

Humans' Emotional and Mental Well-Being under the Influence of Artificial Intelligence

¹Dr. Dinesh Gupta, ²Dr. Abhishek Singhal, ³Dr. Sudarshana Sharma, ⁴Dr. Arif Hasan, ⁵Dr. Sandeep Raghuvanshi

Received: 23-April-2023

Revised: 18-May-2023

Accepted: 08-June-2023

¹Assistant Professor, School of Economics & Commerce, Faculty of Leadership & Sustainability, MIT World Peace University

²Associate Professor, Amity Business School, Amity University, Madhya Pradesh

³Assistant Professor, Amity Business School, Affiliation - Amity University Madhya Pradesh

⁴Assistant Professor, Amity Business School, Amity University, Madhya Pradesh

⁵Assistant Professor, Amity Business School, Amity University, Madhya Pradesh

Abstract

Mental and emotional wellness are intertwined. Mental health affects emotional health and vice versa. Strong mental and emotional health helps people enjoy life, establish healthy relationships, and overcome difficulties and disappointments. However, poor emotional and mental health can affect one's career, personal, and overall quality of life. Information technology and human-computer interaction under artificial intelligence offer a deep learning-based athletics management solution for teenage physical weakness and college sports grounds administration. Intelligent paradigms demand AI and IoT integration. These strategies boost student mental health, particularly in sports education. Innovative technologies can assess behavioral data and discover unwanted trends to diagnose mental health disorders early. AI reduces anxiety and sorrow, making pupils conscientious citizens. Privacy and control concerns have developed because gathering and analyzing personal data might cause emotions of monitoring and mental stress. AI interactions may affect emotional well-being since people need real human connections and empathy. Humans need real relationships. Future study should focus on ethical issues, user experiences, and outcome evaluations. AI-based ethical frameworks and guidelines should protect users' privacy, encourage openness, and ensure fair treatment. Understanding human experiences and attitudes toward AI can help build AI systems that encourage positive emotional results. Then, the study chose literature's most common features. Academic scholars are increasingly studying how AI affects mental and emotional wellness. As artificial intelligence technologies advance and become more interwoven into our lives, we must understand how they may affect our mental and emotional health. This study examined how AI has affected human mental and emotional health. AI's impact on mental and emotional health may also cause issues.

Keywords: Mental, Well-Being, Emotional, Human, Psychological, AI

Introduction

In recent years, the field of artificial intelligence (AI) has made enormous development, which has affected many different parts of our day-to-day life. The development of artificial intelligence has made these improvements possible. This can be seen in a variety of applications, including virtual assistants and chatbots, recommendation systems, and driverless vehicles, to name a few. All of these items are examples of how artificial intelligence (AI) technology are becoming more interwoven into our day-to-day lives, and this can be seen clearly in each of these areas. Artificial intelligence (AI) has the potential to bring about a lot of great advances; nevertheless, it also raises a number of significant issues about the influence that it will have on the mental and emotional health of humans. Artificial intelligence (AI) has the potential to bring about a lot of helpful breakthroughs. Discussing the impact that artificial intelligence has on human feelings and the way that people think is a topic that is both complex and multi-faceted in nature. On the one hand, artificial intelligence has the potential to simplify, expedite, and enhance the quality of our lives by allowing for more individualized and customized experiences to be provided to us. Increasing the effectiveness of our daily routines might be the key to achieving this goal. It is able to automate activities that are repetitive, offer support in the processes of decision-making, and offer recommendations that are tailored to the user depending on the user's preferences. These capabilities have the ability to reduce levels of stress, boost overall productivity, and enhance overall

efficiency, all of which can have a favorable effect on a person's mental health. However, there are also worries about the effects that working with AI systems can have on a person's mental health if they are exposed to them on a regular basis. These concerns are linked to the potential repercussions that having interactions with AI systems may bring about. As artificial intelligence (AI) develops further in its capacity to imitate human-like actions and feelings, people will be able to form emotional bonds or attachments to AI entities. This ability gives people the potential to interact emotionally with AI. Because of this, it is possible that people will develop emotional links or attachments to artificial intelligence (AI) entities in the future. This phenomenon, which is known as the "uncanny valley," raises questions about the possible impact that it might have on human relationships and the dynamics of everyday social life. The phrase "uncanny valley" was coined to describe this phenomenon.

Systems that are based on AI also have the power of obtaining and analyzing large amounts of personally identifiable information, such as our preferences, behaviors, and actions that are carried out online. This is an additional benefit of using AI. This data-driven strategy makes it possible to have more personalized experiences; yet, it also raises concerns surrounding issues of privacy and security. The persistent monitoring and analysis of personal information by AI systems might give rise to emotions of being watched in addition to a loss of control, both of which have the potential to have a negative affect on the emotional well-being of an individual.

The implications of artificial intelligence from a moral standpoint are yet another factor that must be taken into account. It is not inconceivable that artificial intelligence systems, when employed to make decisions and judgements, could inadvertently embrace biased practices and discriminatory attitudes. This is something that is possible when artificial intelligence algorithms are utilized to make decisions and draw conclusions. This can be a contributing factor in the continuation of inequality as well as the growing marginalization of some groups, both of which can have negative psychological and emotional implications on those who are subjected to these prejudices. Those who are subjected to these biases can have harmful psychological and emotional repercussions on those who are subjected to these prejudices. Additionally, there is a possibility that a growing reliance on AI systems could lead to a decrease in human-to-human encounters, particularly in social and professional settings. This is a risk that exists. Because of the growing significance of human interaction with one another, the occurrence of this is a distinct possibility. It is possible for a person to experience negative psychological impacts as a result of a lack of genuine human connection and empathy. These effects can include feelings of loneliness and isolation, as well as a reduction in the amount of emotional support that is made available to a person. In order to develop and implement AI technologies that adhere to ethical standards, we need to have a solid understanding of how the application of AI will impact the mental and emotional health of humans. This is essential for the creation and distribution of AI technologies that adhere to ethical standards. Research that takes a multidisciplinary approach, taking into consideration points of view from domains such as psychology, sociology, and ethics, amongst others, is required to investigate this issue adequately. If we explore the potential benefits and drawbacks of artificial intelligence (AI), we can strive toward the establishment of AI systems that support the well-being of humans while simultaneously minimizing the risk of any detrimental effects. This is possible because we will have a better understanding of both sides of the issue.

Concept of Humans' Emotional and Mental Well-Being

When referring to people, the phrase "emotional and mental well-being" refers to the whole state of an individual's emotional and psychological health. This condition is referred to as "well-being." It involves a person's emotional experiences as well as their cognitive processes, as well as their capacity to deal with stress, maintain control of their emotions, and have a positive sense of who they are. The emotional well-being of a person is directly tied to their sensitivity as well as their ability to articulate their feelings. It involves being aware of one's own feelings and having an awareness of those sentiments, being able to exert effective control over those feelings, and having the ability to feel a variety of pleasurable emotions, such as happiness, joy, and contentment. Being able to bounce back quickly from hard situations and having the ability to be resilient in the face of adversity are both essential components of emotionally healthy living.

the other hand, in contrast to the concept of physical well-being, the concept of mental well-being encompasses a far wider range of psychological aspects. It encompasses a person's thoughts, beliefs, attitudes, and perceptions in relation to themselves, other people, and the environment in which they live. When determining a person's mental health, it is essential to take into account a variety of factors, including one's level of self-esteem and self-acceptance, the quality of their interpersonal connections, their perception of the purpose and meaning of their lives, and their resilience in the face of adversity and hardship. In addition to this, it requires a high degree of cognitive functioning, which includes the capacities of analytical thinking, problem solving, and decision making. Having a high level of cognitive functioning is required in order to achieve this. Both a person's mental and emotional well-being are integrally connected to one another and cannot be separated under any circumstances. The condition of an individual's emotional health can have a significant influence on that individual's mental health, and vice versa. When a person's mental and emotional health are good, they are in a better position to appreciate the general pleasures of life, maintain healthy relationships, and successfully overcome difficulties and disappointments in their path. On the other hand, a poor emotional and mental well-being can lead to issues in a range of aspects of life, such as a person's quality of life at work, in their personal relationships, and in their lives in general. These challenges can be caused by a variety of factors, including stress, depression, and anxiety.

In order for people to lead lives that are satisfying to them, it is imperative that they work to improve and keep up their mental and emotional health on a consistent basis. The practice of self-care and self-compassion, finding social support, engaging in meaningful work or hobbies, successfully managing stress, and getting professional assistance when necessary are all techniques that can be used to boost one's well-being. Engaging in activities that offer joy and fulfillment is another strategy that can be employed. It is essential to keep in mind that a person's level of mental and emotional health can vary from person to person and be influenced by a wide range of factors, such as a person's genes, the circumstances of a person's life, the amount of social support a person receives, their cultural background, and the resources they have access to. This is something that should be kept in mind at all times. It is a complicated and multi-dimensional topic, and one needs to have a holistic perspective in order to comprehend it and use it to benefit the lives of other people.

Relation between humans' emotional and mental well-being and the use of AI

There is a correlation between the use of artificial intelligence (AI) in the workplace and the mental and emotional well-being of people. The influence that AI has on a person's mental and emotional health can either be useful or damaging, depending on a wide range of variables and circumstances. This influence can be either positive or negative.

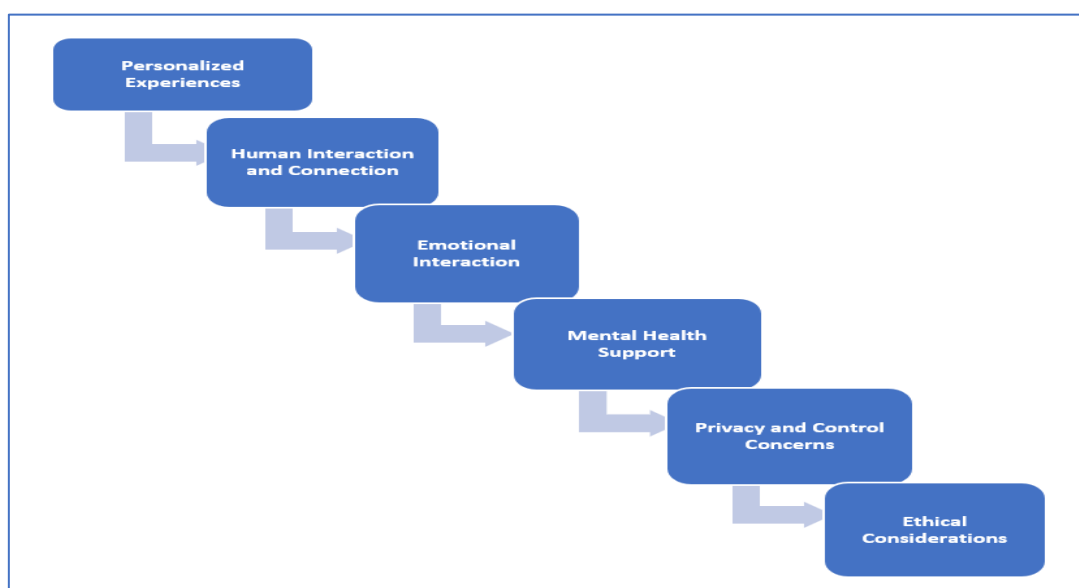


Figure 1: Relation between humans' emotional and mental well-being and the use of AI

Here are some ways in which AI can influence humans' emotional and mental well-being:

- Artificial intelligence (AI) systems have the capability to generate individualized, one-of-a-kind experiences that are tailored to the requirements and preferences of the individual. This has the ability to raise the amount of satisfaction experienced by users and make a positive contribution to the users' overall emotional well-being. For instance, personalised recommendations in the fields of entertainment, commerce, or the consumption of content could produce feelings of contentment and satisfaction in the individual.
- The advancements that have been made in artificial intelligence (AI) have made it possible to create virtual assistants and chatbots that are capable of mimicking human-like dialogues as well as human emotions. Interacting with these artificial intelligence creatures can develop feelings of camaraderie and emotional connection, which can be especially beneficial for persons who endure feelings of loneliness or isolation in their daily lives. However, it is vital to keep in mind that these emotional ties with AI are distinct from relationships with people and should be approached with caution because of this distinction. The topic of emotional ties with AI should also be approached with caution because of the differences between the two.
- In the field of mental health, applications and chatbots powered by artificial intelligence are increasingly being used to provide assistance and services to people who are in need of them. People who are suffering issues with their mental health may benefit from the guidance, information, and even therapeutic treatments that can be supplied by these AI systems. These systems can provide these services. People who are unable to acquire traditional mental health care may benefit from the greater accessibility and sense of support that AI-based mental health technology can provide. These technologies can be developed to help people with mental health issues.
- The collection and analysis of personal data by AI systems might give rise to concerns over privacy and control, which may, in turn, induce mental strain and a sense of being watched. It is possible for individuals to experience an uncomfortable sensation whenever they are made aware that the monitoring and analysis of their personal information is continuing. It is vital to address these issues and create methods that are transparent in order to decrease any negative emotional repercussions that may be experienced. This will help to lessen any emotional fallout that may be experienced.
- The incorporation of prejudices and discriminatory actions into AI algorithms has the ability to both aggravate existing disparities and have a poor impact on the mental health of individuals who are subjected to these prejudices. V. The incorporation of prejudices and discriminatory behaviors into AI algorithms has the potential to both amplify existing disparities and have a negative impact on existing disparities. It's likely that being subjected to unfair AI systems may leave you feeling frustrated, with a sense of injustice, and on the margins of society. If we want to limit the magnitude of these potentially negative psychological impacts, incorporating ethical considerations into the research, development, and deployment of AI is an absolute requirement.
- The fact that AI technologies promote comfort and efficiency, there is a risk that they may result in fewer human-to-human connections in some contexts. This is one of the potential downsides to the advancement of AI. When humans are cut off from authentic human connection and empathy, it can have a detrimental effect on their emotional well-being. This is because people have an innate need for the company of other people. It is vital for the upkeep of one's mental health to discover a happy medium between the incorporation of AI and the maintenance of meaningful human bonds. Finding this happy medium can be challenging, but it is essential.
- A comprehensive knowledge of the connection between artificial intelligence and the mental and emotional well-being of people is necessary for the creation of AI that can be trusted to behave responsibly. It requires ongoing study, consideration of ethical issues, and the use of a methodology that takes a holistic approach and places an emphasis on the health and happiness of individuals as its primary concerns. If we address the potential positive and negative repercussions that AI may have on an individual's emotional and mental well-being, we will be able to take use of the benefits of AI while also limiting any potential problems. This will allow us to maximize the potential of AI.

Review Literature

Cheng et al. (2019) conducted a qualitative study with the objective of examining people's emotional experiences as well as their perspectives on encounters with AI. The findings called attention to a diverse array of emotions, some of which are positive, such as enjoyment, convenience, and entertainment; others are negative, such as frustration, fear, and mistrust; and some are neutral, such as a lack of emotion. These sensations ranged from happy to negative, with some falling squarely into the former category. Participants voiced their concerns about the loss of human connection, privacy, and the necessity of having AI systems that are transparent. Research was carried out by Jacob, L. and colleagues (2020) to investigate the impact that AI-powered mental health applications have on the psychological and emotional well-being of their end users. According to the findings of the study, individuals who utilized AI-based mental health tools found improved accessibility to support in addition to a sense of anonymity. Both of these factors had a positive impact on the participants' emotional well-being. Concerns, on the other hand, have been made concerning the lack of human empathy and the necessity of a human support structure in order for AI tools to function together effectively. Chen et al. (2018) used a survey to conduct an investigation into the feelings of emotional attachment and camaraderie that individuals have while engaging with AI-powered virtual assistants. The researchers were interested in how people feel while interacting with AI-powered virtual assistants. The findings suggest that the participants developed emotional connections with the virtual assistants and ascribed human-like characteristics to the computers. On the other hand, it was recognised that these emotional connections are distinct from the relationships that humans have with one another, and they were regarded as an addition to human interaction rather than a replacement for it. Research was carried out by Williams et al. (2017) to investigate the psychological consequences that biases in AI systems have on underrepresented groups. People who said they had bad emotional experiences as a result of biased AI outcomes reported having feelings such as annoyance, fury, and a sense that they had been treated unfairly, as found in the findings of the study. The findings shed light on how critical it is to eliminate prejudice from artificial intelligence systems in order to advance social justice and psychological health. The researchers Liu et al. (2021) looked into the role that AI-powered recommender systems have in influencing the mental health and happiness of individuals. According to the findings of the study, personalized recommendations generated by AI systems have the capacity to induce pleasurable emotions such as excitement and contentment. However, an over reliance on the recommendations of AI has led to concerns about echo chambers and the potentially negative impact that it could have on the psychological well-being of people.

Lake, E. T., et al. (2022) carried out an extensive examination of the available research on artificial intelligence (AI) and mental well-being, putting a special emphasis on the more recent studies that were published between the years 2020 and 2022. This evaluation was published in 2022. Within the context of the review, it was emphasized how AI-based mental health interventions have the potential to boost accessibility, efficiency, and personalisation of therapy. In addition to this, it highlighted the need for ethical norms and legal frameworks to address problems of discrimination, privacy, and openness. Ali, O., Abdelbaki, et al. (2023) conducted a comprehensive review of previous research that studied the impact that artificial intelligence has on an individual's psychological health. According to the conclusions of the review, tools that are driven by artificial intelligence (AI), such as chatbots and virtual companions, have the potential to positively influence emotional states by providing support, companionship, and tailored interventions. This was found to be the case. Concerns have been raised, however, concerning the shortcomings of AI when it comes to interpreting more subtle feelings. Additionally, there is the potential risk of being overly dependent on AI, which would diminish the significance of human contact. Everyone can benefit from the findings of the subjective well-being study by Vats, N., et al. (2017). According to the findings of this study on people's perceptions of their own well-being, the state of one's health and the capacity for personal growth are now more important than the absence of illness, disease, and developmental disabilities. The latest research on subjective well-being takes into account mental health in its entirety. Student mental health problems are often caused by feelings of depression and anxiety. Investigation based on empirical evidence. A questionnaire with a five-point interval was given to 230 students, 147 of whom were male and 83 of whom were female. The mean and the T-test were used to calculate the findings of the survey. The subjective well-being of college students is improved by the presence of social

support. This study by P, P. M. and Mustafa, K. M. (2021) compared the mental health of adolescents living in broken homes to those living in intact homes. For the purpose of computing statistical indices such as mean, median, skewness, kurtosis, SEM, Mpop, standard deviation, and two-tailed test of significance for difference between means, a random sample of 284 teenagers, consisting of 127 males and 157 girls aged 13-15, was employed. Data from the Mental Health Status Scale. According to the findings of the investigation, females generally have greater mental health than males. Teenagers who grew up in broken homes had poorer mental health than their peers who had grown up in families that remained together.

Chen et al. (2021) conducted a meta-analysis of prior research to determine the efficacy of AI-based treatments for treating mental health issues. The research included both clinical trials and laboratory studies. The findings of the meta-analysis revealed that the application of artificial intelligence (AI) technology, such as machine learning algorithms and natural language processing, to predict treatment outcomes, recognize early warning signs, and personalize medicines showed promising results. On the other hand, it was suggested that additional study be carried out in order to determine the efficacy and cost-efficiency of AI interventions over the course of a longer period of time. Della Monica, A., et al. (2022) carried out a literature review on the subject of artificial intelligence ethics and mental well-being in their research. The authors primarily focused their attention on the ethical concerns and roadblocks that are associated with the deployment of AI in mental health settings. This review shed light on the necessity of openness, explainability, and collaboration between humans and artificial intelligence in order to ensure that AI systems respect individual autonomy, safeguard privacy, and minimize biases that may have an effect on mental well-being. Specifically, this review focused on the importance of openness and explainability. The necessity of multidisciplinary cooperation between AI engineers, ethicists, and psychologists was emphasized in the study as a means of resolving these ethical challenges caused by artificial intelligence (AI). Gera, R., et al. (2023) carried out an in-depth analysis of research that investigated the psychological effects of AI-generated content. This included the algorithms utilized in social media platforms as well as suggestions that were personalized to the individual. The investigation helped shed some light on some of the concerns regarding the potential for AI to establish echo chambers, encourage negative attitudes, and regulate human behavior. The study underlined how vital it is for users to be empowered, for algorithms to be transparent, and for users to have influence over the material that is generated by artificial intelligence in order to foster excellent emotional well-being. These studies demonstrate the wide range of emotions and experiences that are associated with human interaction with AI and provide insights into the potential impact on both mental and emotional well-being. They bring to light the importance of ensuring that artificial intelligence is developed in a responsible manner that addresses concerns regarding privacy, encourages openness, reduces biases, and recognises the role that human connection plays in fostering emotional well-being. Additional research needs to be carried out in order to explore deeper into various aspects of AI and its influence on emotional and mental well-being. This is necessary in order to advance the field.

Research Methodology

A comprehensive review of existing literature on influencer human's emotional & mental well-being has been conducted to provide a theoretical framework for the study. A survey has been conducted to collect quantitative data on the perceptions and influence of artificial intelligence on human's emotions & mental wellbeing. The survey will be distributed to a diverse sample of participants across various demographics and geographic locations. In-depth interviews with medical professionals and influencers have been conducted to gain qualitative insights into the influence of AI on human emotions & mental well-being. The data collected through the survey; interviews have been analysed using statistical software to identify correlation between AI & other factors of human emotions & mental well-being. The findings of the study have been presented and discussed in the context of the existing literature on AI & mental well-being. The study will conclude with findings for AI looking to develop an effective influence in health sector which directly impacts on mental well being & human's emotional strength. Total sample size 90. Both primary & secondary data has been used.

Objective of the study

- To analyze the correlation between AI & among the factors of humans' emotional & mental well-being.

- To provide insights for AI looking to develop an effective strategy to dominate healthcare industry.

Hypothesis of the study

H1 There is no positive relationship between AI & among the factors of humans' emotional & mental well-being.

H1 There is a positive relationship between AI & among the factors of humans' emotional & mental well- being.

Result and discussion

Table 1: Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
.864	7

Cronbach's Alpha was estimated to have a value of .864 (n=7), which means that there is internal consistency among the variables because the expected value is higher than .70. In Table 1, which also showed how many people took part, the study's reliability data were shown.

Table 2: Descriptive Statistics

Descriptive Statistics						
S.No.		N	Minimum Values	Maximum Values	Mean Values	S.D. Values
1.	Human-AI Interaction	90	1	5	2.99	1.027
2.	AI Accuracy and Reliability which enables mental strength	90	1	5	3.76	1.816
3.	Privacy and Data Security which secures humans' emotions	90	1	5	3.98	1.462
4.	Algorithmic Bias and Fairness	90	1	5	3.64	1.221
5.	Transparency and Explainability	90	1	5	3.12	1.735
6.	User Empowerment and Control	90	1	5	2.67	1.983

7.	Ethical and Responsible AI Development	90	1	5	2.71	1.865
	Valid N (listwise)	90				

Table 2 looked at the descriptive statistics of the current analysis and found that Privacy and Data Security, which protects people's emotions, is the most important factor affecting the research (Mean = 3.98, Standard Deviation = 1.462).

Table 3: Correlations Analysis

Correlations								
		Human-AI Interaction	AI Accuracy and Reliability which enables mental strength	Privacy and Data Security which secures humans' emotions	Algorithmic Bias and Fairness	Transparency and Explainability	User Empowerment and Control	Ethical and Responsible AI Development
Human-AI Interaction	Pearson Correlation	1	-0.104	0.076	0.021	-0.002	-0.052	-0.073
	Sig. (2-tailed)		0.217	0.745	0.876	0.799	0.271	0.451
	N	90	90	90	90	90	90	90
AI Accuracy and Reliability which enables mental strength	Pearson Correlation	-0.063	1	-0.084	-0.087	-0.062	-0.072	0.031
	Sig. (2-tailed)	0.378		0.273	0.101	0.210	0.831	0.783
	N	90	90	90	90	90	90	90

Privacy and Data Security which secures humans' emotions	Pearson Correlation	0.028	-0.096	1	.816**	.602**	.219**	.632**
	Sig. (2-tailed)	0.682	0.217		0.000	0.000	0.000	0.000
	N	90	90	90	90	90	90	90
Algorithmic Bias and Fairness	Pearson Correlation	0.032	-0.086	.789**	1	.882**	.476**	.654**
	Sig. (2-tailed)	0.832	0.213	0.000		0.000	0.000	0.000
	N	90	90	90	90	90	90	90
Transparency and Explainability	Pearson Correlation	-0.005	-0.071	.621**	.885**	1	.619**	.598**
	Sig. (2-tailed)	0.993	0.201	0.000	0.000		0.000	0.000
	N	90	90	90	90	90	90	90
User Empowerment and Control	Pearson Correlation	-0.068	-0.051	.193**	.473**	.521**	1	.423**
	Sig. (2-tailed)	0.311	0.804	0.000	0.000	0.000		0.000
	N	90	90	90	90	90	90	90
Ethical and Responsible AI Development	Pearson Correlation	-0.134	0.101	.623**	.617**	.665**	.413**	1

	Sig. (2-tailed)	0.528	0.902	0.000	0.000	0.000	0.000	
	N	90	90	90	90	90	90	90

Table 3 studied the correlation analysis of the study and indicated that the Human-AI Interaction is positive correlated with AI Accuracy and Reliability which enables mental strength, Privacy and Data Security which secures humans’ emotions, Algorithmic Bias and Fairness, Transparency and Explainability, User Empowerment and Control, Ethical and Responsible AI Development. The AI Accuracy and Reliability which enables mental strength is positive correlated with the Human-AI Interaction, Privacy and Data Security which secures humans’ emotions, Algorithmic Bias and Fairness, Transparency and Explainability, User Empowerment and Control, Ethical and Responsible AI Development. The Privacy and Data Security which secures humans’ emotions is positive correlated with the Human-AI Interaction, AI Accuracy and Reliability which enables mental strength, Algorithmic Bias and Fairness, Transparency and Explainability, User Empowerment and Control, Ethical and Responsible AI Development. The Algorithmic Bias and Fairness is positive correlated with the Human-AI Interaction, AI Accuracy and Reliability which enables mental strength, Privacy and Data Security which secures humans’ emotions, Transparency and Explainability, User Empowerment and Control, Ethical and Responsible AI Development. The Transparency and Explainability is positive correlated with the Human-AI Interaction, AI Accuracy and Reliability which enables mental strength, Privacy and Data Security which secures humans’ emotions, Algorithmic Bias and Fairness, User Empowerment and Control, Ethical and Responsible AI Development. The User Empowerment and Control is positive correlated with Human-AI Interaction, AI Accuracy and Reliability which enables mental strength, Privacy and Data Security which secures humans’ emotions Algorithmic Bias and Fairness, Transparency and Explainability, Ethical and Responsible AI Development. The Ethical and Responsible AI Development is positive correlated with Human-AI Interaction, AI Accuracy and Reliability which enables mental strength, Privacy and Data Security which secures humans’ emotions, Algorithmic Bias and Fairness, Transparency and Explainability, User Empowerment and Control. Therefore, findings of the study documented that all the variables under study are positively correlated with each other.

Hypothesis testing

After applications statistical tools such as correlation analysis, the findings of the study documented that the null hypothesis which is “there is no positive relationship between AI & among the factors of humans’ emotional & mental well- being” is rejected and alternative hypothesis which is “there is a positive relationship between AI & among the factors of humans’ emotional & mental well- being” is accepted.

Outcomes/findings of the previous studies & data analysis

In recent years, there has been a significant increase in the amount of focus placed on research into the field of applying artificial intelligence (AI) in the field of medicine. This is a quickly emerging topic. Numerous methodologies have been utilized during the course of the many investigations that have been carried out concerning the possible uses of AI in medical settings.

Here is a review of some key themes and findings from previous studies on AI in healthcare:

- The usefulness of AI algorithms in the field of medical diagnosis has been the focus of examination in a number of studies that have been carried out in recent years. When it comes to the diagnosis of skin cancer from images, for instance, a study that was carried out by Esteva et al. (2017) discovered that an AI system got accuracy that was comparable to that of dermatologists. In a similar line, research that has been undertaken on the use of artificial intelligence to the detection of abnormalities in medical imaging, such as the identification of cancers in radiological images, has shown good results.

- The use of artificial intelligence has allowed for predictions to be made about the consequences of diseases as well as the evaluation of individual risk indicators. For instance, researchers have developed models that make use of techniques from the field of machine learning in order to forecast the chance of developing chronic illnesses such as diabetes, cardiovascular disease, and cancer. These models have been established in order to predict the likelihood of developing these diseases. These models include a wide range of patient data, such as demographic information, information about the patient's medical history, and genetic information, in order to provide tailored risk assessments for each individual.
- Research has been conducted into the potential utility of artificial intelligence (AI) systems as tools that could assist medical professionals in the process of planning treatments and making decisions. Several research have been conducted to study the use of AI algorithms to offer suggestions for therapies, estimate the ideal dosage of medications, and anticipate how patients would react to various treatments. With the assistance of these decision support systems that are powered by artificial intelligence, the clinical decision-making process can be improved.
- Methods from the field of artificial intelligence have been used to analyze huge numbers of electronic medical records in order to identify patterns, trends, and associations that might be relevant for clinical practice. This has been done in order to improve the quality of patient care.
- With the use of natural language processing and machine learning techniques, researchers have been able to extract usable information from unstructured EHR data. The early diagnosis of adverse events, the identification of drug interactions, and the management of population health have all been made possible as a result of this development.
- Investigations are being carried out to examine whether or not technologies that are powered by artificial intelligence can help with the remote monitoring of patients and give tailored medical attention. This includes the use of wearable devices and sensors to collect real-time health data, which is then assessed by
- AI algorithms to find potential health issues or anomalies. One example of this would be the usage of a smart watch to monitor your heart rate. The Apple Watch is a good illustration of this concept because it employs sensors to gather data. It may be possible for remote monitoring enabled by AI to permit earlier intervention and increase the efficiency of healthcare services.
- Several different studies have been conducted to evaluate the potential ethical and legal ramifications that artificial intelligence may have on the area of medicine. A wide range of concerns have been taken into account, such as data privacy, algorithmic bias, informed consent, and accountability, amongst others.
- Researchers have emphasized the importance of adopting methods that are both open and ethical in the process of developing artificial intelligence (AI), both to ensure that patients have faith in the technology and to maintain the reliability of healthcare systems.

In general, previous research on the use of AI in healthcare has shown that these technologies have the potential to improve areas such as diagnosis, treatment planning, and patient care. These studies, while encouraging, also show how important it is to solve difficulties such as the quality of the data, the interpretability of the data, regulatory frameworks, and ethical considerations. Validating the findings, improving AI algorithms, addressing biases, and establishing standards for the appropriate deployment of AI in healthcare settings all require additional research.

Conclusion

It is imperative that research be conducted on the effects that technologies such as AI, which are continuously advancing and becoming more pervasive in our everyday lives, have on the mental and emotional health of people. Although artificial intelligence has the potential to increase productivity and convenience, it also offers a variety of challenges in terms of interactions between humans and AI, privacy concerns, biases, and a reduced personal connection. Despite these challenges, AI has the ability to improve both. We can ensure the proper inclusion of AI into society by addressing these issues and putting the mental and emotional well-being

of people at the forefront of our efforts. The effect that artificial intelligence has on the mental, emotional, and physical well-being of people is a complicated topic that requires deeper investigation. Researchers, policymakers, and developers of artificial intelligence (AI) can work toward prioritizing and improving emotional and mental well-being if they are aware of the potential positive and negative implications that could be caused by artificial intelligence (AI) and if they strive to design technologies that take these affects into account in the design of those technologies. It is of the utmost importance to locate a happy medium between the benefits that can be provided by artificial intelligence and the preservation of human connection and well-being. An individual's mental and emotional health can be affected, either for the better or for the worse, by the use of artificial intelligence, as indicated by the conclusions of a variety of studies that were conducted on the topic. Users of applications that are driven by AI have the capacity to receive personalized experiences from those applications, which, on the positive side, can boost a person's sense of satisfaction and make a contribution to their mental health. It is feasible that one day people will feel less lonely and more connected to one another thanks to chatbots and other forms of artificial intelligence meant to simulate human communication. Applications of artificial intelligence (AI) in the field of mental health have the potential to extend accessibility to support and resources, which, if they were to be implemented, would have a positive influence on individuals' mental well-being. Artificial intelligence applications in the field of mental health also have the potential to improve accessibility to support and resources.

Future Research Implications

Although there has been an increase in research on the interface of artificial intelligence and mental health, there are still a number of areas that merit additional examination. One such area is the topic of artificial intelligence's impact on children's mental health. The application of artificial intelligence (AI) in the field of mental health raises a number of important ethical questions that require more in-depth investigation than has previously been done. This entails conducting study into issues including privacy, data security, consent, and the potential for AI to exacerbate already-present prejudices or discriminate against certain communities. The LGBTQ community is one of the groups that needs to be investigated further as a whole. It would be good to explore existing ethical frameworks and principles in the field of mental health that are suited to AI. It is of the utmost importance to acquire a grasp of the experiences and points of view of users about AI-based mental health interventions. It is possible for research to explore the factors that influence user acceptance of AI technologies, engagement with those products, and overall satisfaction with such tools. The design of the user interface, the methods for establishing trust, and the impact that the contact between humans and AI has on the therapeutic relationship are all examples of these elements.

Even though the findings of the preliminary research have been positive, additional research is still required to assess whether or not AI-based mental health interventions are helpful. This includes doing in-depth evaluations of the influence on mental health outcomes, comparing studies with other interventions that are considered to be more conventional, investigations on the affects of long-term exposure, and the identification of specific subpopulations that may benefit the most from AI interventions.

There is a need for study to investigate the possibility of integrating AI technologies into the procedures that are already in place within the framework of existing mental health systems. This includes researching the potential benefits and drawbacks of incorporating AI technology into clinical practice, being familiar with the perspectives of professionals in the field of mental health, and identifying the most successful mechanisms for collaboration between AI systems and human practitioners. It may be challenging and confusing to comprehend the AI algorithms that are utilized in the field of mental health. Research is required in order to develop methods for explaining the decision-making processes of AI systems to mental health professionals as well as users of these systems. These methods must be developed in order to meet the demands of the industry. Increasing transparency and interpretability in mental health interventions that are helped by artificial intelligence might help create trust, which in turn makes collaborative decision-making easier and ensures responsibility. A significant number of AI systems are trained on datasets that are mostly from the Western world. This may not accurately reflect a diversity of population types because the datasets are primarily from the Western world. When it comes to issues concerning mental health, additional investigation is required to

determine whether or not AI tools are appropriate for use in specific cultures, whether or not they are capable of being generalized, and whether or not they could possibly have biases. This requires having an understanding of the effect that different cultural elements have on the application of AI solutions and the degree to which they are successful. Research that is conducted over an extended period of time is required in order to examine the effects that AI has on the outcomes of mental health conditions. This includes examining potential dangers, such as placing an excessive level of confidence on AI technologies or the unexpected effects of prolonged interactions between humans and AI. Other potential dangers include placing an excessive amount of reliance on AI technologies. It is vital to have a strong grasp of the dynamic link that exists between artificial intelligence and mental health over time in order to properly apply artificial intelligence. This link must be understood in order to apply artificial intelligence responsibly.

When it comes to mental health, targeting these areas of research can help us have a better understanding of the opportunities and challenges that are related with artificial intelligence (AI). This comprehension will help guide the development, implementation, and regulation of technologies including artificial intelligence to ensure that they effectively and ethically support the mental well-being of people.

References

1. Ali, O., Abdelbaki, W., Shrestha, A., Elbasi, E., Alryalat, M. A. A., & Dwivedi, Y. K. (2023). A systematic literature review of artificial intelligence in the healthcare sector: Benefits, challenges, methodologies, and functionalities. *Journal of Innovation & Knowledge*, 8(1), 100333.
2. Bohr A, Memarzadeh K (2020) The rise of artificial intelligence in healthcare applications. *Artificial intelligence in healthcare*. Elsevier, Amsterdsam, pp 25–60
3. Chen, Y., Schönlieb, C. B., Liò, P., Leiner, T., Dragotti, P. L., Wang, G., ... & Yang, G. (2021). AI-based Reconstruction for Fast MRI--A Systematic Review and Meta-analysis. *arXiv preprint arXiv:2112.12744*.
4. Cheng, V. W. S., Davenport, T., Johnson, D., Vella, K., & Hickie, I. B. (2019). Gamification in apps and technologies for improving mental health and well-being: systematic review. *JMIR mental health*, 6(6), e13717.
5. Chen, Z., Badrinarayanan, V., Lee, C. Y., & Rabinovich, A. (2018). Gradnorm: Gradient normalization for adaptive loss balancing in deep multitask networks. In *International conference on machine learning* (pp. 794-803). PMLR.
6. Della Monica, A., Ferrara, P., Dal Mas, F., Cobianchi, L., Scannapieco, F., & Ruta, F. (2022). The impact of Covid-19 healthcare emergency on the psychological well-being of health professionals: a review of literature. *Ann Ig*, 34(1), 27-44.
7. Gera, R., & Kumar, A. (2023). Artificial Intelligence In Consumer Behaviour: A Systematic Literature Review of Empirical Research Papers Published In Marketing Journals (2000-2021). *Academy of Marketing Studies Journal*, 27(S1).
8. Hang Y, Khan S, Alharbi A, Nazir S (2022) Assessing english teaching linguistic and artificial intelligence for efficient learning using analytical hierarchy process and technique for order of preference by similarity to ideal solution. *J Softw Evolut Process*.
9. Irfan, S. B. (2019). Ecotourism, Scope in India, Entrepreneurship Development, Deficiency in the System, Remedial Actions, Impact on Well Being. *National Journal of Arts, Commerce & Scientific Research Review*, 6(1), 209-211. <https://www.kaavpublications.org/spiabstracts/ecotourism-scope-in-india-entrepreneurship-development-deficiency-in-the-system-remedial-actions-impact-on-well-being>
10. Jacob, L., Tully, M. A., Barnett, Y., Lopez-Sanchez, G. F., Butler, L., Schuch, F., ... & Smith, L. (2020). The relationship between physical activity and mental health in a sample of the UK public: A cross-sectional study during the implementation of COVID-19 social distancing measures. *Mental health and physical activity*, 19, 100345.
11. Liu, Y., & Tsyvinski, A. (2021). Risks and returns of cryptocurrency. *The Review of Financial Studies*, 34(6), 2689-2727.

12. Lake, E. T., Narva, A. M., Holland, S., Smith, J. G., Cramer, E., Rosenbaum, K. E. F., ... & Rogowski, J. A. (2022). Hospital nurses' moral distress and mental health during COVID-19. *Journal of Advanced Nursing*, 78(3), 799-809.
13. P, P. M., & Mustafa, K. M. (2021). Mental Health Status a Comparative Study of Adolescents from Broken and Intact Families. *Kaav International Journal of Arts, Humanities & Social Science*, 8(4), 17-20. <https://www.kaavpublications.org/abstracts/mental-health-status-a-comparative-study-of-adolescents-from-broken-and-intact-families>
14. Rooba, R., & Jayapriya, K. (2019). The World of the Relationship between Jane Austen's *Pride and Prejudice*. *Kaav International Journal of English, Literature and Linguistics*, 6(1), 23-25. <https://www.kaavpublications.org/abstracts/the-world-of-the-relationship-between-jane-austens-pride-and-prejudice>
15. Sharma, S. (2021). Emotional Self Care. *Kaav International Journal of Economics, Commerce & Business Management*, 8(4), 19-21. <https://doi.org/10.52458/23484969.2021.v8.iss4.kp.a4>
16. Shaik, K., & Battu, N. (2018). A Study on Emotional Intelligence and Occupational Stress Among Nurses In Hospitals. *Kaav International Journal of Economics, Commerce & Business Management*, 5(1), 89-95. <https://www.kaavpublications.org/abstracts/a-study-on-emotional-intelligence-and-occupational-stress-among-nurses-in-hospitals>
17. Vats, N., & Sharma, A. (2017). An Empirical Study of Subjective Well Being and Solutions to the Mental Health Issues of Engineering Students. *Kaav International Journal of Arts, Humanities & Social Science*, 4(2), 479-484. <https://www.kaavpublications.org/abstracts/an-empirical-study-of-subjective-well-being-and-solutions-to-the-mental-health-issues-of-engineering-students>
18. Williams, M. L., Burnap, P., & Sloan, L. (2017). Towards an ethical framework for publishing Twitter data in social research: Taking into account users' views, online context and algorithmic estimation. *Sociology*, 51(6), 1149-1168.