

Review of literature on the impact of exercise on individual's well-being

Exercise is described as enhancing or maintaining physical fitness and a component of regular, scheduled, and structured physical activity (Caspersen et al., 1985). There are many different types of exercises, that all come under two main categories: aerobic and anaerobic. Aerobic exercise is sustained movement overtime, that requires more oxygen to provide the working muscles with oxygenated blood (Wahid et al., 2016). This causes the heart to beat more quickly and the lungs to work harder (Wahid et al., 2016). However, anaerobic activities are quick, sharp motions that do not require oxygen; instead, the body uses glucose to power these high-intensity, explosive movements (Patel et al., 2017). Weightlifting and sprinting are examples of anaerobic activities as these sharp movements only take 30 seconds or less to complete (Colledge et al., 2018).

The World Health Organization (2024) states that individuals who are eighteen years of age and older should engage in moderate exercise for 2.5 to 5 hours per week. Walking, cycling, sports, active recreation, and play are all common forms of physical activity (The World Health Organization, 2024). They also proposed that physical activity has several advantages, including lowering mental health symptoms including anxiety and depression and maintaining a healthy body weight (World Health Organization, 2024). People of all ages benefit from regular physical activity for both their bodily and emotional well-being. However, according to the World Health Organization (2024), over 80% of adolescents and 27% of adults today do not meet the recommended levels of physical activity.

Previous research suggests that physical activity promotes the release of neurotransmitters including dopamine, endorphins, and serotonin (Lin & Kuo, 2013). As stated by Mahindru et al. (2023), these substances cause emotions of happiness and fulfilment, which can also enhance your sense of wellbeing and quality of life. The Centers for Disease Control and Prevention (CDC) state that well-being is characterized by positive functioning, fulfilment, and life satisfaction as well as the absence of negative feelings and moods (Bautista et al., 2023).

Consequently, the global pandemic COVID-19, had a massive impact on all individuals lives, including both physical activity and well-being levels (Park et al., 2022). Ripley-Gonzalez et al. (2023) conducted research into how young individuals' physical fitness changed from before and after the pandemic. The results showed that adolescents' participation in exercise decreased significantly (Ripley-Gonzalez et al., 2023). The University of Oxford (2023) stated that the pandemic was associated with an increased likelihood of depression, social, emotional, and behavioral problems, as well as worse mental health in general among young people. This could have been due to the lack of physical activity during the global pandemic.

Furthermore, Thygesen et al. (2021) examined the psychological wellness of four thousand-two hundred and thirty-four individuals from Denmark, both before and during the COVID-19 pandemic. The individual's completed the Short Warwick-Edinburgh Mental Well-Being Scale at the beginning of 2019 and again at the end of 2020 (Thygesen et al., 2021). The results showed that there was a significant decrease in mental well-being after the pandemic in both sexes (Thygesen et al., 2021).

In the UK, there were seventy-two million antidepressant prescriptions issued in 2019, however, in 2023, the statistics increased to eighty-nine million antidepressants (Gray, 2022). This shows that the UK population's well-being was greatly impacted by the Global Pandemic, as the demand for antidepressants increased by twenty-one percent (Gray, 2022). It has cost the NHS twenty million pounds, based on 2023 figures (Gray, 2022). Encouragement of regular physical activity may provide people with natural benefits, such as boosting serotonin levels, instead of having to rely on medication.

Improved mental health promotes more community involvement and strengthens one's ability to handle stress (Bauer & Hamming, 2013). According to the World Health Organization (2024), both aerobic and anaerobic activities are recommended to be beneficial for people's physical and mental health. A qualitative study conducted by Hovland et al. (2023) provided evidence of the benefits of aerobic training. Hovland et al. (2023) investigated how physical activity affects the perceptions of health and well-being among young individuals with severe mental illness.

Nine young adults who participated in a high-intensity aerobic training program and had significant well-being concerns were interviewed by the researchers (Hovland et al.,2023).

According to the findings, physical activity was mostly seen by individuals with psychological issues as a fulfilling activity that enhanced their sense of wellbeing and improved their health (Hovland et al., 2023). Additionally, exercise helped to enhance their social interaction and self-identity, which in turn could improve one's ability to manage stress, as mentioned previously (Hovland et al., 2023).

The research used a qualitative methodology that provided detailed responses and some valuable information. However, the study could have used a quantitative approach to investigate the proportion of individuals who believed that exercise improved their well-being as opposed to those who did not support this argument. Additionally, there were only nine participants in the sample, which may have reduced the range of experiences and descriptions. A larger sample could have provided deeper and more complex results because of the variety of life experiences and more detailed descriptions.

In contrast, Welford et al. (2022) conducted a study that examined the well-being effects of yoga and aerobic exercise in elderly people who are physically inactive but otherwise healthy. Additionally, they compared and evaluated the number of problems linked to aerobic exercise and yoga (Welford et al., 2022).

Eighty-two participants aged between sixty-five and eighty-five were provided with a five-item satisfaction with life scale and a thirteen-item life satisfaction Index-Z scale to complete at the start of the study in April 2019 and again in August 2019, which provided the researcher with their well-being scores (Welford et al.,2022). Those who were randomly assigned to yoga were required to attend three 60-minute yoga sessions per week and were given a free 12-week membership to a nearby yoga studio (Welford et al.,2022). Similarly, those randomly assigned to aerobic exercise, were also given a free 12-week membership to attend three 60-minute sessions a week including: aerobics at light to moderate intensity (continuous whole-body movements conducted to music), dancing-based exercises, and cycling/spinning (Welford et al.,2022). In addition to that, individuals selected for the control group were instructed not to

start a new exercise program or increase their level of physical activity; instead, they were to carry on with their regular daily routines (Welford et al.,2022).

The results after the twelve weeks showed that there was a significant increase in the well-being scores of the participants who took part in both the physical activity sessions, compared to those in the control group (Welford et al.,2022). However, there was no difference in effectiveness between aerobic or anaerobic. Welford et al. (2022) suggested that the elderly participants showed higher well-being scores due to the social aspect of the study. By attending regular sessions, the participants felt a part of a community and made friendly connections with others in the exercise sessions (Welford et al.,2022). The results also concluded that yoga would be a better suited activity for elderly people to participate in as it is a less risky activity (Welford et al.,2022).

The study conducted by Welford et al. (2022) provided some useful data as they compared two types of exercise versus an inactive group, as well as including a follow up twelve-weeks later. However, the researchers could have considered using a within-subject study design, all participants take part in all the conditions. This would make the results of the study more reliable, as it has been tested more frequently. Additionally, they could have completed the study again but with younger participants, to compare the results and to see whether the younger or elderly participants benefitted more from exercise on their well-being.

Furthermore, Granero-Jiménez et al. (2022) conducted a qualitative study that examined how young individuals' psychological health, motivation, and physical activity contribute to one another over a three-month period. Four-hundred and eighty-nine participants between the ages of eighteen and thirty-five took part in the study and all completed questionnaires regarding their physical activity levels, psychological well-being and their motivation for physical activity (Granero-Jiménez et al., 2022).

The results of this study showed that greater physical activity levels were linked to improved psychological well-being. Additionally, one significant factor influencing psychological well-being was motivation, particularly intrinsic motivation (Granero-Jiménez et al., 2022). Granero-Jiménez et al. (2022) concluded that men exercise to enhance their perception of themselves to

achieve goals in life and overcome obstacles, both of which are traits of intrinsic motivation. However, women base their motivation on things that are outside of themselves, such as enhancing their physical appearance, losing weight, or decreasing body fat (Granero-Jiménez et al., 2022). However, a limitation of this study could be social desirability bias due to the Self-administered questionnaires, this causes the respondents to hide the truth by saying what is expected of them or what is generally accepted by society.

As mentioned previously, individuals should engage in moderate exercise for 2.5 to 5 hours per week. However, the length of a workout can vary greatly based on the individual, their goals, preferences, and the type of exercise. For weightlifting, forty-five to sixty minutes each session can be sufficient. However, it may be suggested to do cardiovascular exercises for thirty to sixty minutes (Harold & Cook, 2013). Research suggests that the more days and minutes spent exercising at a moderate level, the higher the subjective well-being level (Wicker & Frick, 2015).

Iwon et al., (2021) conducted a study to explore whether starting regular exercise could affect self-esteem, happiness, and life satisfaction. The study consisted of two-hundred and seventeen participants who were split into three groups based on how frequently they were physically active: active persons (seventy-four participants), beginners (sixty-seven participants), and inactive people (seventy-six participants) (Iwon et al., 2021). All participants completed the questionnaire regarding self-esteem, happiness and life satisfaction twice, four weeks apart (Iwon et al., 2021). The results showed that frequent exercise has been linked to increased levels of life satisfaction, happiness, and self-esteem (Iwon et al., 2021). Iwon et al. (2021) mentions that individuals who regularly exercise may have higher levels of endorphins, which cause positive emotions, which are components of happiness. Likewise, body perception is linked to self-esteem: people who are unhappy with their bodies typically report having lower levels of self-esteem. As a result, individuals who are more active might have a more positive body image and, consequently, higher self-esteem (Iwon et al., 2021).

Although this study provided positive results, it has also produced many limitations including a possibility of social desirability bias. The researcher was not able to determine whether the participants' allegations of engaging in physical activity were accurate or not. Given their

intense desire for social acceptance, the participants might have reported engaging in more physical activity than they did. Additionally, the researcher could have included an open-ended questionnaire to gather the participants' thoughts of physical activity and why they did or did not engage in physical activity. Furthermore, the researcher could have considered extending the study to eight weeks and having the participants complete the questionnaire a third time to compare whether the individuals still felt the same way.

Moreover, on a larger scale, Hassmén et al. (2022) conducted a study to investigate the relationship between the frequency of physical activity and certain indicators of psychological health. All three-thousand four-hundred and three participants in the study completed a questionnaire provided by the researcher that included: the Finnish cardiovascular risk factor survey (regarding their perceived level of fitness and exercise routines), the Beck Depression Inventory, the State–Trait Anger Scale, the Cynical Distrust Scale, and the Sense of Coherence inventory (how individuals approach life and make use of their resources in order to maintain and improve their health) (Hassmén et al., 2022). According to the findings of this cross-sectional study, people who worked out two or three times a week reported considerably lower levels of stress, cynical mistrust (having negative disbelief and believing the worst about human nature and intentions), anger, and sadness than people who worked out infrequently or not at all (Hassmén et al., 2022).

Even though the study included a large sample size, there was a lack of explanation behind the findings due to the study being quantitative. The researcher could have examined which type of exercise the participant considered as their primary form of exercise and explored which type of exercise, aerobic or anerobic, was associated more with the lower levels of stress and anger. Additionally, Hassmén et al. (2022) could have considered a longitudinal study, as Iwon et al., (2021) benefitted from using this method, as it provides the researcher with more accurate data as it can detect any changes that may occur over a certain period.

As mentioned previously by the World Health Organisation (2024), all individuals of any age, sex or physical ability benefit from exercise (world Health Organisation,2024). Due to lack of

previous studies, An et al. (2020) conducted a study that looked at the connections between physical exercise and happiness and life satisfaction in young, middle-aged, and older persons. The two-thousand three-hundred and forty-five participants were divided into: young (age 18–44), middle-aged (age 45–64), and older (age 65 and above) adults and there were three levels of physical activity: high, moderate, and low (An et al., 2020). Participants were asked to provide the days and times they engaged in vigorous, moderate, and low-intensity physical exercise over the previous seven days. Additionally, both life satisfaction and happiness levels were measured by a singular question (An et al., 2020).

The results showed that in young, middle-aged, and elderly people, higher levels of physical exercise were positively associated with greater happiness and life satisfaction. Furthermore, there was a positive curvilinear relationship between age and happiness and life satisfaction, meaning that these factors increased as people aged (An et al., 2020). Although the study gained some useful data regarding well-being and physical activity in different age groups, it did have some limitations. Firstly, the mean age was 51.06, this shows that most of the participants were classed as middle aged, therefore, it does not provide accurate data as the number of participants were not even in all the groups. Therefore, next time they should control the number of participants in each age group, to ensure accurate results. Additionally, when it came to gathering the life satisfaction and happiness scores, the participants were only given one question that categorized them as either high or low. The researcher could have used a well-being scale and satisfactory with life scale to calculate whether the participant was either classed as high or low on both scales, rather than a singular question.

To conclude, after examining the previous research, it is evident that participating in either aerobic or anaerobic physical activity is associated with increased well-being. Similarly, the more days and minutes spent exercising at a moderate level, the higher the subjective well-being level (Wicker & Frick, 2015). Although there are many studies regarding the frequency of exercise or the type of exercise and well-being, there is a literature gap of the reasoning behind why these two variables affect well-being. Therefore, this study aims to explore the potential link between different types of exercise, duration of exercise and well-being of individuals through the completion of the Worrick Edinburgh well-being scale (Tennant et al, 2007) and an

open-ended questionnaire to provide more in-depth responses to the impact of exercise on well-being.

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