heart ailments etc. Hence, we felt a need to provide caregivers of the elderly with recipes to reduce the chances of getting such medical conditions.

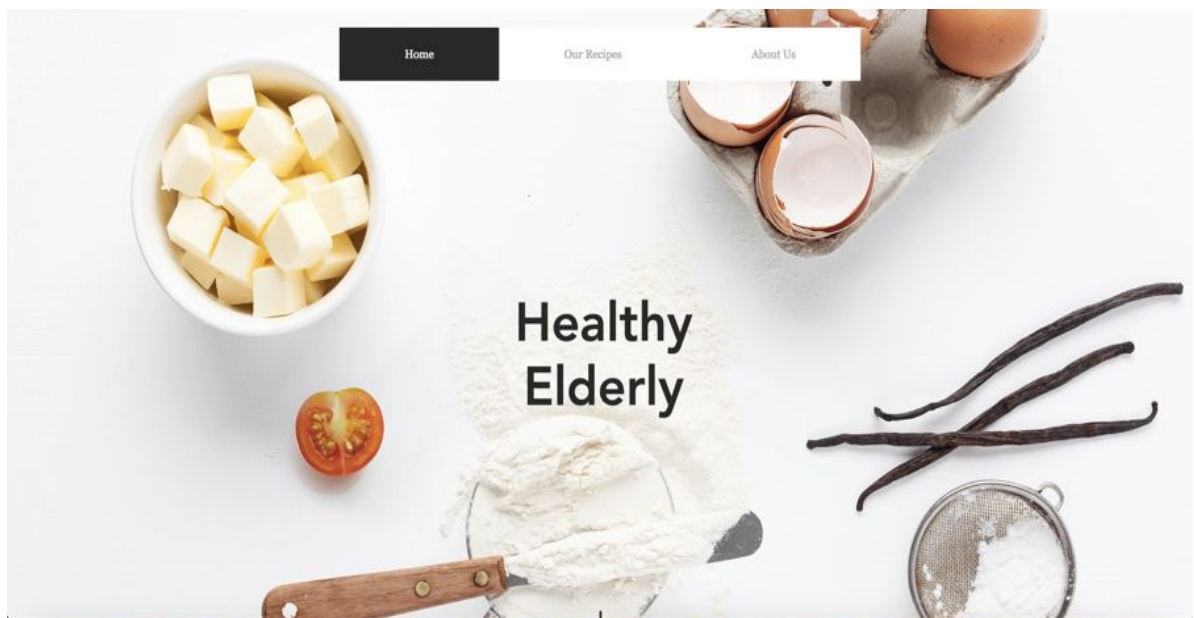
Our idea **was** to create a cookbook to help the caregivers or cooks of the elderly to prepare healthy and nutritious food for them, but we later changed our idea from using a book to using a website as it we would be able to include videos to make it easier for caregivers to prepare the recipes. We

decided on 10 recipes → 3 for breakfast, 3 for lunch and 4 for dinner. This was to make sure that the caretakers can cook a variety of different food for the elderly, and so they will not get bored.

For each of the recipes, there was a short write-up for each of them, as well as some nutritional facts about some of the ingredients, such as: quinoa is high in protein and essential amino acids like lysine, which is essential for tissue growth and repair. The recipes also contain the ingredients and instructions, as well as a picture of the end product and a video tutorial.

We got most of these recipes from our parents who were already making these dishes for us, but we changed the ingredients a little to make it healthier e.g. substituting sugar with a spoon of honey.

We started to make the video tutorials and add the photos during the June holidays. In late June, we started creating the website. The website has 3 navigation tabs on top: one for the home page, one for the recipe page, and one showing our mission (why we wanted to make the website).



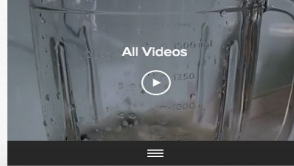
## Roasted Cheese Parmesan Sandwich

Serves 4, 20 min

Ingredients: ¼ cup of panko, ½ tsp. dried oregano, 4 large portobello mushroom caps, 4 hero rolls (subs), 4 oz. fresh mozzarella, ¼ cup grated parmesan, ½ marinara sauce, pinch of parsley

Portobello mushrooms offer three important B-complex vitamins: riboflavin for maintaining healthy red blood cells; niacin for supple skin and properly functioning digestive and nervous systems; and pantothenic acid, which aids in the release of energy from the fat, protein, and carbohydrates in the food you eat.

- 1 Prep the broiler. Line the baking sheet with nonstick foil.
- 2 In a small bowl combine the panko with 1 tsp. olive oil and the dried oregano. Set aside.
- 3 Season the mushrooms with salt and pepper. Place them on the baking sheet and broil for 6-8 minutes. Slice mushrooms to ½ inch thick.
- 4 Toast 4 hero rolls, slice 4 ounces of mozzarella & grate ¼ cup parmesan. Top each mushroom with marinara sauce, ¼ of mozzarella and 1 tbsp. parmesan.
- 5 Broil until cheese melts and top with panko mixture.



The website contains all of our recipes, with photos and videos.

Also, we conducted pilot tests with parents of our classmates, and got them to comment on our recipes and websites. They said that we should state the nutritional facts (for example, quinoa is high in protein and essential amino acids like lysine, which is essential in tissue growth and repair.). They also said that we should use ingredients that are easier to find instead of those that are less common (for example, using olive oil instead of cooking spray, which is relatively hard to find).

## Outcome and Discussion

We have a website with all 10 recipes together with instructions and videos on how to prepare the dishes. Recipes include health benefits of ingredients used in them.

Limitations include

Possible further works are the development of more recipes to ensure a wider variety of healthy food for caregivers to cook for the elderly.

# Conclusion

In conclusion, this project was hard to undertake as there were a few challenges in the way, such as the proposal stage, but we have learnt team communication, cooperation and the importance of coming to a consensus.

# References

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