

A Neuroscientific Approach To Mental Well-Being

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Abstract

Disturbances in mental well-being not only reduce life satisfaction but also workplace productivity. This represents a significant economic challenge that demands intervention. Since the brain plays a vital role in enhancing mental health, the article seeks to let individuals effectively manage their mental well-being and thereby reduce their stress, worries, and anxieties. To do so, the areas of sleep, habits, exercising, positivity, emotions, and mind-body connections were examined. Quantitative and qualitative research was used in combination by conducting a survey among 282 people. In addition, four databases and a total of 26 studies were included in the work. The findings suggest that individuals should not only apply neuroscience-based techniques but also place value on finding intrinsic motivation to effectively enhance their psychological well-being. The positive effect can be strengthened when intrinsic motivation is linked to a purpose so that people find enjoyment and meaning in life.

Keywords: Intrinsic motivation, purpose, neuroscience, well-being, mental health.

1. Introduction

According to the Federal Office of Public Health (2022), up to one-third of the Swiss population is affected by a mental illness each year. As a result, mental disorders are among the most common diseases, affecting people of all ages and in all areas of life. The World Health Organization (2019) defines mental disorders as disturbances in mental well-being that are frequently accompanied by troublesome thoughts, behavior, emotions, and interpersonal connections.

Putwain (2007) argued that especially stress (and its related issues of worries and anxieties) can lead to mental diseases, including depression and burnout. The Job-Stress-Index 2020 revealed that whenever a person's health is worsened by stress, it significantly reduces workplace productivity and increases expenses for companies (Gesundheitsförderung Schweiz, 2020). Therefore, mental illnesses cause high economic costs, which are estimated to

amount to more than seven billion Swiss francs annually. Mental disorders hence represent a major economic challenge that requires intervention and intensive cooperation between all parties involved (Federal Office of Public Health, 2022).

Wolf (2020) indicates that since the brain plays a vital role in enhancing mental health, it becomes crucial to manage it properly. The neuroscientist Alex Korb (2015) agrees, pointing to the wide range of possibilities offered by neuroscience. He argues that there is no single main solution to enhance mental health, but rather that neuroscientists have discovered dozens of practical ways that help people to cope with their mental health issues.

Therefore, the aim of this article is to develop a practical model for individuals that enables them to effectively manage their mental well-being and reduce their stress perception, worries, and anxieties. Based on this objective, the research question is as follows:

How can individuals apply neuroscience-based techniques on a daily basis to successfully enhance mental well-being and thus reduce stress, worries, and anxieties?

2. Theoretical Framework

The term neuroscience emerged in the mid-1960s and is defined as the scientific study of the brain, the nervous system, and the spinal cord (Gage, 2015; Squire, 2013). The human brain can be regarded as the body's most complex organ and it probably belongs among the most complex structures in the universe (Ballard, 2015; British Neuroscience Association & European Dana Alliance for the Brain, 2003). As described in Garzorz-Stark (2018), the brain is part of the central nervous system (CNS) and it comprises billions of tiny nerve cells – called neurons – that are interconnected and in a permanent condition of electrical and

chemical activity. The author further highlighted that the CNS is responsible for controlling and coordinating the body. Therefore, without the CNS, all mental and intellectual abilities such as the ability to learn, memory, emotions, and the formation of one's own personality would be inconceivable.

A neuron can be seen as the structural and functional unit of the nervous system that transmits information to several other nerve cells or effector cells via so-called synapses (Schmeißer et al., 2020). The transmission from one nerve cell to the next takes place through chemical messengers (neurotransmitters), stored in vesicles in the synapses (Wolf, 2020). Si and Song (2018) claimed that a wide range of neurotransmitters are essential for both mental and physical health, and any abnormalities or alterations in their activity can lead to serious mental and physical diseases such as Parkinson's disease, schizophrenia, or Alzheimer's disease. There are a variety of strategies to alter the activity and chemistry in the brain to make a person feel less depressed, stressed or worried, more motivated and overall happier (Brockis, 2019; Dingman, 2019; Hills, 2016; Korb, 2015; Wiseman, 2009):

Wolf (2020) stated that sleep is a biological necessity for the regeneration and restitution of brain function and thus enables optimal attention and performance during the day. Brockis (2019) and Korb (2015) described several possible approaches to develop a healthy sleeping routine. Exercising – as mentioned by Shaw (2004) – causes the release of neurotransmitters like norepinephrine, serotonin, and dopamine, which are similar to the active ingredients in many modern psychiatric medications. Moreover, as indicated by Korb (2015), exercising reduces stress hormones and improves the supply of blood in the

prefrontal cortex, which boosts a person's mood and energy.

McGonigal (2019) stated that regular physical exercise additionally changes the brain's physical structure, making a person more susceptible to joy and social connections. Furthermore, she claimed that muscles release hormones into the bloodstream during physical activity, which helps the brain to cope with stress. Achor (2013) argued that the way in which the brain is wired and exercised to see things has a major influence on how we think. To better understand this, he came up with a concept that he calls the Tetris effect. According to him, this effect occurs when a person devotes so much time and attention to something that it completely alters their thoughts, mental images, and habits. This phenomenon is based on people's tendency to start perceiving the world around them in Tetris block sequences after playing the game for a long time.

For example, the negative Tetris effect is when people find flaws in everything and constantly focus on the negative so that finding positivity around them – regardless of how good it is – will be difficult. By contrast, the positive Tetris effect is a way of focusing on the positive aspects of every circumstance. Having an optimistic view of life educates our minds to hunt for possibilities and ideas that will increase our chances of success. As argued by Covey et al. (2020), developing good habits is the simplest method to improve one's personal and professional life. Following Korb (2015), a person needs to activate the prefrontal cortex appropriately to transfer action from the cognitively effortful prefrontal cortex to the unconsciously

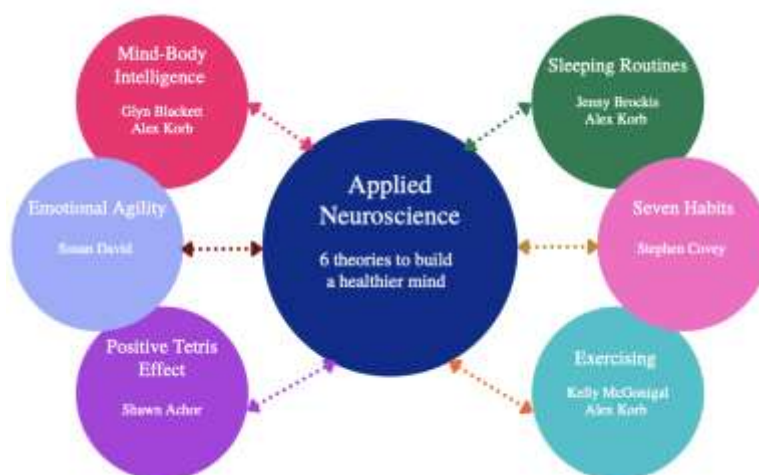
effortless dorsal striatum to create better habits.

According to David (2017), to be successful in life, it is necessary to be more conscious of one's negative and positive emotions and know how to accept them. Following her ideas, increasing emotional agility is the only method to achieve this. She continued to state that emotions such as anxiety, fear, or exhilaration are important, although they are not always appropriate. She concluded, that in a fast-changing, complex world, people need to be more adaptable and emotionally agile so that they can withstand high amounts of stress while remaining open and engaged.

Blackett (2014) introduced biofeedback as a technique for improving self-control by utilizing the abilities of the mind-body connection. Korb (2015) argued that biofeedback is the simple observation that the brain's activity alters in response to what the body is doing, and even simple activities can seriously influence brain functions and – as a result – stress levels, thoughts, and attitude.

Achor (2013) highlighted the importance of constantly focusing on the positive to create feelings of happiness, gratitude, and optimism. David (2017) claimed that a person must learn how to be emotionally agile to withstand high amounts of stress. Finally, Blackett (2014) and Korb (2015) indicated that simple body activities can influence stress levels, thoughts, and attitudes. For this study, the six theories were combined and merged into one model. Figure 5 displays this model and thus illustrates the theoretical basis of this work.

Figure 1: Six Theories to Build a Healthier Mind



Source: Achor (2013); Blackett (2014); Brockis (2019); Covey et al. (2020); David (2017); Korb (2015); McGonigal (2019).

3. Methodological Approach

A quantitative online survey was conducted to assess the theory and obtain real-time data about people's stress perceptions, worries, and anxieties. To incorporate existing research findings, systematic literature research has been conducted. Ultimately, 26 studies from 1997 to 2022 were included. The aim was to test, use, and combine information from theory and the empirical findings to obtain a holistic result of the most promising techniques.

The survey comprised sixteen multiple-choice questions and was conducted in digital form with the help of the survey tool Qualtrics. It was randomly distributed via several platforms over a period of two weeks (April 13–27, 2022). The responses of the survey participants were analyzed quantitatively and descriptively, with aggregation of the collected data in the form of frequency tables, statistics, and graphs. Most of the questions were measured by applying a four- (from 1= never to 4= very frequently) or five-point Likert scale (from 1= strongly disagree to 5= strongly agree). Numerical descriptors such as the mode or mean value were determined in addition to

the graphical representation of the data's frequencies. Therefore, a systematic literature research has been conducted for each of the six approaches presented in the theoretical section to search for several existing neuroscience-based studies. Keywords – which are presented in the findings section – were determined and the Google Scholar, PubMed, and Scopus databases were used. In terms of inclusion criteria, studies had to be peer-reviewed articles, published between 1997 and 2022.

To control biases, the scientific publications were checked for their statistical and methodological quality using the tool provided by the Joanna Briggs Institute for analytical cross sectional studies (Moola et al., 2020). This tool comprises eight criteria that can be used to assess how well the inspected studies account for potential biases in their work and accordingly whether the study should be included. Since the scope of this article was limited, only six or four studies for each of the six theories examined were integrated. Hence, 26 studies were selected as they were regarded as adding valuable insights to answer the research question. Following that, the included publications were reviewed again thoroughly, with a special emphasis on the results and discussion parts. The most important data from the selected

publications were then extracted and presented in data extraction tables.

4. Findings

A total of 306 people took part in the survey. However, as 24 could not be considered owing to an incomplete questionnaire, a sample size of $n = 282$ has been reached, including 173 females and 107 males. Amongst them, the age group of 18 to 23 year-olds was the most strongly represented

with 50.35%, followed by the age group of 24 to 35 year-olds with 39.01%. The participants aged 36 and older accounted for the remaining 10.64%. The survey has been conducted in Austria and Switzerland, whereas 94.68% of the participants lived in Switzerland and the remaining percentage in Austria. Table 1 demonstrates the percentage responses of the three variables representing the incidence of stress, worries, and anxieties of the respondents.

Table 1: Occurrence of Stress, Worries, and Anxieties

Variable	#	Response	%
Stress In the past 12 months, how often have you felt stressed?	1	Never	1.06
	2	Rarely	21.99
	3	Frequently	49.65
	4	Very frequently	27.30
Worries In the past 12 months, how often have you experienced being worried (because of your future, your career, your studies, your private life, etc.)?	1	Never	2.84
	2	Rarely	32.62
	3	Frequently	43.62
	4	Very frequently	20.92
Anxieties In the past 12 months, how often have you dealt with anxieties (about your future, your career, your studies, personal life, etc.)?	1	Never	10.28
	2	Rarely	37.23
	3	Frequently	36.52
	4	Very frequently	15.96

The survey has thus revealed that the majority of the respondents are frequently stressed (49.65%) and worried (43.62%) but rarely suffer from anxieties (37.23%). Nevertheless, still 36.52% of the respondents frequently suffer from anxieties. Furthermore, 73.81% of the participants who

stated to be never or rarely stressed and worried were male. 74.21% of the participants who stated to be frequently or very frequently stressed and worried were female. Thus, the survey indicated that women are more likely to be stressed and worried than men.

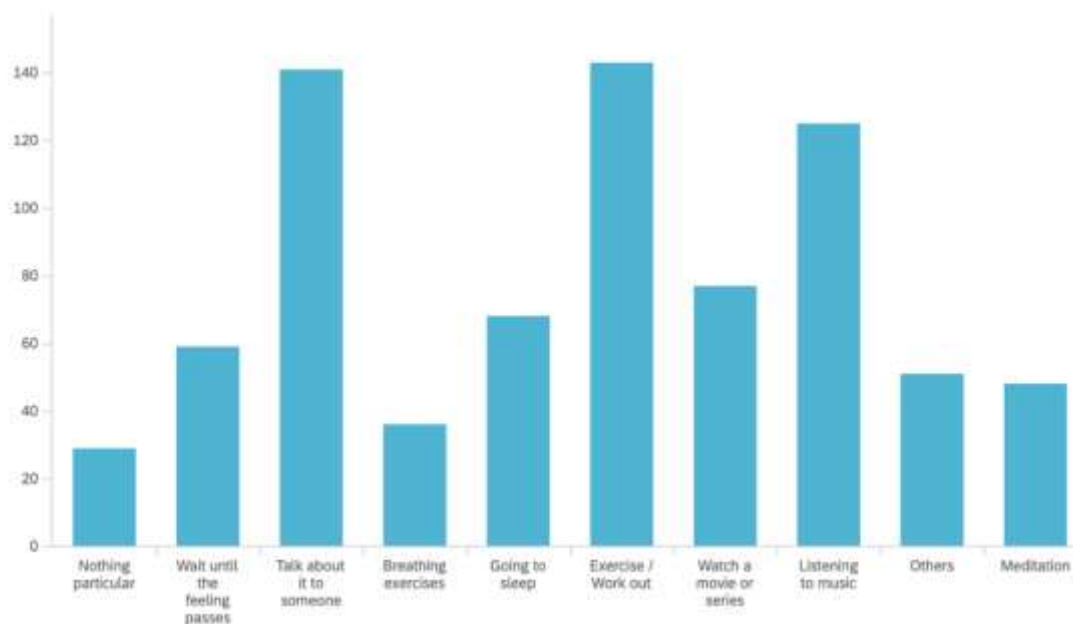
Figure 2: What the respondents usually do when they are stressed

Figure 2 displays what individuals usually do when they are stressed. 18.40% of the respondents exercise or work out, 18.15% talk with someone about it, and 16.09% listen to music. In terms of less frequently-mentioned activities, 6.18% use meditation to calm down, 4.63% use breathing

techniques and 3.73% do nothing. 6.56% said that they do other things and specifically mentioned smoking or the consumption of alcohol. Multiple answers were possible for this question. Table 2 demonstrates the percentage response to the variables representing their perceived know-how.

Table 2: Brain Training Knowledge

Variable	#	Response	%
Knowledge (n=282, all respondents) You know how to train your brain to be less stressed and worried.	1	Strongly disagree	13.48
	2	Somewhat disagree	28.01
	3	Neither agree nor disagree	18.79
	4	Somewhat agree	33.33
	5	Strongly agree	6.38
Knowledge (n=42, respondents that are never or rarely stressed and worried) You know how to train your brain to be less stressed and worried.	1	Strongly disagree	11.90
	2	Somewhat disagree	21.43
	3	Neither agree nor disagree	11.90
	4	Somewhat agree	45.24
	5	Strongly agree	9.52

Knowledge (n=159, respondents that are frequently or very frequently stressed and worried) You know how to train your brain to be less stressed and worried.	1	Strongly disagree	13.84
	2	Somewhat disagree	27.04
	3	Neither agree nor disagree	20.13
	4	Somewhat agree	32.08
	5	Strongly agree	6.92

The survey has thus revealed that the respondents who are never or rarely stressed and worried have a higher mean score on brain training knowledge than those who are frequently or very frequently stressed and worried.

Table 3 illustrates the descriptive statistics for individuals' interest in learning more about managing stress, worries, and anxieties.

Table 3: Interest in Managing Stress, Worries, and Anxieties

Variable	#	Response	%
Interest (n=282, all respondents) You would like to know more about how to deal with stress, worries, and anxieties.	1	Strongly disagree	1.42
	2	Somewhat disagree	9.22
	3	Neither agree nor disagree	13.48
	4	Somewhat agree	50.00
	5	Strongly agree	25.89
Interest (n=42, respondents that are never or rarely stressed and worried) You would like to know more about how to deal with stress, worries, and anxieties.	1	Strongly disagree	2.38
	2	Somewhat disagree	14.29
	3	Neither agree nor disagree	21.43
	4	Somewhat agree	57.14
	5	Strongly agree	4.76
Interest (n=159, respondents that are frequently or very frequently stressed and worried) You would like to know more about how to deal with stress, worries, and anxieties.	1	Strongly disagree	0.63
	2	Somewhat disagree	5.66
	3	Neither agree nor disagree	9.43
	4	Somewhat agree	46.54
	5	Strongly agree	37.74

The results show that the respondents are interested in knowing more about managing stress, worries, and anxieties. Demand is particularly high among respondents who

are frequently stressed and worried. However, the results also revealed that even respondents who are never or rarely stressed and worried would like to know more. The

survey demonstrated that the majority of respondents indicate having a healthy and regular sleeping routine, although this is even more evident among those who are rarely or never stressed and slightly less

evident among those who are frequently stressed and worried.

Table 4 provides an overview of the main findings of the selected studies.

Table 4: Findings of Sleep Studies

Study	Findings
1) Dawson & Reid, 1997	24 hours of not sleeping had an impact on performance equivalent to someone with a blood-alcohol level of 0.1%.
2) Banks & Dinges, 2007	People who slept less than 7 hours per night had considerable cognitive impairment during the day (i.e., state instability, reduced vigilant attention and working memory). Accordingly, people should sleep 7-8 hours per night.
3) Lowe et al., 2017	Sleep deprivation had a strong negative impact on cognitive processing among cognitive domains. Executive function, sustained attention, and long-term memory were particularly affected. There was a lack of evidence of an effect in the areas of attention, multitasking, impulsive decision-making, and intelligence.
4) Antúnez, 2020	<p>People who went to bed late and slept long were apparently worse at regulating their emotions than people who went to bed early and got up early.</p> <p>Early risers were more likely to use positive strategies to process their emotions. Evening-type persons, on the other hand, tended to use these emotion regulation strategies less. Instead, they tended toward expressive suppression, i.e. they suppressed their emotions more frequently.</p>
5) Combertaldi & Rasch, 2020	<p>Participants did not achieve better sleep by using their willpower to do so. However, the participants who had planned to sleep poorly, clearly slept worse. During the night, they woke up 70% more often than the other participants and it took them about twice as long to fall asleep.</p> <p>The participants managed to sleep poorly by thinking about negative experiences or about their duties for the next day.</p>
6) Daghlas et al., 2021	<p>The risk of developing depression can be reduced by 23% by going to bed one hour earlier and getting up one hour earlier in the morning.</p> <p>This means that if a person who regularly goes to bed at 11pm instead goes to bed at 10pm and sleeps for the same amount of time, it can reduce the risk of depression by 23 %.</p>

The survey also raised questions regarding the importance of routines and the question of whether the participants believe that they

have good habits and routines in place that make them feel better are presented. Figure

3 reveals the results of all respondents (n=282).

Figure 3: Routines and Habits

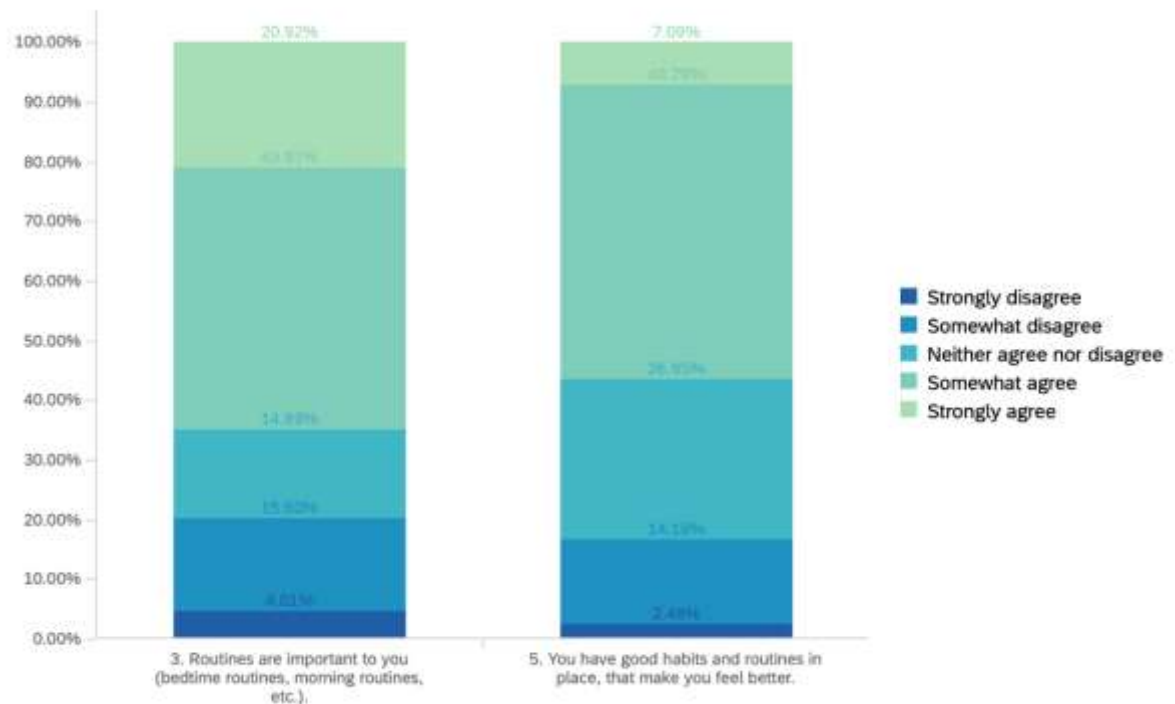


Table 5: Findings of Habits Studies

Study	Findings
1) Velten et al., 2018	Lifestyle had a considerable impact on students' psychological, emotional, and social well-being and influenced mental health difficulties. Not smoking, a non-vegetarian diet, having a lower body mass index, having a more social rhythm, and frequent physical and mental activities such as exercising, reading, or making music were essential for improving mental health.
2) Ljungberg et al., 2020	Healthy eating habits can help to prevent and treat depression. The study found strong evidence that people should increase the consumption of fruits, vegetables, legumes, fish, nuts, and olive oil and should reduce the consumption of processed foods such as juices, soft drinks, sausages, and sweets to prevent and treat depression. The study found moderately strong evidence that the intake of magnesium, folic acid, and numerous B vitamins has a positive impact on depression.
3) van der Weiden et al., 2020	There was a significant increase in habit strength over three months, with the biggest effects shown in participants who consistently executed the self-selected goal-congruent activity. However, they did not discover evidence for self-control capacity as a determinant of habit formation.

- 4) Mazar & Wood, 2022
- People overlooked the fact that habits have a significant impact on their behavior. The first experiment showed that the influence of tiredness on coffee consumption was greatly overestimated, whereas the effect of habit was greatly underestimated by the participants. The second experiment showed causal evidence that even when people's behavior is driven by habit, their justifications for their actions favor inner states above habits.

Next, it was examined whether there are any differences in physical activity between participants who are never or rarely stressed

and worried and those who are frequently stressed and worried. Table 6 reveals the results.

Table 6: Physical Activity of Participants

Variable	#	Response	%
Exercising (n=282, all respondents) Approximately how many times a week do you exercise?	1	Never	6.74
	2	Rarely	23.76
	3	Once or twice	36.17
	4	Three times and more	33.33
Exercising (n=42, respondents that are never or rarely stressed and worried) Approximately how many times a week do you exercise?	1	Never	2.38
	2	Rarely	26.19
	3	Once or twice	21.43
	4	Three times or more	50.00
Exercising (n=159, respondents that are frequently or very frequently stressed and worried) Approximately how many times a week do you exercise?	1	Never	8.18
	2	Rarely	25.79
	3	Once or twice	36.48
	4	Three times or more	29.56

The majority of participants reported exercising at least once or twice per week. Nevertheless, 50% of respondents who are never or rarely stressed and worried reported exercising three times or more per week, while only 29.56% of those who claimed to

be frequently stressed and worried stated this prevalence.

A systematic literature research was then carried out to find relevant and intriguing studies on the benefits of exercising. Table 7 lists the key findings of the selected studies.

Table 1: Findings of Exercising Studies

Study	Findings
1) Harvey et al., 2018	Regular recreational exercise was linked to a lower risk of future depression, but not anxiety. Most of this protective effect was found even during moderate physical activity, regardless of intensity. Even one hour per week can significantly reduce the risk of depression.
2) Pluhar et al., 2019	Individual sports players were more likely than team sports players to experience anxiety and depression. Compared to their contemporaries participating in team sports, individual sport athletes were more likely to play their sport for goal-oriented reasons rather than for fun.
3) Imboden et al., 2020	Among depressed inpatients, aerobic and stretching exercises included in a multimodal treatment program had comparable substantial anti-depressant benefits. They were also able to demonstrate that aerobic exercises have a substantial and clinically significant short-term effect on working memory.
4) Meyer et al., 2021	Adolescents' life satisfaction was negatively affected by stress. Physical activity on its own did not mitigate the association between stress and life satisfaction. The physical activity worked as a stress reliever only when intrinsic motivation was high. Hence, to enhance adolescent's psychological health, intrinsic motivation for physical activity is essential.

The survey investigated whether people find it difficult to be positive and optimistic.

Table 8 reports the survey's result and Table 9 illustrates the results from existing studies.

Table 2: Positivity and Optimism of Participants

Variable	#	Response	%
Positivity (n=282, all respondents) You find it difficult to be positive and optimistic.	1	Strongly disagree	21.99
	2	Somewhat disagree	38.30
	3	Neither agree nor disagree	16.67
	4	Somewhat agree	18.44
	5	Strongly agree	4.61
Positivity (n=42, respondents that are never or rarely stressed and worried) You find it difficult to be positive and optimistic.	1	Strongly disagree	42.86
	2	Somewhat disagree	35.71
	3	Neither agree nor disagree	9.52
	4	Somewhat agree	9.52
	5	Strongly agree	2.38

Positivity (n=159, respondents that are frequently or very frequently stressed and worried)			
You find it difficult to be positive and optimistic.	1	Strongly disagree	13.21
	2	Somewhat disagree	38.36
	3	Neither agree nor disagree	20.13
	4	Somewhat agree	22.01
	5	Strongly agree	6.29

According to the survey, most of the participants did not find it difficult to be positive and optimistic. This was especially

the case for participants who are never or rarely stressed and worried.

Table 9: Findings of Positivity Studies

Study	Findings
1) Seligman et al., 2005	Individuals were shown to increase life satisfaction and decrease depression symptoms after knowing their top five strengths and employing one of these top strengths in new and distinct ways every day for a week. Still, these positive effects were also demonstrated six months later. The same applied to writing down three positive things every night for a week. Writing a letter to someone they were grateful for, made a big positive difference for a month. Writing about their early memories every night for a week, reflecting on a time when they were at their best every day for a week, and writing down their top five strengths and using them more often the next week produced favorable but transitory benefits on happiness and depressive symptoms.
2) Fowler & Christakis, 2008	People's happiness is influenced by the happiness of those with whom they interact. Individuals who were surrounded by many cheerful people or who were at the center of a network were more likely to become happy themselves. With time and geographical separation, the influence faded.
3) Lee et al., 2019	More optimistic women lived about 15% longer than less optimistic women. Even after the researchers factored in everything that could have influenced the outcome – income, smoking, alcohol consumption, depression, etc. – the conclusion remained the same. For men, the results were comparable.
4) Atad & Russo-Netzer, 2022	Gratitude led to a significant increase in life satisfaction. Nevertheless, the increase was insignificant when eudaimonic well-being was utilized as the dependent variable. Individuals who prioritized both meaning and positivity in their lives benefited the most. Those who prioritized differently had just short-term benefits. Those who placed no value on positivity nor meaning did not gain from the intervention.

The survey examined whether people believe their emotions have too much power over them and whether there are any variations between frequently stressed and worried persons and those who are rarely stressed and worried.

Table 10 demonstrates the percentage response of the participants and Table 11 illustrates the descriptive statistics for the same question.

Table 10: Influence of Emotions on the Participants

Variable	#	Response	%
Emotions (n=282, all respondents) You think that your emotions influence you too much.	1	Strongly disagree	8.87
	2	Somewhat disagree	24.47
	3	Neither agree nor disagree	20.57
	4	Somewhat agree	31.91
	5	Strongly agree	14.81
Emotions (n=42, respondents that are never or rarely stressed and worried) You think that your emotions influence you too much.	1	Strongly disagree	14.29
	2	Somewhat disagree	45.24
	3	Neither agree nor disagree	19.05
	4	Somewhat agree	19.05
	5	Strongly agree	2.38
Emotions (n=159, respondents that are frequently or very frequently stressed and worried) You think that your emotions influence you too much.	1	Strongly disagree	6.29
	2	Somewhat disagree	13.21
	3	Neither agree nor disagree	19.50
	4	Somewhat agree	38.99
	5	Strongly agree	22.01

Source: Own illustration, retrieved from Qualtrics

The survey showed that the majority of the respondents think that their emotions influence them too much. This is especially evident among participants who are often stressed and worried. However, respondents

who are never or rarely stressed and worried do not believe that their emotions affect them too much. Table 11 demonstrates the main findings of the selected studies.

Table 11: Findings of Studies on Emotions

Study	Findings
1) Yip & Côté, 2013	The ability to understand one's own emotions and to recognize their causes helped to make more unbiased decisions. People who were

	better at recognizing their own emotions were also less likely to be influenced by emotions unrelated to the decision.
2) Grecucci et al., 2015	Individuals could control their interpersonal emotions by cognitive (mentalizing) and experiential (mindful detachment) tactics. Mindfulness impacted interpersonal emotional reactions modifying subjective and physiological perceptions of emotions while also biasing interactive social behavior.
3) Ford et al., 2018	Accepting one's mental experiences rather than judging them led to greater psychological well-being, in part because acceptance reduced unpleasant emotions in response to stressors.
4) Jiménez-Picón et al., 2021	There was a link between mindfulness and emotional intelligence, namely the ability to control emotions. Mindfulness-based training improved emotional awareness, emotional acceptance, emotional recognition, emotional balance, expressive suppression, and emotional exhaustion.

To determine whether biofeedback techniques have a positive effect on a person's mental health, a systematic literature research was conducted to find

relevant studies on the benefits of biofeedback and mind-body exercises. Table 12 lists the key findings of the selected studies.

Table 12: Findings of Studies on Biofeedback and Mind-Body Exercises

Study	Findings
1) Wolever et al., 2012	Employees could benefit from the mindfulness-based and therapeutic yoga programs, which are both practical and successful strategies for reducing stress, improving sleep quality, and restoring autonomic balance.
2) Ratanasiripong et al., 2015	After four weeks, biofeedback training helped graduate students in public health nursing to reduce their stress, anxiety, and depression considerably. The students in the control group, however, reported increases in anxiety and depression symptoms during the same time.
3) Meier & Welch, 2016	Biofeedback and exercising enhanced the emotional state of stressed college students. A ten-minute bout of timed breathing was found to decrease anxiety, while independent walking did not appear to have a significant effect on anxiety. However, self-paced walking increased participants' energy with a moderate effect, while biofeedback produced a quick but transitory rise in calmness.
4) Li et al., 2019	Chronic obstructive pulmonary disease patients with anxiety and depression strongly benefited from mind-body training (tai chi, health qigong, yoga).

5. Discussion

Research has shown that using neuroscience-based techniques is a practical approach to reducing stress, worries, and

anxieties (Brockis, 2019; Dingman, 2019; Hills, 2016; Korb, 2015; Wiseman, 2009). As these symptoms can negatively influence health, social life, and academic and work

performance, it is essential to gain a deeper understanding of the techniques and their impact on a person's mental health. The survey results support this and demonstrate the importance of stress, worries, and anxieties reduction techniques, as 76.95% of the 282 respondents stated to be frequently or very frequently stressed, 64.54% to be frequently or very frequently worried, and 52.48% to suffer frequently or very frequently from anxiety. This is definitely an alarming result that demands intervention.

This is also evident as 75.89% of the participants agree or even strongly agree with the notion that they would like to know more about managing stress, worries, and anxieties, which is another indication of the demand for knowledge about these various techniques. Furthermore, added together, 41.49% of the participants report not knowing how to train their brain to be less stressed and worried, and interestingly brain training knowledge was higher among the respondents who are never or rarely stressed. This therefore supports the theory that people who use neuroscience-based techniques are less stressed and worried.

Interestingly, 73.81% of the participants who stated to be never or rarely stressed and worried were male and 74.21% of the participants who stated to be frequently or very frequently stressed and worried were female. It becomes apparent that women seem to be more stressed and worried than men. This indicates that women probably require greater guidance and support in this regard than men. Brockis (2019) and Korb (2015) argued that a healthy sleeping routine can improve a person's mental health and that sleep deprivation is particularly harmful.

However, according to the survey, the majority of participants believe they have a healthy sleeping routine, even though they report being frequently stressed and worried. One possible explanation for this disparity is

that responses may be biased as the question does not clearly define what is meant by having a healthy and regular sleep schedule. When the theory is contrasted with the six studies analyzed, it emerges that the studies of Dawson and Reid (1997) and Lowe et al. (2017) show that sleep deprivation has a strong negative impact on performance.

Covey (2020) indicated that the simplest way to enhance one's personal and professional life is to adopt positive habits. The survey results show that especially having routines is important to most participants and the majority also claim that good habits and routines help them to feel better. The survey findings hence support Covey's (2020) theory. Comparing the theory with the four studies analyzed, it seems that habits indeed have a positive effect on a person's psychological, emotional, and social well-being, and healthy eating habits, physical and mental exercise, and social interaction are hence particularly important (Ljungberg et al., 2020; Velten et al., 2018). The study of van der Weiden et al. (2020) shows that habit strength can be increased by following self-chosen goal-congruent behavior. This means that habits should be formed intrinsically. Moreover, as Mazar and Wood (2022) indicate, people are unaware that their habits substantially influence their behavior.

However, 50% of participants who are never or rarely stressed and worried reported exercising three times or more per week, while only 29.56% of those who claimed to be frequently stressed and worried stated this prevalence. These findings imply that exercising can help to lower stress and worries, but only when done three or more times per week. When the theory is compared to the four studies examined, it emerges that Harvey et al. (2018) reveal with their study that even one hour of moderate physical activity can reduce the risk of depression in the future. Imboden et al.

(2020) study shows that particularly aerobic and stretching exercises have substantial anti-depressant benefits.

However, Pluhar et al. (2019) demonstrate with their study that individual sports players are more likely to experience anxiety and depression than team athletes, which does not directly contradict McGonigal (2019).

Nevertheless, instead of individual sports, they emphasize team sports. They further indicate that team sports are more beneficial to mental health as individuals experience fun, a sense of belonging, and build relationships. Achor (2013) claimed that people should focus on the positive Tetris effect and hence specifically achieving happiness, gratitude, and optimism to overcome their negative thinking. According to the survey, being positive and optimistic is not difficult for individuals. This is especially true for those who are never or rarely stressed and worried. Thus, the results of the survey still point to the benefits of a positive and optimistic attitude. When the theory is contrasted with the four studies analyzed, Seligman et al.'s (2005) study proves that people who write down three positive things every night for a week are able to increase life satisfaction and reduce depressive symptoms. The same applies if individuals know their five most significant strengths and uses one of them in a new and distinctive way every day for a week.

Fowler and Christakis's (2008) study shows that people's happiness is also influenced by the happiness of those with whom they interact. A person should therefore be surrounded by joyful people. This is consistent with Achor (2013), who advocated avoiding negative people whenever possible. Finally, the recent study conducted by Atad and Russo-Netzer (2022) shows that individuals should actively prioritize both meaning (eudaimonic orientation) and positivity (hedonic

orientation) in their lives and therefore match their values and individual interests to their daily tasks to significantly increase life satisfaction. It seems that positivity – also described as a hedonic orientation by Atad and Russo-Netzer (2022) – also indicates the importance of intrinsically motivating activities. However, to achieve the greatest benefit, they add another factor, namely meaning, also called eudaimonic orientation.

David (2017) introduced the concept of emotional agility to withstand high amounts of stress. She argued that to become more agile and mindful, a person must first accept their emotions and view them with an objective perspective. After that, she further claimed that people can use their emotions to achieve their goals. The survey findings show that most of the participants believe that their emotions influence them too much. This is particularly noticeable among those who are frequently stressed and worried. On the other hand, respondents who are rarely or never stressed or worried do not believe that their emotions have a significant impact on them.

These findings suggest that individuals – particularly those who are frequently stressed and worried – need more knowledge about managing their emotions so that they do not negatively affect them. A comparison of the theory with the four studies examined leads to the result that Yip and Côté's (2013) study confirms David's (2019) theory and further argues that recognizing the causes of emotions helps to make more unbiased decisions. This is in line with Ford et al.'s (2018) study, which shows that accepting rather than judging emotions leads to greater psychological well-being because acceptance prevents people from reacting to and intensifying negative psychological experiences. Regarding the survey results, it appears that individuals – especially those who are frequently stressed and worried – over-value and under-accept their emotions, believing that they influence them too much.

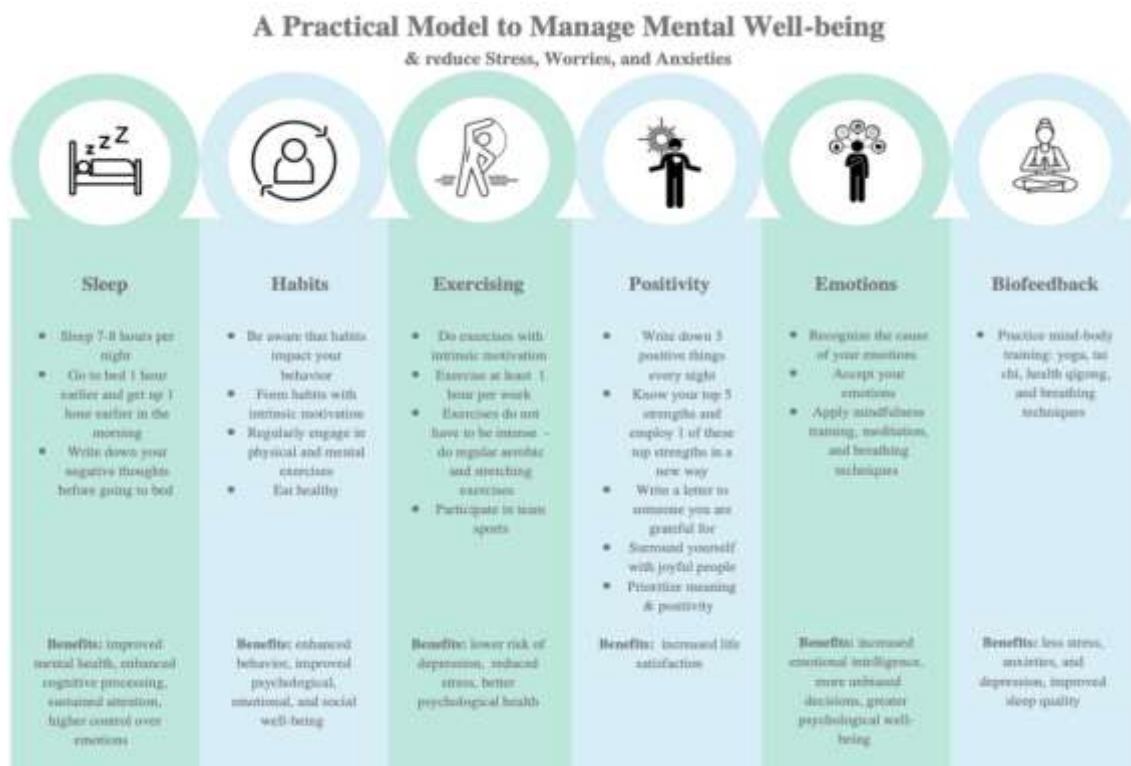
Grecucci et al.'s (2015) and Jiménez-Picón et al.'s (2021) studies do not contradict David (2019), but rather they extend her theory and suggest that mindfulness training and particularly meditation together with breathing and body awareness training can enhance the ability to regulate and control emotions. This also supports Blackett's (2014) and Korb's (2015) theory about biofeedback. Nevertheless, only 6.18% of the survey respondents utilize meditation to relax, and only 4.63% employ breathing techniques, demonstrating how infrequently these approaches are used. This indicates that the participants should use these techniques more frequently, as they feel their emotions influence them too much.

Blackett (2014) and Korb (2015) argued that mind-body practices – called biofeedback techniques – can influence stress levels, thoughts, and attitudes. Comparing the theory with the four studies analyzed, it

emerges that Blackett's (2014) and Korb's (2015) theory is supported by Ratanasiripong et al.'s (2015) study, which reveals that biofeedback training considerably reduces stress, anxieties, and depression. Meier and Welch (2016) show with their study that even a ten-minute breathing exercise enhances the emotional state of stressed students, which is also consistent with the findings of Grecucci et al. (2015) and Jiménez-Picón et al. (2021). Wolever et al.'s (2012) study emphasizes the importance of mindfulness-based yoga programs to reduce stress and improve sleep quality, and Li et al. (2019) show that people can strongly benefit from mind-body exercises like tai chi, qigong, or yoga.

Based on the findings, a new model, shown in Figure 4, has been developed to manage psychological well-being and hence also stress, worries, and anxieties most effectively.

Figure 4: Practical Model to Manage Mental Well-Being



Source: Own illustration based on Achor (2013); Antúnez (2020); Atad & Russo-Netzer (2022); Banks & Dinges (2007); Blackett (2014); Brockis (2019); Combertaldi & Rasch (2020); Covey et al. (2020); Daghlas et al. (2021); David (2017); Dawson & Reid (1997); Ford et al. (2018); Fowler & Christakis (2008); Grecucci et al. (2015); Harvey et al. (2018); Imboden et al. (2020); Jiménez-Picón et al. (2021); Korb (2015); Lee et al. (2019); Li et al. (2019); Ljungberg et al. (2020); Lowe et al. (2017); Mazar & Wood (2022); McGonigal (2019); Meier & Welch (2016); Meyer et al. (2021); Pluhar et al. (2019); Ratanasiripong et al. (2015); Seligman et al. (2005); van der Weiden et al. (2020); Velten et al. (2018); Wolever et al. (2012); Yip & Côté (2013).

When combining the results, it appears that especially one component strongly influences habits, exercising, and positivity, namely intrinsic motivation. This indicates that individuals should emphasize finding intrinsic motivation in their daily activities to most effectively enhance psychological well-being and achieve greater life satisfaction. It seems that this positive effect can even be strengthened if intrinsic motivation is linked to a purpose so that people find enjoyment and meaning in their daily actions. Moreover, it may be argued that people should place less emphasis on the outcome alone, as this puts undue pressure on them and may potentially exacerbate mental health issues. Individuals should devote more attention to the strategies and activities that lead to the desired results.

6. Conclusion

This article has illustrated that mental health is a complex construct that can ultimately be influenced by numerous factors. Considering the growing incidence of mental health problems of all types, the demand for intervention is extremely high and likely to further increase. Hence, individuals must become more proactive in

addressing their mental health difficulties. However, this paper has highlighted that neuroscience is a complex field that is sometimes difficult to understand for people who have no or little medical or psychological expertise. Since mental health issues not only affect a specific group of people but rather occur at all stages of life and in all parts of society, there is a need for techniques that are simple to understand and apply in everyday life. This paper has therefore paved the way for various practical applications in the realm of mental health, including stress, worries, and anxiety reduction.

People should consciously incorporate neuroscience-based techniques into their daily lives so that these techniques become habits. Furthermore, it became evident that intrinsically motivated activities linked to a purpose can provide enormous benefits for people. Finally, individuals should focus more on the techniques and activities that lead to the intended outcomes rather than just the result itself.

However, further research is needed, especially in providing more practical techniques for individuals that are simple to understand. Several techniques should be combined rather than analyzed in isolation, as is the case in many studies. In a follow-up study, the new model presented could be subjected to in-depth analysis to further test and extend it. This could be achieved through an extensive meta-analysis of each of the six topics combined in the developed model. Moreover, further research should provide more practical approaches on how individuals can effectively increase their intrinsic motivation and provide ways on how this motivation can be combined with meaningful activities. In general, neuroscientific knowledge must be made more available to the public.

In addition, the sample size could be extended and differences based on gender, occupation, and age should be examined to develop and compose precisely tailored techniques for each group. The focus should be on women in particular, as the findings of this study indicate that they are the ones that struggle the most with stress and worries.

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