

# Mindfulness Meditation, Exercise and Psychology of Happiness

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## ABSTRACT

Social psychologists have been unveiling the various psychological components to the optimal wellbeing of an individual. Arguably, optimism and happiness have been associated with proper interventions that lead to one's health by pursuing mindfulness meditation and exercise, which have positively led to a well-supported cognition, brain, and neural functions. Researchers have also witnessed how exercise can also promote greater body image, by leading to positive minds and intrinsic motivation, which have led to rewiring the brain and neural circuits as well as functions in a positive manner. In the recent years, technological advancements have also made AI-devised personalized telemedicine more accessible, where in the space of mental health, patients are able to connect with therapists in a more accessible manner through the support of AI, prototypes and mental health platforms that have revolutionized the mental health industry.

## Introduction

Through history, social psychology theories have been developed and changed over the years. For a long period of time, the survival of humans has been mostly focused on their physical form and activities. However, in the last 150 years, "industrial and technological advancements have made survival no longer...dependent on physical demands". Not only that, mindfulness also has been having an increasing influence around the world. It is mainstream in society and also in the biomedical field. Scientists have also witnessed a significant progression in the way in which they can better monitor neural functions of the brain as a result of exposure to positive lifestyle practices like exercise. Additionally, historically, researchers have witnessed a positive scientific paradigm in the ways in which exercise has been studied – with the Center for Disease Control and Prevention releasing findings entailing less than 50% of the American population being involved in active forms of exercise, pursuing sedentary lifestyles.

## Intrinsic Motivation Versus Extrinsic Motivation

Researchers have been analyzing different forms of motivation – named as extrinsic, and intrinsic motivation. "Intrinsic motivation" is defined as sheer enjoyment of the task itself, while "extrinsic motivation" is defined as the pleasure to obtain a particular external goal due to an imposed constraint or external factors. (Hennessey et al., 2015) In comparing these two forms of motivation, it has been evident by researchers that intrinsic motivation leads to a higher sense of fulfillment, reward and motivation as opposed to extrinsic motivation. Through a developmental psychology perspective, researchers identified that children who are intrinsically motivated to pursue a certain type of activity are more inclined to work voluntarily, and learn more effectively, as opposed to children who are extrinsically motivated to pursue a particular task or goal. (Hennessey et al., 2015) At the same time, when these children grow up and become adults, research has shown that adults who

are intrinsically motivated have a higher likelihood of becoming creative in their professions, in creative domains like writing poetry, pursuing artwork, or inventing new forms of products. (Hennessy et al., 2015)

These results that show different domains and exposure to personal motivation are likely to be diversified to various people from different economic statuses or financial literacy, alongside people from different domains of cultures (collective and individualistic). However, it is also important to consider that there are also cases where adults can achieve both their intrinsic and external motivation in satisfying their own needs and ambitions, while being able to deliver a result that is catered to society's standards, expectations and necessities.

## Optimism and Psychology of Happiness

Optimism, happiness and self-esteem are three central key virtues that can relate to an individual's overall lifestyle, wellness and satisfaction. Researchers are currently looking to see the correlation between such variables.

One group of study consisted of a sample of 60 university students to analyze the correlation between the level of optimism, happiness and self-esteem. (Wani et al., 2017) By adapting a life orientation test form, also known as the LOT-R, researchers were able to analyze findings using statistical analysis and the t-tests to determine which age groups correlated with the highest level of happiness. Such findings showed that male from the age range of 20-24 years olds had the highest level of happiness, and women between the age range of 25-28 years old. (Wani et al., 2017) They were able to successfully derive such findings by calculating the mean, Standard Deviation and SEM of all gender universities, which were later backed by findings from Wani et al., Nupur and Mahapatr, who collected similar statistical inference to obtain similar results on the correlation between age and optimism. When another group of researchers also looked into college students' psychological well-being and levels of optimism, using 412 college students as the demographics (all aged between 20 and 28), results exemplified that regarding optimism, there were no differences in gender. However, for the happiness scale, results showed that male students pursued higher engagement in happiness than female students. However, as these results were obtained from a sample population of students, who are only between ages 20-28, who are all located in Korea, there may be limitations with diversifying such a subset of findings for all demographics.

## Mindfulness Meditation on Enhancing the Brain

Researchers have been looking into the efficacy of changing both the cognitive and biological processes of human organisms through exposure to mindfulness meditation. Specifically, a group of researchers utilized a randomized and controlled study by analyzing metrics from a 8-week clinical training program to investigate the cognitive benefits of mindfulness meditation on the brain. From analyzing brain electrical activities of twenty-five subjects, researchers identified that mindfulness meditation significantly enhanced the brain functions, by leading to a positive performance that was recorded on the EEG scans of the brain. (Davidson et al., 2003) What was remarkable to witness was that even a short-term training program in mindfulness meditation, also known as MBSR, led to positive impacts on both the brain and immune functions. Another positive implication was that mindfulness meditation

These findings are the first to document significant changes in anterior activation asymmetry as a function of meditation training. A variety of previous research has established that activation asymmetries in anterior scalp regions are related to dispositional affect. Moreover, such asymmetries reflect both state and trait components (32, 33) with both phasic positive mood as well as dispositional positive affect associated with greater relative left-sided anterior activation. On the basis of an extensive corpus of both animal and human data, Davidson and colleagues recently suggested (33) that prefrontal activation asymmetries are plastic and

could be shaped by training. The findings from this study are the first to suggest that meditation can produce increases in relative left-sided anterior activation that are associated with reductions in anxiety and negative affect and increases in positive affect. We predicted that we would find something significant.

## **The Influence of Exercise on the Cognition (Attention, Memory)**

Researchers are looking into the positive effects of physical activity on the adults' cognition by analyzing various groups of experimental attendees in analyzing the influence of acute bouts of physical activity on the brain. (Tompsonski, 2003) Specifically, they relied upon the "cognitive-energetic model" to analyze how even a short-term exposure to exercise can enhance both aspects of information processing and memory functions.

(Tompsonski, 2003)

Another group of researchers identified the positive implications of exercise on the cognition or brain by analyzing scientific pieces of evidence of brain imaging results that showcased how aerobic fitness can enhance the various components of brain tissues. People who are more active "are capable of allocating greater attentional resources toward the environment" and are able to take in information more quickly. (Pinella et al., 2013) This data suggests that aerobic fitness amplifies cognitive strategies allowing us to respond effectively to a challenge with better performance. (Pinella et al., 2013)

When a group of researchers looked into the effects that regular exercise had on individuals and participants' cognition, anxiety and levels of mood, through the form of a four-week exercise program, researchers compared the effects on mental health through informative surveys. In order to assess how their cognition was enhanced overall, they looked into comparing results from sedentary lifestyle with that of an active lifestyle. (Hopkins et al., 2012) Results from this study highlighted that there was a promising difference between a single bout of exercise, and continuous exercise over the course of four weeks. Results showcased that those that are exposed to a longer continuity of exercise led to a higher improved performance on the brain, as opposed to simply exercising over a single bout of exercise. (Hopkins et al., 2012) Such results highlight the idea that neuroscientists and psychologists may need to collaborate and work together to analyze potential solutions that can benefit patients with altered mental health and wellness to benefit from exercise.

## **Exercise and Body Image (Obesity, Body Image, Body Positivity)**

Obesity and dementia is a worry for public health. Researchers are analyzing the significance relationship between the two conditions. While there is a support of obesity and dementia being related, the effect of obesity on cognitive function for adults, "independent of obesity related comorbidities, remains ambiguous" (Prickett et al., 2015). A review of studies found that obese adults tend to have trouble with different types of thinking tasks, like attention and memory. However, there were methodological limitations that were identified which need to be considered in making conclusions and interpretations regarding an independent effect. So, while it's clear that being obese can affect thinking skills, there is insufficient evidence to indicate a reliable association between obesity and dementia because of methodological limitations. (Prickett et al., 2015)

Researchers are analyzing the relationship between motivation of exercising and how body image plays a role. The study surveyed 1044 students from a large Midwestern university with an age range of 17 - 55 years. Participants included 689 (66.0%) females and 355 (34.0%) males. 76.8% of the participants reported exercising while the remaining did not. In terms of findings obtained from this study, body image *did* play a significant factor in determining the amount of exercise for a majority of the participants (58.3%). Participants who do not exercise were satisfied with their appearance, but still wanted to exercise more just like the participants who do. Both exercisers and non - exercisers, exercised more in the past and wish to exercise more. The

data show that body image was a motivation to exercise for the people who do, while all participants in the study reported wishing that they worked out more.

## **Efficacy of AI-Driven Personalized Mental Health Counseling**

Researchers have been analyzing the efficacy of AI in showing potential in revolutionizing diagnosis, prediction and potential treatments for patients that are in need of mental health services. Specifically, with the development of AI and Machine Learning tools, now, there are many AI-driven psychological platforms and psychiatric help that has been diversified to the market. One group of researchers looked into applying deep learning processing tools towards functional magnetic resonance imaging (fMRI) to see differences in brain activity. (Shah, 2022) By embedding sentiment analysis and emotion recognition algorithms, new chatbots and virtual therapists have become powered by NLP to ensure that agents are available 24/7, making the entire mental health support more accessible for all patients. (Shah, 2022)

A particular example of AI-driven mental health support systems is called AIML, an “XML-based language, specifically designed for creating chatbots” (Omarov et al., 2023) Specifically, the AIML platforms have enabled developers to regulate the chatbot’s response to specific user responses, to ensure an effective psychological intervention. As this industry continues to revolutionize, AI-powered chatbot designs have enabled users to utilize AI and CBT-based interventions through providing conversational support, and effectively reducing users’ symptoms of depression and anxiety, as seen in Woebot, developed by Stanford researchers. (Omarov et al., 2023)

## **Ethics, Discussion and Limitations**

While these findings are of essential significance, it is crucial to note that there are many ethical implications and contradictions that researchers must address. For instance, while AI and Machine Learning has made mental health more accessible, at the same time, there are issues surrounding whether such telemedicine apps will be accessible for lower-income communities that are facing other struggles like financial barriers. Additionally, while empirical research has showcased how mindfulness meditation and physical exercise are beneficial in supporting one’s well-being, at the same time, it is crucial to explore that longitudinal studies would be essential to ensure that studies that showcase positive impact of exercise and mindfulness meditation are explored over a large historical progression, rather than sub-selected time frames. It is also crucial to consider that informed consent and disclosure are oftentimes not provided to patients when testing patients on their cognition, attention or memory. Subsequently, ethical issues come into the picture as proper informed consent and appropriate disclosure would be essential, to ensure that research findings can capture these significant effects in an ethical light.

## **Conclusion**

In conclusion, researchers have witnessed the profound revolution the mental health industry has gone through, in specific references to how mindfulness meditation, exercise and psychology of happiness are being studied. It has been studied by social psychologists as well as cognitive psychologists on how the mind-brain-behavior connection can greatly bolster not only the neurotransmitters in the brain and neural functions, but it has also shaped the ways in which humans perceive their own self-image, further empowering their confidence in themselves and their own skin. At the same time, researchers have witnessed how AI continues to place a great emphasis on the potential of mental health solutions, as with the help of AI-driven psychological platforms, researchers are able to better monitor the brain and neural functions that are happening within the Central

Nervous System. In conjunction to this, it is concluded that having intrinsic motivation, by being driven by one's own ambitions, values and interests can lead to greater significant lifestyle over extrinsic motivation – something researchers will continue to see growth in patients, who are learning to pursue a new hobby, interest, professional or academic goal.

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