

Written Report (Group ID 10-15)

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PROBLEMS

PROBLEM 1

The future scene states that there is a replacement of brick-and-mortar markets and cafes with drone deliveries, leading to many people being cooped up at home (FACT). This could be a problem as there would be no need for the elderly to interact physically with anybody and it might lead to them feeling isolated from the rest of society (INFERRED PROBLEM). This sense of isolation could potentially cause them to face psychological problems like loneliness and depression (LARGER CONSEQUENCE). (PSYCHOLOGICAL HEALTH)

Research:

1. The New York Times stated in an article "The potentially harmful effects of loneliness and social isolation on health and longevity, especially among older adults, are well established. For example, in 2013 the journalist reported on research finding that loneliness can impair health by raising levels of stress hormones and inflammation, which in turn can increase the risk of heart disease, arthritis, Type 2 diabetes, dementia and even suicide attempts." The New York Times, Jane E. Brody, The Surprising Effects of Loneliness On Health (2017) <https://www.nytimes.com/2017/12/11/well/mind/how-loneliness-affects-our-health.html> (1)
2. A study found on the NCBI's (National Centre for Biotechnology Information) website stated that "if unmarried having social support, significantly reduced the impact of functional disabilities on the incidence of depression". NCBI, Schoevers RA etc, Risk factors for depression in later life; results of prospective community based study (2000) <https://www.ncbi.nlm.nih.gov/pubmed/10837881> (2)
3. Another research found on the NCBI's website was done to investigate the association between social isolation and loneliness, how they relate to depression, and whether these associations are explained by genetic influences. They found that "those who are lonely are often depressed". NCBI, T Matthews etc, Social isolation, loneliness and depression in young adulthood: a

behavioural genetic analysis (2016) <https://www.ncbi.nlm.nih.gov/pubmed/26843197> (3)

4. Another article published in the New York Times stated “loneliness can impair health by raising levels of stress hormones and increasing inflammation. The damage can be widespread, affecting every bodily system and brain function.” and “Chronic inflammation has been linked to heart disease, arthritis, Type 2 diabetes and even suicide attempts, Dr. Jaremka noted. People who are lonely also react more strongly to negative events and perceive daily life as being more stressful, which can depress the immune system.” [The New York Times, Jane EB, Shaking Off Loneliness \(2013\) https://well.blogs.nytimes.com/2013/05/13/shaking-off-loneliness/](#) (4)
5. Time published an article that quoted a study in the Journal Perspectives on Psychological Science, they stated “Social isolation — or lacking social connection — and living alone were found to be even more devastating to a person’s health than feeling lonely, respectively increasing mortality risk by 29% and 32%.” Leeat Granat PhD. , a psychologist who studies grief, loss and cancer patients and their families, also quoted this study in his article published in Huffington Post. [TIME, Justin W, Why Loneliness May Be The Next Big Public-Health Issue \(2015\) http://time.com/3747784/loneliness-mortality/](#)(5)

PROBLEM 2

The future scene states that the working (younger) generation feels that there is a lack of subsidies for families with elderly and that the government is not stepping in to help pioneers like it did before (FACT). This could lead to the people distrusting the government since less faith is placed on its ability to resolve crises (INFERRED PROBLEM) leading potentially to less commitment to their jobs and ultimately slow economic growth (LARGER CONSEQUENCE). (ECONOMICS)

Research:

1. The article on the WEF mentioned “some economic research suggests that countries with low-levels of trust can find themselves in a reinforcing cycle of greater regulation and lower economic growth.” In an article Alex “Tabarrok, and economist at George Mason University wrote “societies with a lot of distrust generate regulation and corruption and citizens who don’t have the skills or preferences to break out of the distrust equilibrium”. The Washington Post also

wrote that “In distrustful societies, people are more likely to craft public policy and do business in ways that benefit their own family, social class, tribe, religion or other group. Rather than seeking out projects that generate the highest returns, they are more inclined to make investments that are difficult for other groups to seize, Tabarrok says.” **World Economic Forum, Ana S, The economic impact of distrust (2016)**

<https://www.weforum.org/agenda/2016/09/the-economic-impact-of-distrust> (6)

2. An article on OurWorldInData, an online publication that presents empirical research and data that states that show how living conditions around the world are changing, stated that “the extent to which **trust is linked to economic development** has been the subject of many academic papers in the economics literature on growth ... A common way to get a first-order approximation of this relationship is to estimate the correlations between trust and GDP per capita. ... As it can be seen, there is a **very strong positive relationship**” **Esteban O and Max R, Trust (2016) Published online at OurWorldInData.org. <https://ourworldindata.org/trust>** (7)
3. In the article, whilst explaining the need for trust, the Yale University paper quoted Nobel Laureate, Kenneth Arrow in saying that “ Virtually every commercial transaction has within itself an element of trust. . . . It can be plausibly argued that **much of the economic backwardness in the world can be explained by the lack of mutual confidence**” and quoted another study which concluded that “**Trust** is an essential element of economic transactions and an **important driver of economic development** (Baneld, 1958; Knack and Keefer, 1997; Porta et al., 1997; Narayan and Pritchett, 1999; Algan and Cahuc, 2010)” **Yale Economics, Pierre B etc, Banking on Trust: How Debit Cards Help the Poor to Save More (2016)**
https://economics.yale.edu/sites/default/files/bachasgertlerhigginsseira_v29.pdf (8)

PROBLEM 3

The future scene states that the working population faced the problem of **increased taxation as well as greater burden in supporting the elderly population**, meaning that they will have **great amounts of financial stress** (FACT). This would be problematic as this could lead to the **working (younger) generation having poor mental health**, (INFERRED PROBLEM) leading to **lower work satisfaction, less efficiency and more cases of mental ill health(e.g. depression) as well** (LARGER CONSEQUENCE). (PSYCHOLOGICAL HEALTH)

Research:

1. Cambridge Credit Consulting Corp stated that "Depression could be caused by the divorce or death of a loved one, and now the financial burden remains on you to support your household with only one income. Depression should not be taken lightly, and yet it can be a very unfortunate response to stress caused by personal and financial problems."
<https://www.cambridge-credit.org/financial-stress-and-your-health.html> (9)
2. CNBC quoted a study and stated that "Almost three-quarters of Americans are experiencing financial stress at least some of the time, and nearly a quarter of us are experiencing extreme financial stress, according to a study released today by the American Psychological Association."
Kelley Holland Published 6:00 AM ET Wed, 4 Feb 2015
<https://www.cnbc.com/2015/02/03/the-true-cost-of-financial-stress.html> (10)
3. Fox News states that "Financial pressure affects us all at some point, whether we're worried about our investment portfolio or how we'll pay this month's rent. Stress is a risk factor for numerous chronic diseases and can prevent you from adequately caring for your health, so minimizing it should be a top priority. Americans stressed about money across income levels" Fox News published February 04 2015
<http://www.foxnews.com/health/2015/02/04/how-financial-stress-can-harm-your-health.html> (11)

PROBLEM 4

The future scene states that the elderly are turning down social workers coming to promote elderly centre activities and view themselves as more than capable of taking care of themselves(FACT). Thus, this might indicate that elderly in the future might not want to accept help from others even if they need it(INFERRED PROBLEM). This might lead to their physical health being exacerbated(LARGER CONSEQUENCE).
(PHYSICAL HEALTH)

Research:

1. The SCIE (Social Care Institute for Excellence) states that "Personal care is an intimate activity and most people will experience difficult feelings if they need help with this". Last updated May 2015 Date of publication not stated

PROBLEM 5

The future scene states that two of Mdm Lee's colleagues have been made unemployed by trays returning robots rendering them jobless. (FACT) Thus, this might indicate that unemployment might be a rising problem in the future due to the replacement of humans with robots. (INFERRED PROBLEM) This as a result might lead to a population with an increased rate of unemployment, with no household income and a lack of ability to fulfill basic needs. (LARGER CONSEQUENCE)(BASIC NEEDS)

Research:

1. The Australian Parliament stated that "The Treasury advised that in the short-term, unemployment significantly reduces a person's income and, in the long-term, reduces their ability to save for retirement" Parliament for Australia
https://www.aph.gov.au/Parliamentary_Business/Committees/House_of_Representatives_Committees?url=ewr/owk/report/chapter2.pdf The date of publication was not stated. (13)
2. Forbes says that "Statistics say that 47% of all employment opportunities will be taken over by robots in the next two decades". Harold Stark As Robots Rise , How Artificial Intelligence Will Impact Jobs
<https://www.forbes.com/sites/haroldstark/2017/04/28/as-robots-rise-how-artificial-intelligence-will-impact-jobs/#7f65a04a7687> April 28 2017 (14)

UNDERLYING PROBLEM

Given the inference we have made that the elderly are likely to suffer from isolation and loneliness while the working population is stressed by the high cost of sustaining the economy (CONDITIONAL PHRASE), how might we improve the mental health of the population (KEY VERB PHRASE), such that they would not suffer from mental health related illnesses that easily (PURPOSE) in the year 2030 and beyond? (FUTURE

SCENE PARAMETERS)

SOLUTIONS

SOLUTION 1

We, the Technological Department of Singapore (TDS), will develop a wearable wristband. The wristband has an up-to-date body scanner which can scan your whole body to detect heart rate, movement of various body parts and breathing patterns to detect mood. Once the wearer's mood is detected, the ring will send tips on how to relax, destress and improve one's general mental health to the user's smartphone. This high-tech device will also be built to stimulate neurons to send signals to one's brain to enable it to release serotonin and dopamine to relieve stress and trigger happiness. Also, if any abnormalities in heart rate is detected, it will immediately notify the SCDF. The Government will give elderly the option of buying the ring but its stimulator function will only be activated if an elderly has been medically diagnosed with depression. This will take effect in the year 2040.

Research

1. Forbes states that a "wearable device that could detect your mood without the need for manual entry on an app" uses "breathing patterns and other physiological signs that signal how users are feeling", and if you "Clip it to your belt or bra and this device can help you decrease your stress level by up to 50%", showing that this wearable ring can use such physical symptoms to detect mood and it is very effective. Also, the same source states that "serotonin and dopamine treatment" can help patients to be naturally treated with "results along the same lines as many long-term benefits of antidepressant treatments", showing that the release of serotonin and dopamine is just as effective and will reap the rewards. [Tori Utley, 4 Technologies Innovating Mental Health In 2016 \(2016\)](https://www.forbes.com/sites/toriutley/2016/01/25/4-technologies-innovating-mental-health-in-2016/#74f4a7f06bb3)
<https://www.forbes.com/sites/toriutley/2016/01/25/4-technologies-innovating-mental-health-in-2016/#74f4a7f06bb3>(15)
2. Huffington Post, Thai Nguyen stated that "Dopamine, serotonin, oxytocin and endorphins are the

quartet responsible for our happiness” and that “being in a positive state has significant impact on our motivation, productivity, and wellbeing”. This shows that releasing serotonin and dopamine can help improve overall mental health. [Huffington Post, Thai Nguyen, Hacking Into Your Happy Chemicals: Dopamine, Serotonin, Endorphins and Oxytocin \(2017\)](https://www.huffingtonpost.com/thai-nguyen/hacking-into-your-happy-chemicals-dopamine-serotonin-endorphins-and-oxytocin)
https://www.huffingtonpost.com/thai-nguyen/hacking-into-your-happy-c_b_6007660.html (16)

SOLUTION 2

We, MoveMORE!, funded by the government, will promote and recommend different types of exercises to all ages to reduce the risk of acquiring mental illnesses. In partnership with all local clinics and hospitals who offer treatment for mental health, we will give them a suitable, up-to-date exercise programme with different programs for all ages so that patients of all ages suffering from mental illnesses receive good and proper exercise to help their condition. This will take into effect in the year 2030.

Research:

1. NCBI states that “Comparison of participants with MMSE of 15 or higher showed that GDS scores in the intervention group significantly improved ($P = .005$), whereas the control group had a trend of further worsening of depressive symptoms ($P = .081$). GLM analysis documented highly statistically significant effect of dance therapy ($P = .001$) that was not influenced by controlling for intake of antidepressants and nursing home location. Dance therapy may have decreased depressive symptoms even in participants with MMSE lower than 15 and resulted in more discontinuations and fewer prescriptions of antidepressants in the intervention group than in the control group”, showing that exercise helps alleviate depression symptoms, which is what having poor mental health leads to. [J Am Med Dir Assoc, Vankova H etc, The effects of dance on depressive symptoms in nursing homes \(2014\)](https://www.ncbi.nlm.nih.gov/pubmed/24913212)
<https://www.ncbi.nlm.nih.gov/pubmed/24913212> (17)
2. NCBI states that “Improvements in MADRS score (mean change=-10.3, 95% CI (-13.5 to -7.1), $p=0.038$) and ... were observed in the exercise group. Per-protocol analysis confirmed the effects of exercise, and indicated that BBAT has an effect on self-rated depression”, showing exercise can help one’s mental health. [J Affect Disord, Danielsson L etc, Exercise or basic body awareness therapy as add-on treatment for major depression: a controlled study \(2014\)](https://www.ncbi.nlm.nih.gov/pubmed/25043321)
<https://www.ncbi.nlm.nih.gov/pubmed/25043321> (18)

3. The states that “A total of 121 patients were included. At study end, 45% of participants in the sertraline group, 73% of those in the S+NPE group and 81% of those in the S+PAE group achieved remission (P = 0.001)”, showing that exercise does help alleviate symptoms of depression. Br J Psychiatry, Belvederi M etc, Physical exercise for late-life depression (2015) <https://www.ncbi.nlm.nih.gov/pubmed/26206864> (19)

SOLUTION 3

We, the Group of Supermarket Stores (GSS), will work with the Ministry of Health (MOH) to discount the prices of food items in brick-and-mortar shops, which ensure a healthy diet such as fresh vegetables, fresh fruit, whole grains and legumes such as beans and lentils. This will encourage the population to buy these discounted food items, hence helping them to have a healthy diet, which would lead to them being more emotionally healthy and able to keep mental illnesses at bay. This will take place in all stores islandwide, and take into effect on the year 2030.

Research:

1. The Mental Health Foundation states that “The body of evidence linking diet and mental health is growing at a rapid pace. As well as its impact on short and long-term mental health, the evidence indicates that food plays an important contributing role in the development, management and prevention of specific mental health problems such as depression, schizophrenia, attention deficit hyperactivity disorder, and Alzheimer’s disease” and “Nearly two thirds of those who do not report daily mental health problems eat fresh fruit or fruit juice every day, compared with less than half of those who do report daily mental health problems. This pattern is similar for fresh vegetables and salad. Those who report some level of mental health problem also eat fewer healthy foods (fresh fruit and vegetables, organic foods and meals made from scratch) and more unhealthy foods (chips and crisps, chocolate, ready meals and takeaways)”, showing that a healthy diet can enhance mental health. Mental Health Foundation, Diet and mental health* <https://www.mentalhealth.org.uk/a-to-z/d/diet-and-mental-health> (20)
2. The source states that “Every one standard deviation increase in healthy “prudent” dietary pattern was associated with a 45.7 mm³ (standard error 22.9 mm³) larger left hippocampal volume, while higher consumption of an unhealthy “Western” dietary pattern was (independently) associated

with a 52.6 mm³ (SE 26.6 mm³) smaller left hippocampal volume.” As the **hippocampus is an area of the brain related to mental health** we can see that having a healthy diet does correspond to having better mental health. **BMC Medicine, FN Jacka, Western diet is associated with a smaller hippocampus: a longitudinal investigation (2015)**
<https://bmcmmedicine.biomedcentral.com/articles/10.1186/s12916-015-0461-x> (21)

- UCA Berkeley Wellness states that “The essential steps (of a healthy diet) are to **eat mostly foods derived from plants—vegetables, fruits, whole grains and legumes** (beans, peas, lentils)”. **UC Berkeley, 14 Keys To a Healthy Diet****
<http://www.berkeleywellness.com/healthy-eating/food/slideshow/14-keys-healthy-diet> (22)

SOLUTION 4

We, the Pro-Pet Association (PPA), will work with the government to actively promote pet ownership, by extolling the positive health impact pets can have on our well-being and advertising on different media platform. We will also be actively promoting our pets in our shelter and encourage especially those with poor mental health to take them up. These advertisements can encourage more of the population to own a pet, increasing the overall emotional health of the population. This will start in the year 2030.

Research:

- The BMC Psychiatry states that “We carried out a study with Cats Protection in 2011 which involved over 600 cat- and non-cat-owning respondents, with half of them describing themselves as currently having a mental health problem. **The survey found that 87% of people who owned a cat felt it had a positive impact on their wellbeing, while 76% said they could cope with everyday life much better thanks to the company of their feline friends**”, showing that pets can help patients deal with mental health problems. **Mental Health Foundation, Pets and mental health***
<https://www.mentalhealth.org.uk/a-to-z/p/pets-and-mental-health> (23)
- BMC Psychiatry states that “**Of the 17 included studies, 15 reported positive aspects of pet ownership for people experiencing mental health problems [9, 27, 28, 29, 30, 32, 33, 34, 35, 36, 37, 38, 39, 40, 42]** and 9 reported negative elements [9, 27, 32, 35, 36, 38, 39, 41, 42]. and “Benefits were mostly demonstrated through qualitative data, and **negative elements, which were highlighted, were largely overshadowed by co-occurring positive impact of pets in these studies**

[9, 27, 32, 35, 36, 38, 42]" showing once again that having pets mostly leads to improvement in mental health. BMC Psychiatry, HL Brooks etc, The power of support from companion animals for people living with mental health problems: a systematic review and narrative synthesis of the evidence (2018)

<https://bmcp psychiatry.biomedcentral.com/articles/10.1186/s12888-018-1613-2>(24)

3. The SPCA in their annual report states that "200 animals are taken in by the Society each month", showing that this can at least provide for 200 cases of serious mental illness each month. SPCA, 2016-2017 Annual Report (2017) <http://www.sPCA.org.sg/publication.asp> (25)

SOLUTION 5

We, the Sleep Well Movement of Singapore (SWMS) started by the Ministry of Health (MOH), will encourage people to sleep longer hours via advertisements on the benefits of sleep. Our government-recommended advertisements on the benefits of sleep will convince more people to take heed of them thanks to the government approval, thus it will also persuade people to sleep more, thus increasing the overall emotional health of the population. This will start in the year 2035.

Research:

1. The source states that "Poor sleep is linked to physical problems such as a weakened immune system and mental health problems such as anxiety and depression", showing that a lack of sleep can have an adverse impact on mental health. Mental Health Foundation, Sleep Matters: The Impact Of Sleep On Health And Wellbeing* <https://www.mentalhealth.org.uk/publications/sleep-report> (26)
2. The source states that "Sleep and mental health are closely connected. Sleep deprivation affects your psychological state and mental health", showing the link between sleep and mental health. Harvard Medical School, Sleep and mental health (2018) https://www.health.harvard.edu/newsletter_article/sleep-and-mental-health(27)

CRITERIA

1. Which solution is the cheapest to implement such that the organisation involved can spend the least amount of money in order to implement the solution?
2. Which solution will have the most long-term benefits such that the government would have to spend less on mental health thus spending less on healthcare?
3. Which solution can help the most people so that more people can have access to treatment so that more of the population can have better mental health?

METHOD OF SCORING

The solutions will be assessed on the 3 criteria that have been mentioned above. Each solution will be given a score out of 5 for each criterion, with 5 being the highest mark and 1 being the lowest. The solution with the highest score at the end is the best solution.

DECISION MAKING MATRIX

Solutions/ Criteria	Solution 1 (Wristband)	Solution 2 (Exercise)	Solution 3 (Eat Well)	Solution 4 (Get A Pet)	Solution 5 (Sleep Well)
C1 (Cheapest)	4	2	1	5	3
C2 (Long-Term)	5	4	1	3	2
C3 (Most People)	4	5	3	1	2
Total:	13	9	5	9	7

Best Solution: Solution 1 (Wristband)

ACTION PLAN

Action Plan based on Solution 1

Action Plan Overview

A wristband known as SmartBand will be released. SmartBand is a smart wristband that is able to detect the wearer's mood and heart rate to give health tips accordingly.

SmartBand will also be built so that a neuron stimulator can be added to it if need be.

This stimulator is able to send electric signals down to the brain to stimulate neurons responsible for the production of endorphins. However, the stimulator will only be added on to those who are medically diagnosed with depression.

Through SmartBand, the general mental health of the population will be improved.

Those who do not have depression will be given health tips according to their mood and physical needs. However, those who are medically diagnosed with depression will have the added support of the stimulator to help them get past depression.

This will be implemented by the year 2040 by the Ministry of Technology.

How It Works

SmartBand determines the wearer's mood and physical needs by detecting their heart rate, breathing and facial impression. It will then give the wearer tips on how to relax, destress and improve their mental health. Neuron stimulators can be added onto SmartBands. Only those who are mentally diagnosed to have depression will receive

these neuron stimulators.

These neuron stimulators are able to use proprietary waveforms to send electric signals down to the brain. These electric signals will then stimulate the brain to release dopamine, serotonin and other chemicals responsible for happiness. Electric signals from these neuron stimulators will only be released if SmartBand detects that the wearer's neurochemical level is too low.

Drones will deliver the SmartBands accordingly. Those that are already medically diagnosed with depression will receive the neuron stimulator attached to the SmartBand upon collection of their SmartBand. Those who wish to have a neuron stimulator to alleviate and help them with their depression and have not been previously officially medically diagnosed with depression, will have to seek confirmation from a smart programme on the government's webpage. If they are medically diagnosed as having depression by the program, they will be added to the system and will receive a neuron stimulator via a drone delivery within 6 hours.

SmartBand will be subsidised for bottom 20% of seniors and the population who have low income (under S\$1000 per household) and little or no family support. Citizens who are subsidised will only have to pay 30% of the original cost of a SmartBand. Others will pay for 80% of the original cost, with the 20% being subsidised by the government. Its cost will be S\$100 without the neuron stimulator and S\$300 with it (all subsidies excluded). It will be promoted through advertising media platforms like on all televisions, personal robots and social media.

Timeline For Implementation

The research for SmartBand will start in 2020 and aims to end by 2030. The research will mainly focus on shrinking the neuron stimulator and mood detector to the size of a wristband. From 2030 to 2032, software engineers and programmers will be hired to

design the software of the wristband. The distribution of SmartBands will start in 2033.

This work will be overseen by the Ministry of Technology, and completed by the year 2033.

How It Will Impact the Future Scene

The population will also show a significant increase in average mental health levels with the implementation of the wristband. The increase in mental health levels means that people will not fall into depression easily, and those who had fallen into depression can have a convenient and portable treatment method, the neuron stimulator. Depression can negatively affect one's physical health, as such, with better physical health, hospitals might see a decrease in queues.

The future scene shows that the hospitals are plagued with long queues. With the population being mentally healthy, there wouldn't be a need to visit a doctor about existing mental health problems anymore, reducing queue time by a great deal and removing all the healthcare costs that come with it in just a single payment! Definitely worth the investment for the general population. The government will also invest less in healthcare now that the mental side of it will be largely resolved. It is a win-win situation for both the population and the government, and thus this plan will definitely bring a hugely positive change to the future scene.

Why It Is Feasible

It is already possible to stimulate the brain into releasing positive neurochemicals with the Fisher Wallace Stimulator and mood detectors have already been invented too, thus the plan is reasonable and no astonishing new discovery needs to be made in order to carry out the plan.

Research:

1. Forbes states that a “wearable device that could detect your mood without the need for manual entry on an app” uses “breathing patterns and other physiological signs that signal how users are feeling”, and if you “Clip it to your belt or bra and this device can help you decrease your stress level by up to 50%”, showing that this wearable ring can use such physical symptoms to detect mood and it is very effective. Also, the same source states that serotonin and dopamine treatment “can help patients to be naturally treated with results along the same lines as many long-term benefits of antidepressant treatments”, showing that the release of serotonin and dopamine is just as effective and will reap the rewards. [Tori Utley, 4 Technologies Innovating Mental Health In 2016 \(2016\)](https://www.forbes.com/sites/toriutley/2016/01/25/4-technologies-innovating-mental-health-in-2016/#74f4a7f06bb3)
<https://www.forbes.com/sites/toriutley/2016/01/25/4-technologies-innovating-mental-health-in-2016/#74f4a7f06bb3> (15)
2. Huffington Post, Thai Nguyen stated that “Dopamine, serotonin, oxytocin and endorphins are the quartet responsible for our happiness” and that “being in a positive state has significant impact on our motivation, productivity, and wellbeing”. This shows that releasing serotonin and dopamine can help improve overall mental health. [Huffington Post, Thai Nguyen, Hacking Into Your Happy Chemicals: Dopamine, Serotonin, Endorphins and Oxytocin \(2017\)](https://www.huffingtonpost.com/thai-nguyen/hacking-into-your-happy-chemicals-dopamine-serotonin-endorphins-and-oxytocin)
<https://www.huffingtonpost.com/thai-nguyen/hacking-into-your-happy-chemicals-dopamine-serotonin-endorphins-and-oxytocin> (16)
3. The website for the Fisher Wallace Stimulator states that “the Fisher Wallace Stimulator® uses proprietary waveforms to gently stimulate the brain to produce serotonin and other neurochemicals responsible for healthy mood and sleep. Proven safe and effective in multiple published studies, the device is cleared by the FDA to treat depression, anxiety and insomnia”. Proprietary waveforms works by moving electrons through the body and brain at a variety of frequencies. This means that it is absolutely non-invasive and humane. This is proof that such technology exists and is safe and effective. The source also states that “38% of patients experience side effects from using antidepressant medication - including very serious side effects. By comparison, less than 1% of patients experience side effects - all minor - from using the Fisher Wallace Stimulator®”. [Fisher Wallace Stimulator®](https://www.fisherwallace.com/) <https://www.fisherwallace.com/> (28)
4. The New York Times, Jane E. Brody, The Surprising Effects of Loneliness On Health (11 December 2017) The New York Times stated in an article “The potentially harmful effects of loneliness and social isolation on health and longevity, especially among older adults, are well established. For example, in 2013 the journalist reported on research finding that loneliness can impair health by raising levels of stress hormones and inflammation, which in turn can increase the risk of heart disease, arthritis, Type 2 diabetes, dementia and even suicide attempts.” [The](#)

New York Times, Jane E. Brody, The Surprising Effects of Loneliness On Health (11 December 2017) <https://www.nytimes.com/2017/12/11/well/mind/how-loneliness-affects-our-health.html> (29)

5. The source (IMH) states “According to the Singapore Mental Health Study 2010, the lifetime prevalence of mental illness in the Singapore resident population is 12%, which is about 1 in 8 people having a mental disorder.”, showing that mental health is affecting a considerable size of the population and making the population more mentally healthy would definitely cut down on healthcare costs. Institute of Mental Health, Understanding Your Mental Health <https://www.imh.com.sg/wellness/page.aspx?id=356> (30)

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6. World Economic Forum, Ana S, The economic impact of distrust (2016) <https://www.weforum.org/agenda/2016/09/the-economic-impact-of-distrust>
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9. Cambridge Credit Consulting Corp. Date of publication not stated

<https://www.cambridge-credit.org/financial-stress-and-your-health.html>

10. CNBC Kelley Holland Published 6:00 AM ET Wed, 4 Feb 2015
<https://www.cnbc.com/2015/02/03/the-true-cost-of-financial-stress.html>
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<http://www.foxnews.com/health/2015/02/04/how-financial-stress-can-harm-your-health.html>
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<https://www.scie.org.uk/dementia/living-with-dementia/difficult-situations/refusing-help.aspx>
13. Parliament for Australia, Consequences Of Unemployment***
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