Future Trends Report
Based on Analysis of the Future Scene in Mid-Term and Final Evaluation

STEP 1. Identify Challenges

Read the Future Scene carefully and generate ideas for challenges, concerns, and possible related problems. Choose the 5 most important challenges and write them in the space provided. Include applicable research with appropriate in-text citations.

Challenge #1: The elderly do not have much to do and spend most of their time alone at home (FACT), leading to degeneration of the mind and eventually dementia (PROBLEM), which could lead to a generation of mentally incompetent elderly (LARGER CONSEQUENCE).

Evidence:
According to researchers at Brigham Young University in Utah that analyzed data from 70 studies that included more than 3 million people, loneliness and social isolation decreased cognitive thinking abilities by about 30%.

Challenge #2: There would be a shrinking economy, which is unable to depend on an expanding labour force to drive growth (FACT). The Government would have a lower national budget and would have to implement higher taxes like GST(PROBLEM), causing price of necessities to go up and the elderly may not be able to afford such prices, possibly leading to a majority of our elderly not having enough for basic necessities like food (LARGER CONSEQUENCE).

Evidence:
According to Investopedia, "a rapidly aging population means there are fewer working-age people in the economy. This leads to a supply shortage of qualified workers, making it more difficult for businesses to fill in-demand roles".

Challenge #3: The healthcare system is not elderly-friendly (FACT) as there are long queues and limited bed spaces in hospitals, and usually do not have any family members to help them (PROBLEM) thus the elderly are not always able to get optimal care, possibly leading to a majority of elderly who are unaware of any conditions or diseases that they have and causing more elderlies' condition to worsen (LARGER CONSEQUENCE).

Evidence:

According from a Straits Times article, "some patients still have to wait more than eight hours for a bed at Tan Tock Seng Hospital", even with the recent addition of 2500 beds to the hospital.

Challenge #4: Most elderly live alone and thus have no choice but to rely on technology to aid them in their daily lives (FACT) even if they do not want to, as they feel it is too confusing. Because they are forced to use such technology but are very confused, the elderly will feel very uncomfortable and may lead to a generation of elderly that shy away from useful technology(LARGER CONSEQUENCE).

Evidence:

According to Mr Tan Ern Ser, a sociologist from the National University of Singapore, the elderly are more likely to be daunted by a steep learning curve, and the digital divide could contribute to a growing "sense of alienation and helplessness" for some elderly.

Challenge #5:

Adults are unwilling to have children (FACT) as there is a lack of childcare options in a time where a dual-income family is needed for less financial stress (PROBLEM). This would lead to less adults willing to have children, meaning that there will be even lower amounts of adults and higher amounts of elderly and causing the workforce to shrink. Thus, tax rates would increase, placing more burden on working adults(LARGER CONSEQUENCE).

Evidence:

According to CBNC, "Dual-income families are the norm in the pricey city-state and the lack of time for family is frequently cited as a significant factor influencing couples' decisions on how many children to have, if they have any at all.".

STEP 2. Select a Fundamental Problem

Using the challenges listed in Step 1, identify a problem of major importance to the Future Scene situation. Write your Underlying Problem making sure your question clearly explains the action that will be taken and the desired results/goal of that action.

Incorporating Challenge(s) #1, 3, 4

Underlying Problem:

Given the inference we have made that the elderly in 2050 live alone and usually do not live with family members (CONDITION PHRASE), how might we allow the elderly to be more mentally active (KEY VERB PHRASE) so that they will not be affected as much by mental illnesses (PURPOSE) in Singapore in the year 2050 and beyond (FUTURE SCENE PARAMETERS)?

STEP 3. Produce Solution Ideas

Generate solution ideas to the Underlying Problem in Step 2. Choose the 5 most effective solutions and write the elaborated ideas in the space provided. . Include applicable research with appropriate in-text citations.

Solution #1:

Implement technology better like robots to interact with the elderly to keep them mentally active.

Evidence: According to a Channel NewsAsia article, a robot that stands "at around 4ft (about 1.2m) tall and equipped with hundreds of sensors, Pepper can read emotions, genders and estimate the age of a person. As well as being an entertainment provider, she is also able to work as a medical assistant, collecting and explaining medical reports to patients."Another robotic helper is Palro a communications robot made by Fujisoft Inc. This mini robot is able to have simple conversations with the elderly to keep them company." However, only Japan has such frequent usage of such robots, with only 1000 in commercial use. If this technology was more widespread and spread in SIngapore, the robots could interact with the elderly to help them stay mentally active.

Solution #2:

Encourage the elderly to exercise more through public education to improve their mental health. (posters, advertisements etc.)

Evidence: According to an article by Better Health Channel, physical fitness is important to keep a mentally active mind. They say that "some conditions that can affect the brain's ability to function, such as stroke, are associated with diet, obesity and sedentary lifestyle choices. Keeping an active body is crucial if you want an active mind." For example, "Regular exercise can improve your brain's memory, reasoning abilities and reaction times."

Solution #3:
Encourage the elderly to do more mental exercises by handing out free puzzles like sudoku or make more space at the library for the elderly to read newspapers or magazines.

Evidence: According to an article by Better Health Channel, "researchers at Stanford University (USA) found that memory loss can be improved by 30 to 50 per cent simply by doing mental exercises. The brain is like a muscle - if you don't give it regular workouts, its functions will decline." For example, the elderly could be encouraged to do puzzle games or play games that challenges the intellect and memory, like chess so that they would be more willing to participate in such activities.

Solution #4:
Offer healthier food choices at food stalls as a healthier diet leads to a healthier mind..

Evidence: According to a WebMD article,"A healthy diet is always good for your brain. One eating style may save your memory best. "There's good evidence for the Mediterranean-style diet," says Argye Hillis, MD, professor of neurology at Johns Hopkins Medicine.The "Mediterreanean" diet is having lots of fruits, vegetables, fish rather than red meat and olive oil One study found people who closely followed this diet were nearly 20% less likely to have thinking and memory problems.

Solution #5:
Create volunteer opportunities for the elderly, as doing volunteer work reduces the risk of mind degeneration.

Evidence :
The National Institute on Aging in the United States reported that participating in meaningful activities such as active volunteering may lower the risk of dementia and other health problems in seniors. This may be because when the seniors provide care for others, they feel a sense of purpose and accomplishment, thus living a more emotionally fulfilling life. Another factor contributing to improved health may be the social bonds between volunteers and their clients. Volunteering allows for social interaction between the elderly and other people, helping them develop meaningful relationships. This combats feelings of loneliness or negativity. This can positively affect the health of the elderly, especially in reducing risks of psychological health issues such as depression or dementia.

STEP 4a. Select Criteria

Generate criteria to determine which solution idea does the best job of solving your Underlying Problem and/or addressing the Future Scene situation. Select the 3 most important criteria for measuring solution ideas and write them in the spaces provided.

Criterion #1:
Cost of solution

Criterion #2:
Convenience of applying the solution

Criterion #3:
Elderly opinion on solution

STEP 4b. Apply Criteria

List the solution ideas from Step 3 on the grid. Use each criterion to rank the solutions on a scale from 1 (poorest) to 5 (best). The weighting for one important criterion may be doubled if necessary.

Step 3 Sol'n #	Solution Idea	Criteria (out of 5 each)			Total(15)
		1	2	3	
#1	Implement better technology like robots to interact with the elderly to keep them mentally active.	2	3	4	9
#2	Encourage the elderly to exercise more through public education (posters, advertisements etc.)	4	4	2	10
#3	Encourage the elderly to do more mental exercises by handing out free puzzles like sudoku or make more space at the library for the elderly to read newspapers or magazines.	3	3	3	9
#4	Healthier food choices	3	**2**	**3**	8
#5	Volunteering opportunities for the elderly.	3	**2**	**4**	9

STEP 5. Develop an Action Plan and Evaluate its Feasibility

Develop your top-scoring solution idea into an Action Plan. Thoroughly explain how the Underlying Problem is solved, how the plan will be implemented, and how the Future Scene will be affected. Explain how this Action Plan is feasible with research consulted.

Action Plan derived from Solution #2:

Through public education like putting up advertisements on the internet, the government would encourage the elderly to exercise more which will improve memory, reasoning abilities, reaction times, increases life expectancy and reduces the risk of chronic illnesses. It will also help to prevent conditions such as strokes as they are associated with sedentary lifestyle choices, promotes neural growth and reduced inflammation. These benefits would reduce the risk of the elderly having mental illnesses as all these benefits help to combat mental illness.

The government would do this by starting thrice-weekly exercise courses of 1 to 1.5 hours each, using aerobic and progressive resistance training but not implementing anything too strenuous to reduce the risk of the elderly hurting themselves while they exercise, and implement AI In robots to oversee the elderly to further prevent injuries in the elderly. The AI-equipped robots could warn the elderly if they were doing anything wrong before they could injure themselves, and would be able to give first aid if anything did go wrong. Interested volunteers could also go for the course to try to spot the elderly's mistakes as well. The courses would be held at all community centres country-wide to allow for convenience to prevent people from exercising due to the venues being too far away, and will be held in groups of 10 per session to allow for the social benefits of exercise like making friends to incentivize the exercise courses, as they would feel like they could make new friends at the exercise course. To make sure the courses are cheap enough to not push away the elderly due to an expensive course fee, the government would heavily subsidize the fees for the general elderly, and for those who are not so well-to-do, they would subsidize the fees completely so that people would not say that the courses are too expensive.

This would lead to a change in the Future Scene, where instead of living sedentary lifestyles, the elderly lead active lifestyles and make friends through the course to the group nature of the course. Their mental abilities would improve, like their memory and it would also lead to the reduced risk of chronic illness. The generation of elderly in the Future Scene would change into a generation of elderly who are not as afraid to exercise due to the group nature of the course, and they also have an AI-equipped robot to oversee them and warn them of mistakes they are making to prevent injuries and is able to give first aid if anything does go wrong.

This plan is feasible as many elderly are not against the idea of exercising, but are usually scared of injuring themselves while exercising or are afraid of exercising by themselves. Researchers did a study on a "Pilot Feasibility Study: How much will older adults exercise? A feasibility study of aerobic training combined with progressive resistance training" to investigate the feasibility and safety of a high-volume exercise program consisting of twice-weekly aerobic training combined with twice-weekly resistance training (four times weekly exercise) on a group of untrained older adults. They recruited eight inactive older adults of 65 years of age and above to participate in a 6-week, single-group pre-post exercise intervention and recorded program attendance and monitored of adverse effects during the course of the program. The results: They recorded an average attendance of 83.3% with the lowest attendance for one session being five out of eight participants, and significant improvements in physical function, aerobic capacity and muscular strength were observed, while no significant adverse events occurred. These findings suggest that untrained older adults can be successful at completing twice-weekly aerobic training combined with twice-weekly progressive resistance training, but these exercise programs should be group-based in order to maintain high adherence.

We also interviewed adults of 65 years of age and above on whether they exercise on a regular basis, and out of the 19 people who did not exercise, 12 said that they were not against exercising but were afraid to do it alone, without any supervision as they were afraid they would hurt themselves. The remaining 7 people said that getting to the nearest gym was a hassle and not convenient enough.

Thus, these results suggest that the elderly are not against exercising, but are usually afraid that they might get hurt exercising by themselves or feel scared to do it alone, or do not want to take the trouble of going to exercise. However, by implementing such group-based exercise programs at all community centres countrywide, they are no longer scared as there is someone to take care of them if something goes wrong, while a group environment can reduce their feelings of fear. Getting to meet their new friends they made within the group is an extra incentive and getting to the nearest community centre takes an average of about a 10 to 15-minute walk for increased convenience.

Writing on the reverse side or in margins will not be scored.

Bibliography

Cite the resources you consulted using the APA format.

List of References:
Challenge 1: https://news.byu.edu/news/prescription-living-longer-spend-less-time-alone
Challenge 2:
https://www.investopedia.com/articles/investing/011216/4-global-economic-issues-aging-population.asp
Challenge 3:
https://www.straitstimes.com/singapore/health/long-waits-at-aes-despite-more-beds
Challenge 4:
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Challenge 5:
https://www.cnbc.com/2016/07/26/singapores-low-birth-rate-poses-economic-problems-as-asias-demographic-stress-rises.html
Solution 1:
https://www.channelnewsasia.com/news/asia/solving-japan-s-ageing-population-woes-with-robots-9125394
Solution 2 and 3:
https://www.betterhealth.vic.gov.au/health/servicesandsupport/keeping-your-mind-healthy-as-you-get-older
Solution 4:
https://www.webmd.com/healthy-aging/guide/9-brain-boosters-to-prevent-memory-loss#1
Solution 5: https://www.nia.nih.gov/health/cognitive-health-and-older-adults
Action Plan:
https://www.helpguide.org/articles/healthy-living/the-mental-health-benefits-of-exercise.amp.htm
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