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# Artificial Intelligence and Human Well-Being: A Review of Applications and Effects on Life Satisfaction through Synthetic Happiness

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**Abstract.** This paper examines the role of Artificial Intelligence in enhancing human well-being across domains such as healthcare, mental health, and education. A key contribution is the introduction of synthetic happiness—a form of well-being facilitated or enhanced by AI rather than naturally occurring processes. By reviewing current advancements, the study highlights AI's positive impact on life satisfaction while addressing ethical concerns and potential drawbacks. The paper explores AI's role in personalised healthcare, mental health support, and adaptive education, demonstrating how it fosters environments conducive to happiness. It further analyses synthetic happiness as a novel perspective on AI-driven well-being, discussing its benefits and risks, including reduced human interaction and over-reliance on artificial systems. While AI presents transformative opportunities to enhance happiness, it must complement rather than replace genuine human experiences. This paper provides a foundation for understanding AI's role in well-being and offers insights for future research and applications.
**Keywords:** Artificial Intelligence, Synthetic Happiness, Synthetic Well-Being.

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## 1 Introduction

Artificial Intelligence (AI) is a field of computer science that seeks to develop systems capable of performing tasks that traditionally require human intelligence. These tasks include learning, reasoning, perception, decision-making and natural language interaction. AI encompasses several sub-disciplines, such as machine learning, natural language processing, computer vision and robotics, among others.

From a more technical perspective, AI can be defined as the ability of a computational system to interpret external data, learn from it and use that knowledge to achieve specific goals through adaptation and continuous improvement. The relationship between artificial intelligence and human well-being has become a topic of growing interest in the context of smart cities. Smart cities, which integrate advanced technologies to improve the quality of life of their inhabitants, rely heavily on AI to optimise the management of urban resources and services. This synergy between AI and human well-being manifests itself in several dimensions, including health, citizen participation and sustainability.

In this paper, we examine the role of Artificial Intelligence in enhancing human well-being across various domains, with a particular focus on healthcare, mental health, and education. As AI continues to integrate into daily life, it not only optimizes efficiency and accessibility but also introduces a novel concept: synthetic happiness. This refers to a form of well-being that is facilitated or enhanced by AI, rather than emerging solely from natural human experiences. While AI has the potential to significantly improve life satisfaction—offering personalized healthcare solutions, mental health support, and adaptive education—it also raises critical ethical and philosophical concerns. The increasing reliance on AI for emotional and

psychological fulfillment challenges traditional notions of happiness, raising questions about authenticity, human interaction, and the risks of over-dependence on artificial systems. This paper explores these dynamics, analyzing AI's contributions to well-being while addressing its limitations and long-term implications.

## 2 Human Well-being and its Dimensions

A Subjective well-being (SW) refers to an individual's personal evaluation of his or her life, which includes emotional and cognitive aspects. This concept has been consolidated in psychology as a fundamental component of general well-being, and is characterised by life satisfaction and the presence of positive emotions, as well as the absence of negative emotions (Castaños-Cervantes et al., 2017; Tapia & Garduño, 2023; Linares et al., 2022). The literature suggests that subjective well-being is not only related to happiness, but is also linked to other psychological factors, such as mental health and emotional adjustment (Castaños-Cervantes et al., 2017; Linares et al., 2022; Loy et al., 2022).

From a broader perspective, subjective well-being can be broken down into several components. According to research, three main dimensions are identified: life satisfaction, positive emotions and negative emotions (Tapia & Garduño, 2023; Alfageme & Filgueira, 2022). These components interact in a complex way, where an increase in life satisfaction is generally associated with an increase in positive emotions and a decrease in negative emotions (Tapia & Garduño, 2023; Fernández et al., 2019). Furthermore, subjective well-being has been found to be significantly related to mental health indicators, such as depression and anxiety, where low levels of subjective well-being can be a predictor of psychological problems (Linares et al., 2022; Loy et al., 2022; Patias et al., 2017).

On the other hand, psychological well-being, which is often considered a complementary construct to subjective well-being, focuses on personal development and a sense of purpose in life. This type of well-being is associated with the realisation of potentials and personal growth, which translates into a more meaningful life (Ramírez-Maestre, 2016; L. & U., 2003). The distinction between subjective and psychological well-being is crucial, as the former focuses on emotional experience and satisfaction, while the latter relates to self-fulfilment and personal development (Ramírez-Maestre, 2016; Alfageme & Filgueira, 2022).

Happiness and life satisfaction are multifaceted concepts that depend on a variety of internal and external factors. These factors can be organised into different dimensions, including socio-demographic, psychological, interpersonal and contextual aspects, each of which has a significant influence on the subjective perception of well-being. Emotional well-being and life satisfaction result from the interaction of socio-demographic, psychological, relational and environmental factors. Understanding these dimensions is fundamental to designing strategies and interventions that promote well-being and improve quality of life in different communities.

Socio-demographic factors, such as age, marital status and educational level, have been shown to have a considerable impact on happiness. For example, studies have found that married people tend to report higher levels of happiness compared to single people, suggesting that stable interpersonal relationships may contribute to higher life satisfaction Giraldo (2019)López & Fierro, 2016). In addition, age has also been associated with happiness, where older people tend to report higher levels of subjective well-being, possibly due to greater emotional stability and better management of life expectations (Macías, 2022; Castilla et al., 2016). Early life events, such as childhood maltreatment, can have lasting effects on mental health and happiness in adulthood. Research indicates that adverse childhood experiences are negatively correlated with indicators of well-being, self-esteem and life satisfaction in adulthood (Saavedra, 2020). This suggests that family context and early experiences are crucial for the development of a satisfying life.

From a psychological perspective, emotional intelligence and engagement skills are also important determinants of happiness. Studies have shown that higher emotional intelligence is associated with higher levels of happiness, as it allows people to better manage their emotions and interpersonal relationships (Laguna et al., 2020). Likewise, engagement, or active involvement in meaningful activities, has been positively correlated with life satisfaction, indicating that connection with activities that bring personal value may be a key factor in happiness (Laguna et al., 2020).

In addition, interpersonal relationships play a key role in happiness. The quality of social relationships, whether with friends, family or colleagues, influences perceptions of well-being. Satisfaction in personal relationships has been linked to greater happiness, as positive interactions can provide emotional support and a sense of belonging (Valverde-Alva, 2024). On the other hand, conflict in relationships can have a negative effect on life satisfaction, highlighting the importance of a healthy social

environment (Carreón-Guillén et al., 2020). Socio-economic context and working conditions are also significant determinants of happiness. Economic stability and a positive work environment, where the individual's contribution is valued and recognition is encouraged, are associated with higher levels of satisfaction (Gabini, 2017; Jiménez-Sierra et al., 2021). In times of crisis, such as during the pandemic, it has been observed that economic uncertainty can negatively affect perceptions of happiness and well-being (Pacosonco & Gallegos, 2021; Ripoll et al., 2019).

The pyramid of needs is a psychological theory formulated by Abraham Maslow in his work A Theory of Human Motivation, published in 1943. This theory has had a significant impact on psychology, education, marketing and management by providing a framework for understanding human motivation and personal development. The pyramid is commonly represented as a hierarchy of needs, which are organised into five levels, from the most basic to the most complex. Despite its popularity, Maslow's theory has been subject to criticism. Some researchers argue that the hierarchy is not as rigid as Maslow proposed, and that people may seek to satisfy multiple needs simultaneously. In addition, the theory has been criticised for its lack of solid empirical evidence and for its focus on a Western perspective on motivation.Since its formulation in 1943, Maslow's pyramid has been a fundamental reference in the understanding of human motivation. Its approach, based on a hierarchy of needs to be progressively satisfied, has influenced multiple disciplines, from psychology to marketing and organisational management. However, with the passage of time and the advancement of knowledge in behavioural science, significant limitations have been identified in this model. These limitations have led us to develop a new pyramid that not only better explains human well-being, but also offers more applicable tools to achieve it in today's context.

One of the main limitations of Maslow's pyramid is its rigidity. The theory states that people must first satisfy their physiological needs before they can concern themselves with security, belonging, esteem and, finally, self-fulfilment. However, reality shows that people do not follow this order strictly. There are individuals who, despite facing economic insecurity or adverse conditions, find purpose, develop creativity and achieve deep satisfaction in their lives. This flexibility, which Maslow did not consider in his original formulation, is fundamental to understanding the human experience in a more realistic and dynamic way.

Another shortcoming of the traditional pyramid is its dependence on external factors for need satisfaction. Maslow suggests that only when certain external requirements are met, such as economic stability, job security or social acceptance, can people aspire to higher levels of personal development. However, recent research in positive psychology has shown that well-being does not depend exclusively on external factors, but can be cultivated through internal mechanisms such as gratitude, resilience, emotional regulation and cognitive reconfiguration. Happiness is not only the result of satisfying external needs, but also the ability to generate satisfaction with the resources available in any given circumstance. Moreover, Maslow's model reflects an individualistic and Western view of human development, which limits its applicability to different cultures and contexts. In many societies, happiness is not based solely on personal achievement, but on connection to community, collective purpose and transcendence beyond oneself. Well-being is not an isolated goal that each person pursues separately, but an interdependent process where the social environment, relationships and shared values play an essential role. The new pyramid we propose incorporates this collective dimension, allowing for a deeper understanding of happiness in diverse cultural contexts.

Maslow's pyramid does not integrate modern psychological tools that have been shown to be essential for well-being. Concepts such as mindfulness, emotional regulation, the search for purpose and adaptability in the face of adversity are fundamental to personal development. The new pyramid includes these tools and does not conceive them as a final level of self-realisation, but as elements that can be cultivated at any stage of life. In this way, happiness is no longer seen as a distant goal that can only be reached after completing other stages, but becomes an active process that people can build in the present. In the face of these shortcomings, our proposal for a new pyramid not only corrects the limitations of Maslow's theory, but also provides a more flexible, applicable and scientifically grounded approach. Instead of a rigid, linear hierarchy, this new model recognises that people can work at different levels simultaneously, adapting to their circumstances and resources. Rather than relying exclusively on external factors, it emphasises the importance of internal mechanisms that enable well-being to be generated independently of external conditions. Instead of focusing only on individual growth, it incorporates the social and community dimension of well-being.

The world we live in today is more dynamic, uncertain and complex than the one Maslow knew in his time. Global crises, economic instability and social change have shown that happiness cannot depend exclusively on favourable external conditions. That is why this new pyramid is necessary: because it offers a more realistic and effective vision of well-being, adapted to the needs of the present and backed by contemporary science. It is not just about understanding how human motivation works, but about providing a framework that helps people build happiness in a sustainable way, regardless of the circumstances they face.

The Happiness Pyramid is a conceptual model that visually illustrates the hierarchical elements contributing to well-being, much like the nutritional pyramid does for a balanced diet. It provides a clear and structured approach to prioritizing essential aspects of happiness, starting with foundational needs and progressing toward higher levels of personal growth. This framework enables individuals to understand how to systematically build their emotional and psychological well-being, ensuring a balanced and holistic approach to achieving a fulfilling life.

The Happiness Pyramid (figure 1): A Framework for Well-Being provides a structured approach to enhancing well-being by addressing essential needs first and progressively incorporating more advanced aspects of personal development. By focusing on each layer, individuals can build a solid foundation for happiness and work towards achieving their full potential. A Happiness Pyramid involves structuring elements that contribute to subjective and psychological well-being in a hierarchical manner, similar to a nutritional pyramid. This framework helps prioritize essential factors for happiness, ensuring balance and progression from basic needs to more advanced aspects of personal growth.

1. The foundation of emotional well-being lies in addressing basic needs, particularly safety and security. Without these essentials, achieving emotional stability becomes an uphill battle. Financial stability, physical safety, and access to resources form the cornerstone of this layer. Actions such as ensuring a stable income through employment or investments and creating a safe living environment are critical. These efforts provide the stability needed to focus on higher levels of well-being, setting the stage for emotional resilience.
2. The second layer focuses on physical health, which directly impacts mental and emotional well-being. A healthy body strengthens one's capacity to manage stress and fosters mental clarity. Key elements include regular exercise, balanced nutrition, and adequate sleep. Practically, this translates to engaging in daily activities such as walking, yoga, or sports, alongside maintaining a diet rich in fruits, vegetables, and whole grains. Consistent sleep hygiene further reinforces this layer, ensuring the body is equipped to support emotional stability.
3. Social connections form the third layer of the framework, highlighting the importance of relationships in fostering emotional support and a sense of belonging. Family bonds, friendships, and community ties are vital in this regard. Spending quality time with loved ones and participating in activities or groups that align with one's interests strengthens these connections. Volunteering or helping others adds another dimension to social bonds, creating a mutual exchange of emotional support that benefits all parties involved.
4. The fourth layer centres on mindfulness and gratitude, practices that nurture awareness and appreciation, enhancing overall emotional well-being. Incorporating daily mindfulness activities, such as meditation or deep breathing exercises, helps cultivate inner peace and clarity. Journaling gratitude by noting three things to be thankful for each day further enriches this layer. These habits foster a positive outlook on life, providing the mental tools to navigate challenges with a balanced perspective.
5. The apex of the framework lies personal growth and purpose, which bring depth and meaning to life. This layer is characterised by continuous learning, goal-setting, and contributing to a greater cause. Lifelong learning through courses, workshops, or self-study keeps the mind engaged and inspired. Setting challenging yet achievable goals that align with personal values offers a sense of direction. Contributing to a cause larger than oneself instils purpose, completing the pyramid of emotional well-being and ensuring a fulfilling life journey.

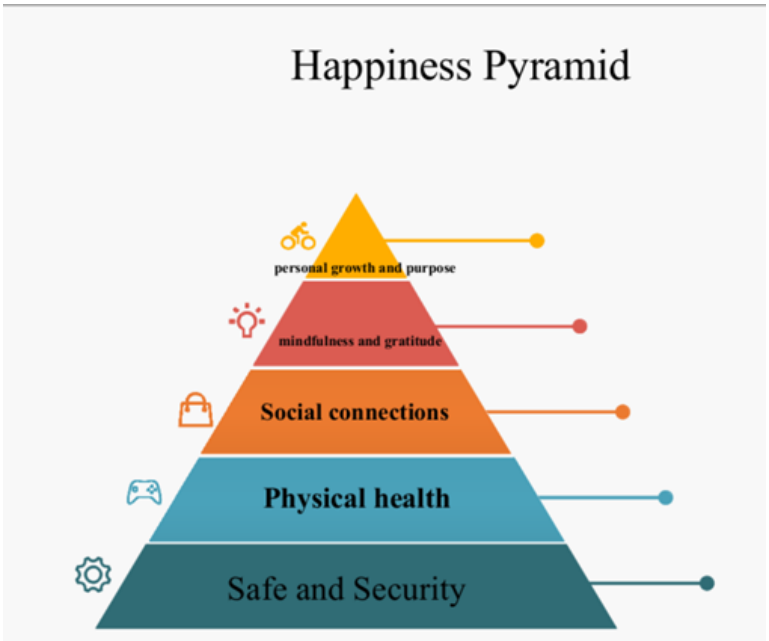


Figure 1. Happiness Pyramid.

Harmonic Wellbeing is an innovative concept that defines subjective and psychological well-being as a state of harmony and positivity. This well-being is cultivated through the appreciation of life's small moments, positive thinking, and a proactive approach to health and inner balance. Within Harmonic Wellbeing, individuals nurture peaceful relationships with others, fostering an environment of cooperation and respect. It emphasises the strengthening of emotional resilience, enabling individuals to navigate adversity without succumbing to negative emotions. This optimistic state not only enhances quality of life but also contributes to a more balanced and harmonious society, where each person can achieve their fullest potential for happiness. Harmonic Wellbeing is a holistic approach to well-being that integrates health, positivity, mindfulness of everyday life, and an attitude of peace, ultimately leading to a more fulfilling and joyful existence.

## 3. Synthetic Happiness and its Dimensions

Synthetic Happiness, or Synthetic Well-Being, is a state of emotional and psychological well-being designed, modelled or optimised through interaction with Artificial Intelligence systems, integrating principles of eudaimonia - understood as the pursuit of human flourishing - with synthetic data and adaptive algorithms. This concept, described as Artificial Eudaimonia, is inspired by Greek philosophy (eudaimonia = full happiness) and merges with technology to transcend traditional happiness, creating personalised experiences that promote self-fulfilment, purpose and emotional balance in a digitally mediated environment.

The concept of Synthetic Happiness or AI-enhanced Wellbeing proposes that emotional and psychological well-being can be designed, modelled or optimised through interaction with Artificial Intelligence systems. Unlike traditional models of happiness that rely on natural experiences, this framework integrates the pursuit of human flourishing - with synthetic data and adaptive algorithms. This new perspective enables individuals to leverage AI-powered tools to enhance life satisfaction, create personalised wellbeing experiences and optimise personal growth in a digitally mediated environment. The Synthetic Happiness Pyramid (Figure 2) organises these AI-enabled well-being factors into five hierarchical layers, each addressing an essential aspect of happiness in a technologically advanced society:

1. At the bottom of the pyramid is Digital Security and Stability, which is the backbone of emotional well-being in the age of AI. Without secure access to digital tools and stable financial or social conditions, it is difficult to establish a sense of security. AI plays a key role in providing financial stability through intelligent investment systems, work automation and career planning algorithms. In addition, digital and cyber security measures ensure privacy and data protection, preventing emotional distress caused by online breaches or exploitation.
2. The second layer focuses on AI-Supported Physical and Mental Health, recognising the undeniable connection between physical well-being and emotional stability. AI-driven health applications provide personalised fitness

recommendations, nutrition tracking, and sleep optimisation, allowing individuals to proactively maintain their physical health. Mental health, equally critical, benefits from AI-assisted therapy, chatbot support systems, and emotional AI analysis, which help detect stress, anxiety, or depression in users before they escalate. This layer ensures that well-being is not left to chance but is continuously monitored and enhanced through intelligent technologies designed to promote resilience and psychological balance.

3. The third layer of the framework revolves around AI-Enhanced Social Connections, acknowledging the essential role of relationships in happiness. Digital advancements enable AI-powered personalised social networking, creating meaningful human interactions beyond geographical limitations. Virtual and augmented reality technologies allow individuals to connect in immersive environments, fostering deep emotional bonds. Moreover, AI-driven emotional intelligence systems enhance digital communication, detecting tone, sentiment, and context to improve social engagement and prevent misunderstandings. This layer transforms how people interact, making digital companionship an integral part of well-being while ensuring that AI strengthens, rather than replaces, real human connections.
4. At the fourth level, Mindfulness and AI-Assisted Gratitude play a crucial role in shaping emotional resilience and mental clarity. AI-driven meditation programs, adaptive mindfulness practices, and gratitude journaling tools provide real-time emotional feedback and encourage self-awareness. By leveraging sentiment analysis, AI can suggest activities that promote inner peace, track well-being patterns, and reinforce positive emotional states. Unlike conventional mindfulness, which relies solely on self-discipline, AI-assisted systems personalise experiences, ensuring that individuals receive the right interventions at the right moments, making emotional well-being a dynamically optimised process.
5. At the apex of the pyramid lies AI-Facilitated Personal Growth and Purpose, which transcends conventional happiness models by integrating AI into lifelong learning, goal-setting, and self-fulfilment. AI-powered personal development platforms analyse individual strengths and motivations, recommending career paths, skills, and challenges aligned with users' aspirations. Adaptive AI mentorship systems guide individuals toward meaningful contributions to society, facilitating engagement in social causes or ethical AI projects. Unlike traditional self-growth methods, AI-driven purpose discovery tools help individuals align their personal values with impactful activities, ensuring that happiness is not merely a fleeting experience but a continuous journey of self-actualisation in the digital age.

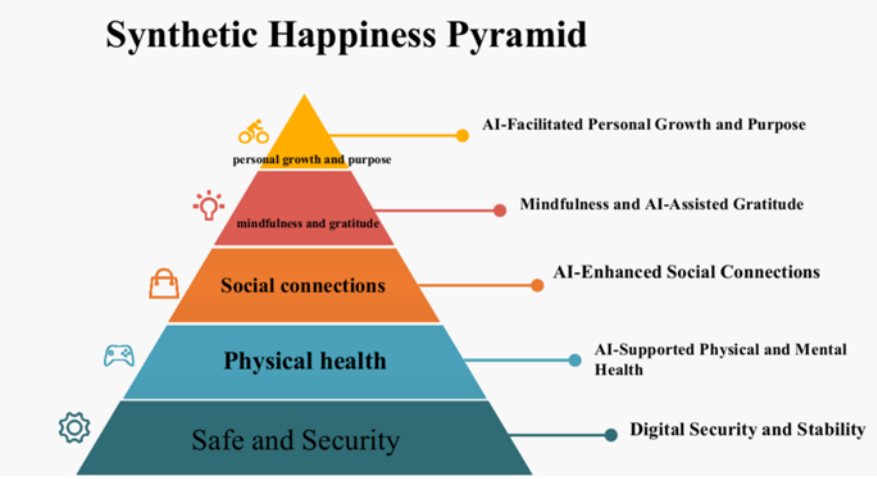


Figure 2. Synthetic Happiness Pyramid

The following table 1 provides an overview of the role, benefits, and emerging concepts of Artificial Intelligence (AI) in the field of Synthetic Happiness Pyramid.

Table 1. Concepts related with the Synthetic Happiness Pyramid.

| **Aspect** | **Description** |
|---|---|
| Role of AI in Cybersecurity | AI is transforming cybersecurity by enabling real-time threat detection, prevention, and response.Rizvi (2023); Mohammed (2024) |
| Advantages of AI in Cybersecurity | AI can analyze large datasets quickly, detect anomalies, automate threat response, and enhance security posture. Sarker et al. (2021); Kim (2021); Rehan (2024) |
| Concept of Secure by Intelligence | This approach integrates AI into cybersecurity frameworks to create adaptive, resilient, and proactive security strategies.Rangaraju (2023); Adegbite (2023); Kuzlu et al. (2021) |
| Challenges in AI-Driven Cybersecurity | Ethical concerns, bias in AI models, and the risk of misuse by cybercriminals pose significant challenges.González et al. (2024); Onih (2024); Capuano et al. (2022) |
| Conclusion on AI and Cybersecurity | AI has the potential to revolutionize digital security, but it requires careful implementation and ongoing adaptation to new threats. Kaur et al. (2023); |
| Application of AI in healthcare | AI is transforming healthcare by improving diagnostic accuracy, personalising treatments, and monitoring patients in real time. |
| AI in mental health | It is used for diagnosis, treatment, and patient engagement, analysing large datasets to identify patterns of mental disorders. (Su et al., 2020; Alhuwaydi, 2024; RANA, 2023) |
| AI applications in mental health | Includes algorithms for detecting depression and anxiety, as well as therapeutic support platforms with chatbots and virtual therapists. (Espejo, 2023; Bond et al., 2023) |
| Ethical challenges in mental health | Concerns about bias in AI algorithms that may perpetuate inequalities in access and treatment. Transparency and accountability are required. (Fiske et al., 2019; Iqbal et al., 2023) |
| Interdisciplinarity in mental health | Collaboration between technologists, healthcare providers, and ethicists is key to the effective implementation of AI in mental health. (Oladimeji et al., 2023) |
| AI in physical health | Major advancements in diagnosis, treatment, and healthcare access, with a focus on the accuracy and efficiency of AI systems. |

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|---|---|
| AI in medical diagnosis | Autonomous systems approved for detecting diseases such as diabetic retinopathy, improving diagnostic accuracy without clinician intervention. (Abràmoff et al., 2018; Wolf et al., 2021) |
| AI in telemedicine | AI-driven telemedicine platforms improve healthcare access, particularly in underserved areas. The pandemic accelerated their adoption. (Li et al., 2022) |
| AI in personalised treatments | Analyses patient data to personalise treatments based on individual health profiles, enhancing efficacy and patient satisfaction. (Zeb, 2024; Salcedo, 2023) |
| Challenges in AI implementation in healthcare | Concerns about data privacy, algorithmic transparency, and the need for robust regulatory frameworks for ethical and effective AI use in healthcare. (Iqbal et al., 2023; Sharma et al., 2023) |
| AI in social media connections | AI algorithms facilitate content curation, allowing users to engage with relevant content and communities that align with their interests. This enhances user experience and strengthens social networks. (Baig, 2024) |
| Personalised social interactions | AI analyses user behaviour and preferences, enabling personalised interactions that foster deeper relationships and community building. (Baig, 2024) |
| AI in combating social isolation | AI technologies help reduce social isolation, particularly among older adults, by promoting community engagement and interactions with healthcare providers. (Qi, 2024) |
| AI-based interventions for mental health | Virtual support groups and AI chatbots provide companionship and emotional support, mitigating feelings of isolation, especially during the COVID-19 pandemic. (Wu, 2020; Croes & Antheunis, 2020) |
| Ethical concerns in AI and social connections | Over-automation risks diminishing the authenticity of human interactions, particularly in fields requiring empathy, such as social work. (Toli, 2024) |
| Balancing AI and human interaction | A balance must be maintained between AI efficiency and the human touch essential for meaningful social connections. (Toli, 2024) |
| Data privacy and algorithmic bias | Ensuring AI technologies foster equitable social interactions rather than exacerbating inequalities is crucial for ethical AI implementation. (Russell et al., 2022) |
| AI literacy and trust | Higher AI literacy enhances trust in AI applications within social contexts, influencing user engagement and perception. (Huang, 2024) |
| Importance of AI education | Promoting AI literacy through education and public |

| | |
|---|---|
| | awareness initiatives is essential to maximise AI's benefits in social interactions. (Huang, 2024) |
| Mindfulness and well-being | Research indicates that mindfulness enhances life satisfaction and emotional regulation, essential for mental well-being. (Gupta & Verma, 2019) |
| Gratitude practices | Activities such as gratitude journals and letters trigger positive emotions, fostering social connections and improving relationships. (Garg & Gera, 2019; Lam & Chen, 2021) |
| Mindfulness and empathy | Practising mindfulness and gratitude promotes empathy and reduces resentment, strengthening interpersonal relationships. (Jin & Wang, 2019) |
| AI in mindfulness and gratitude | AI applications provide personalised reminders, suggest activities, and track progress to enhance engagement in mindfulness and gratitude practices. (Wang & Uysal, 2023) |
| AI-driven emotional analysis | AI analyses user data to identify emotional response patterns, enabling targeted interventions for mental health improvement. (Yin et al., 2021) |
| AI in education and mindfulness | AI tools facilitate interactive gratitude exercises in classrooms, improving student engagement and well-being. (Giordano & Shuster, 2023; Chu, 2022) |
| AI-enhanced social connections | Online AI platforms connect students for shared mindfulness and gratitude practices, strengthening support networks. (Wang & Uysal, 2023) |
| Ethical concerns in AI-driven mindfulness | Issues such as data privacy, algorithmic bias, and over-reliance on technology must be addressed for equitable and effective implementation. (Russell et al., 2022) |
| Maintaining human connection | AI should complement, not replace, genuine human interactions, as social connections are vital for mindfulness and gratitude effectiveness. (Toli, 2024) |

### 3.1. Applications of Artificial Intelligence for Well-being

Among the various applications in recent years, Artificial Intelligence has become a fundamental tool for improving people's quality of life across various fields. Its approaches range from health (physical, mental, and emotional) to environmental sustainability, significantly contributing to individual and collective well-being (Russell & Norvig, 2021), garnering significant interest both at the organizational and personal levels.

The wide range of innovative solutions offered by AI to enhance human well-being has revolutionized various fields. In the area of mental health, AI-based applications, such as therapeutic chatbots and emotional detection platforms, provide personalized and accessible psychological support. In physical health, smart devices monitor vital signs and suggest healthy habits through machine learning algorithms. Additionally, in social media and entertainment platforms,

AI optimizes user experience by promoting content tailored to their emotional state. However, its implementation must consider ethical aspects, ensuring privacy and equity in access to its benefits.

In work environments and healthcare, AI models and technologies have had a significant impact. Organizations have been able to monitor mental health, personalize interventions, and improve overall health outcomes. Table 2 provides a brief description of key AI applications for well-being in the workplace and the healthcare sector.

Table 2. Key AI Applications for Well-Being in the Workplace and Healthcare.

| | |
|---|---|
| **AI in Workplace Well-Being** | |
| Mental Health Monitoring | AI tools, such as sentiment analysis and chatbots, can detect early signs o and burnout, enabling timely interventions (Jangid, 2024). |
| Personalized Support | AI-driven systems can develop personalized well-being programs and r stress management tools, enhancing employee satisfaction and productivity et al., 2024). |
| Work-Life Balance | Intelligent scheduling systems can optimize work plans based on er preferences, reducing stress and improving job satisfaction (Singh et al., 202 |
| **AI in Healthcare** | |
| Enhanced Diagnosis | AI techniques, including machine learning, improve diagnostic accur analyzing large datasets, leading to the timely detection of diseases (Vetriv 2024). |
| Personalized Treatment | AI models can predict treatment responses and optimize pharmacological re tailoring healthcare to individual patient needs (Vetrivel et al., 2024). |
| Intervention Recommendations | Causal AI frameworks can recommend effective mental health interventior on individual psychological profiles (Varidel et al., 2024). |

### 3.2. Virtual Assistants and Emotional Well-being

Currently, Virtual Assistants (VA) have undergone significant evolution, integrating advanced artificial intelligence capabilities to offer more natural and personalized interactions. Additionally, they play a crucial role in individuals' emotional well-being by providing companionship, facilitating stress management, and improving accessibility to useful information. Table 3 describes the VAs that have stood out in recent years.

Table 3. Virtual Assistants (VA).

| Virtual Assistant | Description |
|---|---|
| Google Assistant | Developed by Google, this assistant has become one of the most popular and advanced, providing precise responses and deep integration with the company's services. This VA positively influences people's emotional well-being by offering support in time management, reminders, and immediate answers to questions that can reduce uncertainty and anxiety. Additionally, its integration with meditation apps, relaxing music, and mental wellness routines allows users to improve their emotional state (Kumar et al., 2022). |

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| Amazon Alexa | This VA has gained great popularity due to its ability to perform various tasks through voice interaction, such as creating to-do lists, setting alarms, and playing multimedia content. Alexa impacts emotional well-being by facilitating access to audiobooks, relaxing music, and mindfulness applications. It also enables users to interact with skills designed to enhance mental health, such as reminders for deep breathing or positive affirmations. Its ability to integrate with smart home devices can create a more comfortable environment and reduce stress at home (Hoy, 2018). |
| Apple Siri | Integrated into Apple devices, Siri allows users to perform a variety of actions using voice commands, such as sending messages, setting reminders, and searching for information online. Siri contributes to emotional well-being by providing quick assistance for organizing the day, sending messages, and making calls without physical contact, which can be beneficial for individuals with disabilities or social anxiety. Furthermore, its compatibility with mental health applications on Apple devices enables users to easily access wellness resources (Montag et al., 2021). |
| OpenAI Operator | A newly launched VA (January 2025), Operator aims to revolutionize everyday tasks through automation and time optimization, offering an integrated experience from the browser. Operator is expected to enhance emotional well-being by automating routine tasks and optimizing users' time. By reducing cognitive overload and improving information management efficiency, it could help decrease stress and anxiety related to productivity (OpenAI, 2024). |
| Ávoris CAT-AI | Developed in collaboration with Microsoft, Amadeus, and Briguest by Bravent, this VA provides travelers with personalized information about destinations, activities, and flights, integrating with platforms such as WhatsApp for easy access at any stage of the journey. This VA is designed to enhance the travel experience, reducing uncertainty and stress associated with travel planning. Its ability to provide real-time information and personalized recommendations can contribute to a more enjoyable and relaxing travel experience (Ávoris, 2024). |
| W2M MIA 2.0 | This advanced version of W2M's digital ambassador focuses on personalization and human interaction, using generative artificial intelligence to learn from each interaction and enhance the customer experience. MIA 2.0 leverages generative AI to improve user interaction, offering more empathetic and personalized responses. Its emphasis on customer experience enables more natural and comforting communication, which can foster a sense of companionship and reduce stress in uncertain situations (W2M, 2024). |

Thus, VA have proven to be valuable tools for individuals' emotional well-being, providing support in stress management, activity organization, and access to mental health resources. Their integration with mindfulness applications, task automation, and the possibility of personalized interaction make them valuable tools for psychological well-being in people's daily lives. As technology advances, it is expected that these systems will continue to improve their responsiveness and customization capabilities, establishing themselves as essential allies in promoting psychological and emotional well-being in people's everyday lives.

### 3.3. AI in mental health (digital therapies, chatbots such as Woebot and Replika)

Topol (2019) indicates that there are approximately 5 billion cell phone users, which has led to a revolution in the intersection between digital technologies with biomedical sciences through telemedicine. Digital devices such as smartphones have increased computational capacity, providing an unprecedented diagnostic tool in the history of medicine, which means that the coverage and healthcare needs of patients that were previously neglected by the healthcare system can be met.

As the main motivation of digital medicine is the use of technology to improve the effectiveness of interventions, likely, any technological development and innovation with potential application in the clinical setting will likely be adopted. The constant adaptation of technology for clinical purposes makes digital medicine a research field open to new opportunities. Digital medicine has the potential to become a ubiquitous platform for global public health and precision (Oliver et al., 2015).

However, the use of technology and digital tools for the traceability of infected individuals as strategic measures to mitigate potential pandemics has initiated a debate about the ethical and legal limits of implementing these tools (Gasser et al., 2020). Digital therapies are therapeutic interventions based on digital technologies such as mobile applications, online platforms, and wearable devices to treat, prevent, and manage diseases. Digital therapies present a significant opportunity to reduce the costs associated with healthcare, particularly promising in the management of chronic diseases such as diabetes, hypertension, and heart disease, where constant monitoring and treatment adjustment are crucial. These therapies can provide patients and healthcare professionals with real-time data, improving clinical decision-making and treatment adherence.
The vision for the development of digital therapies can be manifested in different aspects:

- Medical diagnostics and analytics: Exponential processing power has enabled the development of artificial intelligence algorithms that analyze large sets of clinical data to identify patterns and diagnose diseases more accurately and quickly.
- Personalized therapies: AI and exponential processing make it possible to personalize treatments according to the unique characteristics of each patient, optimizing the effectiveness of therapies and minimizing side effects.
- Telemedicine and remote monitoring: Medical devices have reduced in size and cost, enabling continuous remote patient monitoring and the delivery of medical care in remote areas.
- Research and development: Exponential processing power has accelerated biomedical research and drug development, reduced development times, and enabled faster advances in the field of medicine.

Technology is revolutionizing healthcare mainly in the approach to digital therapies. From artificial intelligence to blockchain, the Internet of Things, and immersive realities, we will discover how these innovations are improving diagnostics, data security, patient monitoring, and medical education. Get ready for a journey through the future of healthcare.

- Artificial Intelligence: Accurate Diagnosis and Personalized Treatment
    - Advanced diagnostics: AI enables more accurate and faster diagnoses. Deep learning algorithms detect subtle patterns in medical images, such as cancers, that might go unnoticed by the human eye
    - Personalized treatments: AI systems analyze a patient's clinical history to design personalized treatments. This optimizes treatment efficacy and minimizes side effects.
    - Disease prediction: AI uses predictive analytics to identify patients at risk of developing certain diseases, enabling early and preventive interventions
- Blockchain: Medical Data Security and Traceability
    - Data Integrity: Ensures the integrity and security of medical data by creating an immutable and transparent record of patient information.
    - Privacy and confidentiality: Ensures the privacy and confidentiality of patient information by allowing control over who accesses their data.
    - Authenticity of records: Can be used to maintain vaccination records, ensuring their authenticity and accessibility, avoiding fraud and errors.
- Internet of Things (IoT): Remote Monitoring and Continuous Care
    - Device Connection: Enables the connection of medical devices for real-time monitoring and tracking of patients.
    - Continuous Monitoring: Diabetic glucose monitoring devices and connected blood pressure devices enable continuous tracking of patient health
    - Personalized Care: Information collected by IoT devices facilitates clinical decision-making and treatment customization
- Immersive Realities: Transforming Education and Therapy

    - Medical Education: Virtual reality (VR) surgery simulations for surgeon training improve skills and reduce errors
    - Innovative Therapies: Augmented reality (AR) exposure therapies to treat anxiety disorders offer a safe, controlled environment to overcome fear
    - Surgical interventions: Mixed reality (MR) allows surgeons to visualize patient data in real-time during surgery, improving accuracy and reducing risks
- Advanced Robotics in Surgery and Patient Assistance
    - Precision Surgery: Surgical robots enable complex interventions to be performed with greater precision and less invasiveness, reducing patient recovery time
    - Personalized Assistance: Patient assistance robots assist with tasks such as administering medications, transporting supplies, and monitoring vital signs
    - Telecare: Telecare robots facilitate communication between patients and physicians, enabling remote monitoring and remote care

Despite its great potential, the adoption of digital therapies faces several challenges such as regulation, data privacy, and integration with existing healthcare systems. Regulation is essential to establish standards to ensure the safety and efficacy of digital therapies, which guides towards collaboration with regulatory bodies and other stakeholders. In turn, it is necessary to advocate for policies that facilitate equitable access, ensuring that all patients, regardless of their economic status, can benefit from these innovations.

Many companies use chatbots to increase efficiency and effectiveness in their interaction with suppliers and customers; the best-known chatbots worldwide are Apple Siri, Google Assistant, and Amazon Alexa. With the COVID-19 pandemic, the use of this tool increased to continue medical operations remotely, such as health advice, scheduling medical appointments, entering medical records (El Hefny et al., 2021), mental health (Dhanasekar et al., 2021), nutritional advice, exercise modeling, condition monitoring, medical follow-up (Softic et al., 2021), preventive diagnosis, medication recalls, and consumption (Badlani et al., 2021), medical data storage, knowledge generation (Christopherjames et al., 2021).

Regarding the health area, (Erazo et al., 2020) states that this type of computer system reduces the physical presence of people in the health infrastructure, is used globally, takes data produced by health professionals, and reduces self-medication. This computer system can classify and redirect patients; the health insurance area also uses them to share patients' medical records (Softic et al., 2021). Other functionalities include detecting diseases based on symptoms, generating medical descriptions, treatment schedules, and patient follow-up (Shinde et al., 2021).

### 3.4. AI-Based Personalized Recommendations

Artificial intelligence has significantly transformed the way personalized recommendations are generated across various platforms, such as Netflix, Spotify, and Amazon. These systems employ machine learning algorithms and data analysis to tailor content, products, and services to users' individual preferences, enhancing their experience and emotional well-being, thereby contributing substantially to stress reduction and mood improvement (Tkalcic & Chen, 2021). However, the use of AI in this context also presents challenges, such as the potential creation of informational bubbles that limit content diversity and influence perceptions of well-being (Pariser, 2019). Additionally, there are concerns related to privacy, fairness, and the authenticity of human-machine interactions. Table 4 provides a brief description of the most significant AI-based commercial recommendation platforms today.

Table 4. AI-Based Commercial Recommendation Platforms.

| Platform | Description |
|---|---|
| Netflix | This system employs a sophisticated recommendation engine based on deep learning and collaborative filtering. Its algorithm analyzes multiple factors, such as viewing history, playback duration, and user feedback (Gómez-Uribe & Hunt, 2016). Personalization on Netflix is enhanced through the use of neural networks and probabilistic models to generate highly relevant content lists. |

| | |
|---|---|
| Spotify | This platform utilizes AI techniques for personalized playlist curation, such as "Discover Weekly" and "Release Radar." Its system is based on digital audio analysis, collaborative filtering, and latent song representation using neural networks (Schedl et al., 2018). Additionally, it employs natural language processing (NLP) models to interpret reviews and song descriptions to enhance content recommendations. |
| Amazon | Amazon applies recommendation algorithms for e-commerce personalization. It uses collaborative filtering models and deep learning to analyze purchasing patterns and predict products of interest for each user (Linden et al., 2003). Its system also incorporates reinforcement learning techniques to adapt recommendations in real time and optimize sales conversion rates (Zhou et al., 2020). |

AI-based personalized recommendation systems employ multiple techniques to analyze user data and predict their needs and preferences. The most common approaches include:

- Collaborative filtering: Analyzes behavioral patterns of users with similar interests to suggest relevant products or content.
- Content-based filtering: Uses specific features of recommended items to make personalized suggestions.
- Hybrid models: Combine both approaches to improve the accuracy and relevance of recommendations (Ricci et al., 2022).

Personalized recommendations can significantly influence users' emotions and well-being. Some of the primary effects include:

- Improved emotional well-being: AI systems in platforms such as Netflix and Spotify can suggest content adapted to users' moods, providing more satisfying experiences and reducing stress (Tkalcic & Chen, 2021).
- Informational bubble effect: Excessive personalization may limit exposure to diverse perspectives, affecting users' worldview and reinforcing cognitive biases (Pariser, 2019).
- Emotional interaction with AI systems: Platforms like Spotify generates personalized playlists based on user emotions, while Netflix recommends series and movies based on consumption habits, influencing emotional regulation (Fischer et al., 2020).

The use of AI in personalized recommendations also raises various ethical concerns and methodological considerations:

- Data privacy and security: The massive collection of personal information requires strict regulations to prevent data misuse.
- Transparency and fairness: Algorithms may introduce biases in personalization, affecting the equitable distribution of content and opportunities.
- Authenticity of the experience: While recommendations can enhance user satisfaction, it is also crucial to ensure that interactions remain genuine rather than solely driven by commercial models.

The significant impact of AI-based personalized recommendation systems on users' emotional experience influences both their well-being and their perception of the digital environment. While these systems provide benefits in terms of convenience and satisfaction, addressing the ethical and methodological challenges associated with their implementation is essential. Combining AI with a user-centered approach can optimize personalization without compromising privacy or the diversity of experiences.

### 3.5. Use of AI in social networks and its influence on perceptions of wellbeing

Social networks have taken on a significant role in people's lives, influencing the way we interact, inform ourselves, and perceive ourselves and our environment. With the advancement of artificial intelligence (AI), these platforms have evolved from simple interaction spaces to sophisticated systems that analyze, predict, and personalize the user experience. This technology has changed not only how we access information but also how our perception of subjective well-being is shaped.

One of the main uses of AI in social media is content personalization. Machine learning algorithms analyze user behavior patterns to deliver posts, advertisements, and friend suggestions tailored to their interests. While this personalization can improve the user experience, it also carries significant risks. The creation of information bubbles can reinforce cognitive biases and limit exposure to diverse perspectives, affecting users' perception of reality and, consequently, their emotional well-being.

Castro-Morales & Corredor-Aristizabal (2016) present a study on the interaction of older adults on Facebook where they show that the use of social networks can have a positive impact on subjective well-being. The possibility of staying connected with friends and family, as well as participating in virtual communities, reinforces the sense of belonging and can reduce feelings of

loneliness and depression. However, risks were also identified, such as negative social comparison and exposure to information filtered by algorithms, which can distort perceptions of reality and generate anxiety.

The use of AI in social media has also been associated with emotional manipulation of users. Technology companies have implemented algorithms capable of detecting emotional states and responding with tailored content to maximize interaction. While this can be used to enhance user experience, it can also be exploited to promote sensationalist content or influence purchasing decisions and political behavior. Studies have shown that frequent exposure to negative or biased news can increase stress levels and affect perceptions of well-being.

Despite its risks, AI in social media offers opportunities to improve subjective well-being. AI-based tools can help detect signs of depression or anxiety and offer supportive resources. In addition, content personalization could be geared toward promoting healthy habits, meaningful connections, and continuous learning. However, regulations and ethical strategies must be in place to prevent the misuse of this technology and ensure that its impact is positive.

The use of artificial intelligence in social media has a dual impact on the perception of subjective well-being. While personalization of content and interaction in virtual communities can foster a sense of belonging and reduce loneliness, there are also risks related to emotional manipulation. To maximize the benefits and minimize the risks, it is crucial to develop regulatory mechanisms and encourage responsible use of these technologies. In this way, AI in social networks could become a powerful tool to improve users' quality of life.

### 3.6. IA and Workplace Well-being

Currently, bioinspired algorithms have improved decision-making in situations of uncertainty, by reducing efficiency without additional cognitive overload. Koval et al. (2022) hybridization of ant colony optimization and genetic algorithms This promotes efficiency at the cost of noise reduction and supports resource allocation by 15-22% for data processing .That AI can dramatically increase productivity without quality of life loss is the high-level statement of how such a decision support system can have this effect.

Goldman and Eagel had noted that 'Wisdom on High' using optimization algorithms can push us down into more automated and efficient activities without us even feeling the stress of the process adaptation they require. As Mohamed, Masood and Bhowmik(2015) explain, if the parameters of additive manufacturing by fused deposition modeling are selected properly, then the quality of the final products will be higher but at the same time, each production time will be shorter, as well as errors will be lower. Using different techniques, like experimental design and artificial intelligence.

AI models have been developed to detect work-related stress that can decrease efficiency and have negative effects on the well-being of workers as well. Rodrigues and Correia (2024) developed a method that utilized machine learning and ensemble learning algorithms for predicting workplace stress from the combination of physiological signals and facial expressions. With Random Forest, their model reached 86.8% accuracy, enabling the prediction of the status of stress levels and optimizing workload without losing efficiency.

The fact that you can have a huge impact on employers through your use of algorithms in performance evaluation is essential to productivity and well-being. Liao et al. (2024) discovered that algorithm-provided negative feedback induces more resistance and stress than when the feedback is provided by humans. This perception of algorithmic rigidity can decrease the trust on automated systems and reduce motivation. To counter these effects, it is suggested to implement human supervision and increase transparency into automated review processes to create a more equitable and effective workplace.

AI is revolutionizing human resource management, but its success hinges on a people first rollout. Fenwick, Molnar and Frangos (2024) point out that a lot of AI initiatives fail because they fail to address organizational culture or the well-being of employees. HRM should focus on ethical means, upright employee training, and utilize AI support in decision-making to raise quality of life at work. It can streamline processes without creating resistance/stress in workers.

Companies today are using the AI revolution to change the way employees find information at work. According to Jo and Park (2024), tools such as ChatGPT not only facilitate communication, but they also improve productivity by cutting down on information-searching time. Moreover, it customization of answers and flexibility to changing work requirements leads to enhanced employee satisfaction which helps create a more efficient work environment.

### 3.7. AI-based physical activity and sleep monitoring

Devices that monitor, analyze physical activity, sleep and other elements to support the improvement of people's quality of life. These use algorithms to analyze sleep patterns, measure its quality, detect possible disorders such as apnea and offer recommendations to improve rest (Sawyer & Khayat, 2020), (Hamza et al., 2023; K.Thinakaran et al., 2024). As an example: sleep monitoring systems (Singh et al., 2024), uses a wearable device with sensors for detection and prediction of sleep apnea. Smart wearables (Tang et al., 2024) that monitor sleep activity and classifies sleep states, identifies sleep patterns, nasal breathing, mouth breathing, snoring, bruxism, central sleep apnea and obstructive apnea. OURA Ring (Malakhatka et al., 2021), monitors sleep through sensors that provide data on heart rate and sleep stages, from which it obtains a sleep score and recommendations to improve sleep quality and overall well-being.

### 3.8. AI applications in food and nutritional wellness

These facilitate real-time monitoring of physical activity, metabolism and nutrition, allowing you to adjust diets, improve hydration and regulate glucose to promote health and wellness.

- Glucose meters. These are devices with sensors that continuously monitor glucose through the analysis of body flows such as sweat, these devices are used by diabetics and people interested in optimizing their diet (Luo et al., 2024).
- Smartwatches and health monitoring devices provide intake information and AI-mediated data analysis to provide personalized recommendations for nutritional management (Luo et al., 2024).
- Dietary personalization. Considering genetic data, dietary habits, personalized food diets are designed, identifying which foods affect individuals (Mwaura, 2024). The analyzed data allow the monitoring and adjustment of diets for greater nutritional effectiveness.
- Conversational agents. Some applications are available under the figure of chatbot that provide nutritional guidance, according to user data (Murumkar et al., 2023; Yang et al., 2024).
- Industrial processes of food products. The application of AI aims to raise the quality of food products by optimizing the control, classification and prediction processes (Mavani et al., 2021).

## 4 Conclusions

The role of Artificial Intelligence in promoting human well-being through synthetic happiness is a complex and multifaceted topic. On the one hand, AI offers innovative tools that can significantly improve our quality of life, from more accurate medical diagnostics to virtual therapeutic support and adaptive educational systems. These technologies have the potential to address specific needs and provide personalised solutions that are not always available in natural processes.

However, this technological advancement also poses significant challenges. Over-reliance on AI systems can result in risks related to the accuracy of algorithms and lack of authentic empathy, especially in mental health contexts. Furthermore, the use of adaptive learning platforms could reduce human interactions essential for holistic development. Consequently, while AI represents a valuable tool for fostering synthetic happiness, its implementation must be balanced and responsible. It is crucial to maintain a balance between technological solutions and authentic human experiences, ensuring that human interactions are not replaced by artificial systems.

The regulation and governance of AI are critical to maximise its potential to promote human well-being. Regulatory frameworks need to be established that protect individual rights, promote transparency and accountability, and ensure active citizen participation in decision-making. As AI continues to evolve, it is imperative that governments and organisations work together to develop policies that not only mitigate risks, but also promote a future in which AI contributes to the well-being of society as a whole.

According to Chatterjee and N.S., the sharing of personal data in the age of AI raises serious human rights concerns, as AI can analyse data without human intervention, which could lead to abuses Chatterjee & N.S. (2019). Rahwan proposes a conceptual framework for the regulation of algorithmic systems that emphasises the need for transparency, fairness and accountability in algorithms that affect people's lives (Rahwan, 2017). According to Taeihagh, it is crucial that governments better understand the risks associated with AI and develop governance processes that address these challenges (Taeihagh, 2021). This includes creating policies that promote innovation while minimising risks, ensuring that the benefits of AI are distributed equitably across society.Zhang suggests an AI-supported shared governance model that fosters social stability and development (Zhang, 2023).

This approach not only improves the quality of decisions made, but also ensures that citizens' voices are heard in the policy-making process.

Future research should explore the psychological and social effects of synthetic well-being, particularly how interactions with AI impact emotional and social development across different demographic groups. For instance, it is crucial to examine whether increased reliance on AI for emotional support might diminish human conflict resolution skills. Additionally, expanding the applications of synthetic well-being in new areas, such as workplace stress reduction and virtual community building for therapeutic purposes, could enhance its benefits. Ethical and philosophical considerations must also be addressed, including the authenticity of AI-mediated experiences and potential risks of technological alienation.

Another key area of investigation involves the development of robust indicators to measure synthetic well-being, ensuring a comprehensive assessment of AI's impact on subjective satisfaction and life purpose. Cultural differences in the acceptance and effectiveness of AI-driven well-being solutions should also be explored to understand how societal norms influence their integration. Long-term effects, including the psychological implications of sustained AI dependence, require in-depth analysis to anticipate generational shifts. Furthermore, comparative studies of different AI models and their effectiveness in fostering well-being, alongside real-world case studies and interdisciplinary collaborations, will be essential in shaping sustainable and ethical applications of AI in human happiness.

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