

Well-Being Practices and their Impact on Risk Factors

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1. Problem Statement

There is currently no metric that can quantify the well-being of an individual. Current, popular well-being apps tend to encapsulate one dimension of well-being. For example, applications such as Headspace or Down Dog provide resources to expand mental prowess and flexibility. By doing so, they are great resources to support one dimension of well-being but tend to let the rest— all important for overall health— fall to the wayside. Another example comes in the form of common fitness and diet apps such as Nike Training Club or MyPlate, both of which provide strong inspiration for reinforcing physical fitness but do not give much consideration to the mental or emotional aspects of well-being. Well-being is not limited to just one aspect but should encapsulate all aspects of an individual. wowe focuses on six different dimensions of well-being including emotional, passionate, relationships, physical, environmental, and transcendence.

This is an important gap to acknowledge because, despite the slowly increasing life expectancy of each generation, the adults of today are less “metabolically” healthy than their counterparts of previous generations¹. One study was conducted on the principal risk factors of body weight, blood pressure, and total cholesterol levels, and found that as time continues, each generation performs worse than the next¹. The causes for this trend range from the growing middle class and an increasingly sedentary lifestyle² to the lack of transparency that the public has into their well-being³. Regardless, the need for a developed well-being metric is becoming greater and greater. wowe works to fill that need by providing insight into the well-being of an individual through its platform. wowe works to create positive habit-building rituals by taking a more holistic approach to health and looks to increase emotional awareness to target all aspects of human health. wowe accomplishes this by recommending activities correlated to the reduction of these risk factors consistently to encourage habit building of a type of activity. This process provides both beneficial lifestyle changes and transparency for the user into the facets of their well-being because wowe provides a quantifiable, personalized, whole-person-focused well-being metric.

¹European Society of Cardiology (ESC). (2013, April 10). Adult generations of today are less healthy than their counterparts of previous generations. ScienceDaily. Retrieved August 23, 2022 from www.sciencedaily.com/releases/2013/04/130410082426.html

²Muriel, J.-A. (2022). Healthy diet. World Health Organization. Retrieved September 6, 2022, from https://www.who.int/health-topics/healthy-diet#tab=tab_1

³Vian T. Anti-corruption, transparency and accountability in health: concepts, frameworks, and approaches. Glob Health Action. 2020;13(sup1):1694744. doi: 10.1080/16549716.2019.1694744. PMID: 32194010; PMCID: PMC7170369.

2. Background

Wheel of well-being for everyone (wowe) is a platform developed to increase the overall well-being of an individual by implementing small, attainable lifestyle changes to their daily routine. The basis of wowe is rooted in the science of positive psychology, specifically the idea that one can increase their happiness. In positive psychology, there is a belief that good psychological health is about thriving and living an actively meaningful and flourishing life. Happiness and well-being are continually evolving states that one creates for oneself. Current thinking predicts that approximately 40 percent of one's emotional well-being is under their control. wowe works to implement behavior choices and intentional practices that affect that changeable 40 percent to boost mental health and emotional experience of life into the higher end of the given genetic capacity.

3. What is well-being?

Often the first thing to come to mind when considering well-being is the physical aspects and body aesthetics, and while that does play a part, it is not the majority or even the most important aspect of overall well-being. Well-being is a broad concept that spans across multiple dimensions of well-lived lives⁴. That includes the emotional, physical, occupational, intellectual, social, environmental, and spiritual aspects⁴. These dimensions are interconnected, one dimension building on another. Essentially, well-being is a summation of lifestyle including the moments of joy and fulfillment, and health that are experienced. Because well-being is multifaceted, so are the activities that wowe recommends. The dimensions of well-being are encouraged by wowe's whole-person approach to well-being that works to create small, positive changes in routine that result in the reduction of the risk factors.

4. Platform Mechanisms

wowe achieves the goal of improving mental and emotional experience through activity recommendations within the platform that encourage users to develop a habit aligned with one of

⁴Stoewen DL. Dimensions of wellness: Change your habits, change your life. Can Vet J. 2017 Aug;58(8):861-862. PMID: 28761196; PMCID: PMC5508938.

wowe's activities that are inclusive of but not limited to the following categories: meditation, self-reflection, self-growth, creativity, movement, organization, journaling, making connections, practicing kindness, yoga, eating healthy, practicing self-care, getting outdoors, giving back, family bonding, building a community, and practicing green living.

Based on the feedback provided by the user using engaging with the platform, wowe will continue to recommend activities that align with the user's interests, strengths, and lifestyle to enable positive habit-building rituals that improve overall well-being.

5. Habit Building

It is easy to forget that a person is defined by their habits. Minor changes like drinking more water may not change the overall composition of a person, although there are incredible health benefits when understood as a part of a larger habit of consistently providing one's body with the minerals and nutrients it needs, it is easy to see how it may impact a person's day-to-day and the lifestyle choices they make. Truly, a routine is a conglomerate of habits structured in a pattern and these habits eventually impact emotional states, physical and mental wellness, and even reach as far as social connectedness⁵. Growing literature demonstrates the relevance of habit-formation principles to health⁶. Participants in one study repeated a self-chosen health-promoting behavior (such as, eating fruit, going for a walk, etc.). When compared to a control group that attempted to lose weight without developing consistent habits, the experimental group did 500% better⁶. Habits automatically provide better results when looking toward accomplishing goals. Especially, if it is your overall well-being. Qualitative interview data has indicated that automaticity develops when one participates in a habit regularly⁶. Behaviors tend to become second nature and participants felt out of place if they did not do them⁷. As such, wowe encourages the building of habits by repeatedly recommending activities of the same activity group such as activities centered around exploring the outdoors or organization. By doing these activities repeatedly, goals such as the reduction of risk concerning cancer⁸ or cardiovascular disease

⁵ Arlinghaus KR, Johnston CA. The Importance of Creating Habits and Routine. *Am J Lifestyle Med.* 2018 Dec 29;13(2):142-144. doi: 10.1177/1559827618818044. PMID: 30800018; PMCID: PMC6378489.

⁶ Gardner B, Lally P, Wardle J. Making health habitual: the psychology of 'habit-formation' and general practice. *Br J Gen Pract.* 2012 Dec;62(605):664-6. doi: 10.3399/bjgp12X659466. PMID: 23211256; PMCID: PMC3505409.

⁷ Albarracín D, Wyer RS Jr. The cognitive impact of past behavior: influences on beliefs, attitudes, and future behavioral decisions. *J Pers Soc Psychol.* 2000 Jul;79(1):5-22. doi: 10.1037//0022-3514.79.1.5. PMID: 10909874; PMCID: PMC4807731.

⁸ McTiernan A, Friedenreich CM, Katzmarzyk PT, et al. Physical activity in cancer prevention and survival: A systematic review. *Medicine and Science in Sports and Exercise* 2019; 51(6):1252-1261.

may be attained because the activities that wowe recommends have a direct correlation to the reduction of such diseases as proved later in the paper.

6. Solution

Thorough research connects every single one of wowe's activities to reduced health risks such as stress, depression, and high blood pressure.

The activity categories of treat yourself, self-reflection, journaling, self-growth, practicing self-care, and relaxation & recharging have been shown to reduce anxiety, stress, depression, and diabetes. Studies have shown to have an impact through the thread of self-compassion that envelops each of these activities. An example of that can be found in a study that showed that treating yourself can reduce anxiety and depression, "One of the most consistent findings in the research literature is that greater self-compassion is linked to less anxiety and depression. A recent meta-analysis found a large effect size when examining the link between self-compassion and psychopathology across 20 studies⁹." Research shows that when spending time each day simply reflecting on oneself and treating oneself with kindness, psychological diseases can be shown to be reduced.

This thread strings through the practice of meditation as well, although meditation as an activity has its health benefits. An article published by the National Library of Medicine calls out these other benefits, "Meditation techniques appear to produce small yet meaningful reductions in blood pressure either as monotherapy or in conjunction with traditional pharmacotherapy. Transcendental meditation and mindfulness-based stress reduction may produce clinically significant reductions in systolic and diastolic blood pressure" such as the reduction of blood pressure¹⁰. But, when considering the first category of activities, "One sequential process begins with the practice of meditation that leads to increases in mindfulness skills, which subsequently lead to reductions in trait anxiety. The other sequential process also begins with the practice of meditation fostering mindfulness then subsequently

⁹MacBeth, A., & Gumley, A. (2012). Exploring compassion: A meta-analysis of the association between self-compassion and psychopathology. *Clinical Psychology Review*, 32, 545–552.

¹⁰Goldstein, C. M., Josephson, R., Xie, S., & Hughes, J. W. (2012). Current perspectives on the use of meditation to reduce blood pressure. *International journal of hypertension*. Retrieved August 24, 2022, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3303565/>

leads to increases in self-compassion” one can see how meditation can be useful when considering self-compassion as well¹¹.

A separate group of activities, family bonding, building community, and making connections, has been shown to substantially decrease the risk of depression, heart disease, stroke, anxiety and depression^{12,13,14}. This is due to the social bonding aspect that all of these activities promote. One study from BMJ Journal, a high-impact medical journal, found that “deficiencies in social relationships are associated with an increased risk of developing Cardiac Heart Disease (CHD) and stroke¹³.” By working to create strong community bonds, all of these activities can significantly increase well-being.

wowe also has a rotation of activities aimed at promoting physical health including movement, yoga, and eating healthy. The activities under these broad categories have impacts on every single health risk factor that the usage of wowe decreases including the reduction in chances of contraction of cancer. The American Heart Association currently recommends greater than or equal to thirty minutes of moderate physical activity most days of the week for primary prevention of cardiovascular disease (CVD) and stroke. The effects of maintaining a physically healthy body through movement and diet are able to decrease physical health risks like CVD and stroke, but also extend to mental illnesses such as anxiety and depression¹⁵.

The effects of nature have been long-studied and are the crux of another group of activities within wowe consisting of getting outdoors and practicing green living. There has been evidence for associations between nature exposure and improved cognitive function, brain activity, blood pressure, mental health, physical activity, and sleep¹⁶. An experience of connection due to nature may be explained by studies that used fMRI to measure brain activity. When participants viewed nature

¹¹ Bergen-Cico, D., Cheon, S. The Mediating Effects of Mindfulness and Self-Compassion on Trait Anxiety. *Mindfulness* 5, 505–519 (2014). <https://doi.org/10.1007/s12671-013-0205-y>

¹²Chen P, Harris KM. Association of Positive Family Relationships With Mental Health Trajectories From Adolescence to Midlife. *JAMA Pediatr.* 2019 Dec 1;173(12):e193336. doi: 10.1001/jamapediatrics.2019.3336. Epub 2019 Dec 2. PMID: 31589247; PMCID: PMC6784807.

¹³Valtorta NK, Kanaan M, Gilbody S, et al Loneliness and social isolation as risk factors for coronary heart disease and stroke: systematic review and meta-analysis of longitudinal observational studies *Heart* 2016;102:1009-1016.

¹⁴Christensen, H., Pallister, E., Smale, S. et al. Community-Based Prevention Programs for Anxiety and Depression in Youth: A Systematic Review. *J Primary Prevent* 31, 139–170 (2010). <https://doi.org/10.1007/s10935-010-0214-8>

¹⁵Ahmed, H. M., Blaha, M. J., Nasir, K., Rivera, J. J., & Blumenthal, R. S. (2011, October 18). Effects of physical activity on cardiovascular disease. *The American Journal of Cardiology*. Retrieved August 24, 2022, from https://www.sciencedirect.com/science/article/pii/S0002914911027597?casa_token=6haM2T_Vp4wAAAAA%3AdXdOL1MGdQKcPcSqtooSgP7dz5lXWng0eiMkdZ15RoA9a-iZdMWnk5LZhGRphDv6UZxlyd-Ow

¹⁶Jimenez MP, DeVille NV, Elliott EG, Schiff JE, Wilt GE, Hart JE, James P. Associations between Nature Exposure and Health: A Review of the Evidence. *Int J Environ Res Public Health.* 2021 Apr 30;18(9):4790. doi: 10.3390/ijerph18094790. PMID: 33946197; PMCID: PMC8125471.

scenes, the parts of the brain associated with empathy and love lit up, but when they viewed urban scenes, the parts of the brain associated with fear and anxiety were activated¹⁷. It appears as though nature inspires feelings that connect us to each other and our environment which then affects our mental and physical state positively.

The ability to be creative characterizes the activity groups, creativity and exploring something new, which encourages overall well-being by specifically impacting brain degeneration, stress, depression, and anxiety. Studies have shown that artists process their art through different neural networks that are more resistant to the pathological effects of brain disorders¹⁸. This includes some mental illnesses and brain degeneration¹⁸. By encouraging our users to be creative, wowe pushes for the usage of different neural pathways and overall brain health.

7. Conclusion

Overall, wowe is able to impact a wide range of risk factors associated with decreasing overall well-being. By encouraging the repetition of activities that target these different health risk factors, wowe establishes productive habits that lead to healthy lifestyles.

Given what has been shown in the aforementioned studies, the activities provided by wowe when performed habitually by its users are correlated to positively impacting depression, anxiety and stress. These risk factors are known to decrease lifespan by 28.9 years^{19,20,21}.

¹⁷Delagran, L. (2020). How does nature impact our wellbeing? Taking Charge of Your Health & Wellbeing. Retrieved September 6, 2022, from <https://www.takingcharge.csh.umn.edu/how-does-nature-impact-our-wellbeing>

¹⁸Meredith Flood & Kenneth D. Phillips (2007) CREATIVITY IN OLDER ADULTS: A PLETHORA OF POSSIBILITIES, *Issues in Mental Health Nursing*, 28:4, 389-411, DOI: 10.1080/01612840701252956

¹⁹Benjamin, E. J., Muntner, P., Alonso, A., Bittencourt, M. S., Callaway, C. W., Carson, A. P., Chamberlain, A. M., Chang, A. R., Cheng, S., Das, S. R., Delling, F. N., Djousse, L., Elkind, M. S. V., Ferguson, J. F., Fornage, M., Jordan, L. C., Khan, S. S., Kissela, B. M., Knutson, K. L., ... Virani, S. S. (2019). Heart disease and stroke statistics—2019 update: A report from the American Heart Association. *Circulation*, 139(10). <https://doi.org/10.1161/cir.0000000000000659>

²⁰Syriopoulou E, Bower H, Andersson TM, Lambert PC, Rutherford MJ. Estimating the impact of a cancer diagnosis on life expectancy by socio-economic group for a range of cancer types in England. *Br J Cancer*. 2017 Oct 24;117(9):1419-1426. doi: 10.1038/bjc.2017.300. Epub 2017 Sep 12. PMID: 28898233; PMCID: PMC5672926.

²¹Jia H, Zack MM, Thompson WW, Crosby AE, Gottesman II. Impact of depression on quality-adjusted life expectancy (QALE) directly as well as indirectly through suicide. *Soc Psychiatry Psychiatr Epidemiol*. 2015 Jun;50(6):939-49. doi: 10.1007/s00127-015-1019-0. Epub 2015 Feb 7. PMID: 25660550; PMCID: PMC4590980.

Activities in the categories of treating yourself, self-reflection, movement, journaling, yoga, eating healthy, practicing self-care, and relaxation & recharging have the potential, based on a study conducted by The Gerontological Society of America to impact diabetes which is a disease that correlates to taking 11.1 years off of one's life-span²².

Lastly, activities in the categories of meditation, movement, practicing kindness, yoga, getting outdoors, giving back, and practicing green living all have the potential, based on a life course analysis research study to decrease the risk of hypertension which has been known to remove an average of 6.3 years off of one's lifespan²³.

In conclusion, research has shown that through consistently implementing habit structure behavior, users can see effective results in day-to-day scenarios. Research has further suggested that the activities that wowe recommends are correlated with a reduction in numerous health conditions and that the development or persistence of these conditions can lower life-span. As such, the implementation of wowe to construct strong well-being building habits is backed by research to have a [potential] positive effect on overall well-being and hence a reduction in risk factors affecting mortality and morbidity in individuals.

²² The Gerontological Society of America. (2010, December 1). New report ties diabetes to shortened life expectancy. *ScienceDaily*. Retrieved September 10, 2022 from www.sciencedaily.com/releases/2010/11/101130131543.htm

²³ Franco, O. H., Oscar H. Franco From Erasmus MC, Peeters, A., MC, A. P. F. E., Bonneux, L., MC, L. B. F. E., Laet, C. de, Chris de Laet From Erasmus MC, & Reprint requests to Dr Oscar H. Franco. (2005, June 27). *Blood pressure in adulthood and life expectancy with cardiovascular disease in men and women*. Hypertension. Retrieved September 12, 2022, from <https://www.ahajournals.org/doi/10.1161/01.hyp.0000173433.67426.9b>