European Journal of Mental Health
https://doi.org/10.5708/EJMH.20.2025.0038

PERSPECTIVE ARTICLE

This publication is part of the 2025 SPECIAL COMPILATION on "Family Therapy and Family Studies in Supporting Mental Health"

Artificial Intelligence (AI) in the Family System: Possible Positive and Detrimental Effects on Parenting, Communication and Family Dynamics

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History
Received: 31 July 2024
Accepted: 18 February 2025
Published: 14 March 2025

Citation
Szondy, M. B., & Magyary, Á. (2025). Artificial intelligence (AI) in the family system: Possible positive and detrimental effects on parenting, communication and family dynamics. *European Journal of Mental Health, 20*, e0038, 1–8. https://doi.org/10.5708/EJMH.20.2025.0038

Introduction: This perspective article reflects on how innovative technologies, including artificial intelligence (AI) systems like smart voice agents and chatbots, may transform family dynamics and communication. Despite the extensive research on AI's impact in mental healthcare and education, its influence on family systems remains underexplored. This perspective article aims to draw attention to the possible positive and detrimental effects of using AI in families, highlighting the necessity of fostering AI literacy in this setting.
Areas covered: The article delves into integrating AI within family therapy models, focusing on how AI redefines family boundaries, roles, communication, rituals, and narrative creation. It explores AI's potential to enhance parent training programs and its impact on children's social and cognitive development.
Expert opinion: AI presents both opportunities and challenges for family systems. It can enhance communication, support role negotiation, and promote family cohesion, but it also raises ethical and privacy concerns. The balance between utilizing AI to support family values and avoiding the detrimental effects of over-reliance is crucial.
Conclusion: Integrating AI into family systems offers significant potential benefits, but it must be managed carefully to ensure it aligns with family values and strengthens family bonds. Fostering AI literacy within families is essential to navigate the complexities and harness the advantages of AI technologies.

Keywords: AI literacy, artificial intelligence, family communication, family dynamics, parenting

Introduction

In the present paper, artificial intelligence (AI) is referred to as intelligent systems based on enormously large datasets that are capable of analyzing their surroundings in order to fulfil specific tasks. These systems may appear in families' life in various forms, such as personalized online content recommendations (e.g., Netflix, YouTube) online purchase recommendations (e.g., Amazon) as well as smart assistants such as OpenAI's ChatGPT, Apple's Siri, Amazon's Alexa (Helm et al., 2020).

ISSN 1788-7119 (online)

Besides having a strong academic interest in the possible psychological impact of AI, the authors of this paper approach the topic from different perspectives. The first author, both as a researcher and as a clinical psychologist and family therapist, strives to answer how modern technological solutions affect mental health and how they might aid in the healing process. Among the first author's professional areas of expertise, third-wave cognitive therapies and family therapy are particularly noteworthy. The second author is a psychologist working with Acceptance and Commitment Therapy (ACT) and an artificial intelligence application specialist, and her main area of scientific interest is application possibilities of AI in psychotherapy, as well as the scientific investigation of its possible effects on human relationships. The second author works on empirical studies focusing on AI such as investigating health professionals' attitudes of artificial intelligence, as well as studies reviewing existing literature on the application of AI in psychological treatment, diagnosis and prevention.

Conceptual Framework of the Problem

The term "family system" refers to a conceptual framework that views a family as an interconnected and interdependent group of individuals whose interactions shape each person's behaviors, beliefs, communication and health. Within a family system, each member has a specific role and changes in one part of the system can affect the whole family dynamic.

The family therapy models (e.g., Structural Family Therapy (Minuchin, 1974), Strategic Family Therapy (Haley, 1991), Solution-Focused Brief Therapy (De Shazer & Berg, 1997), and Narrative Family Therapy (Madigan, 2012) emphasize the importance of boundaries, roles, communication patterns, narrative and meaning-making in maintaining family functionality and well-being.

Technology – as we will discuss – can also modify parenting. Parenting is the multifaceted process of guiding and nurturing a child through every stage of their physical, emotional, social, and cognitive development. It involves more than just meeting basic needs, it also includes providing emotional support, setting boundaries and teaching values. Effective parenting fosters resilience, empathy, and independence (Smith, 2010).

Current technological advancements, such as generative AI and virtual agents have a broad impact on various aspects of people's lives, including the family sphere. Generative AI refers to a branch of artificial intelligence focused on creating new content – text, images, music or other forms – by identifying and reproducing patterns found in existing data sets (Feuerriegel et al., 2024). These models use deep learning techniques to generate outputs that appear novel and human-like. Virtual agents ("chatbots") interact through natural language, interpret requests, and perform tasks like retrieving information or controlling devices. Using machine learning, they continually refine their responses.

Digitalization and automatization have introduced new approaches to self-representation and social identities (Moga & Ruginis, 2023), the education for young children (Yang, 2022), and communication between family members (Mavrina, 2022). AI-powered smart devices might affect communication breakdown between family members (Beneteau et al., 2019), children's development (Alrusai & Beyari, 2022) as well as raising privacy concerns.

"Technophobia" and "techno-optimism" manifest prominently in the context of artificial intelligence. Technophobia is driven by fears of job displacement, ethical concerns, and potential loss of human control over autonomous systems (Khasahwneh, 2018). Conversely, techno-optimism is a belief that technological developments (in our case AI) will solve complex challenges in the field of healthcare, economics, and inequity (Königs, 2022).

Aims

There is research about the impact of AI in social contexts, such as in mental healthcare (Minerva & Giublini, 2023) or education (Chen et al., 2020); however, less attention falls on how it affects family systems. Thus, our perspective article aims to reflect on how AI-based technological advancements may impact family dynamics. In this article, the authors explore the potential benefits and pitfalls of AI systems concerning the dynamics and communication in the family system, highlighting research opportunities. We also try to find a balance between fears and optimism in this perspective article, expressing the strong need for fostering AI literacy within families.

To write this article, the authors used the literature review method. This allowed authors to integrate diverse theoretical and empirical sources, along with practical experiences and reflections. We gathered and examined literature (peer-reviewed journal articles, conference proceedings, and relevant books) from psychology and technology focusing on how AI influences family dynamics and communication patterns. We also included observations shared by clinicians and researchers to illustrate practical implications.

We hypothesise that applying artificial intelligence technologies in families is useful when it serves the fulfilment of family values and supports family connections. When its usage does not align with the values or when it weakens family bonds (e.g., with the "outsourcing" of parental duties), then this could become detrimental.

The Concept of Main Family Therapy Systems and AI

Developing AI could affect family boundaries, roles, rituals and communication in the family as well as the challenges of parenting. In the following subsections, we discuss the potential impact of AI on family boundaries, roles and rituals.

Family Boundaries and AI

Family boundaries are the invisible lines that define individual family members' roles and responsibilities, distinguishing between subsystems within the family, e.g., parental, sibling (Scabini & Manzi, 2011).

The presence of AI in the family can reshape these boundaries. Moreover, it raises significant ethical and privacy concerns, since automated agents, like smart home assistants or AI-based security systems, can witness private activities in families, which may include sensitive matters such as sex or abuse (McStay, 2020). When an AI-based security system detects illegal acts, such as domestic abuse, questions about data usage arise. AI's ability to automatically notify authorities has the potential to reduce domestic violence incidents that have so far remained hidden. Although the evidence that has been gathered by AI might be crucial in prosecuting offenders, child protection services must be prepared for a potential significant increase in reports. Ethical guidelines and official regulations must be established on whether and how the information might be used to protect individuals while respecting privacy (Wylde et al., 2023).

Besides, the presence of AI in the family raises questions about the flow of information among subgroups of the family: should the AI inform the parents about the child's maladaptive behavior (e.g., drug use)? Or if the AI is "aware" of the infidelity of one spouse, should it inform the other partner?

Another question connected to boundaries is the "socialification" of the family as an effect of AI (Hiroshi, 2018). It is likely that, in the near future, a growing number of people will seek for intimate relationships with artificial agents (embodied as social robots or in other forms). This trend is referred to as "socialification" of familyship; that is, a phenomenon in which the virtual humans, as products or services offered by businesses, become partners/family members, and a change in which some parts of the intimate relationships within families are shared in society (Yamaguchi, 2020). Just as the socialification of nursing care reduced the burden of care on Japanese women and improved their quality of life (QoL) (Hiroshi, 2018), adopting virtual humans as a socialification of familyship is also likely to improve the QoL of people with difficulties worldwide.

Roles in the Family and the AI

Family therapy models emphasize the importance of well-defined roles for the healthy functioning of the family unit. AI can support the redefinition and reinforcement of these roles. For example, AI-based therapy apps can offer personalized guidance to parents and children, helping them understand and fulfil their roles more effectively. These apps can provide real-time feedback, reminders, and educational content, facilitating better role performance (e.g., Alkadhil, 2024). Additionally, AI can assist in "role negotiation" by analyzing family interactions and suggesting adjustments to roles that align with each member's strengths and needs. This process is a frequent step in family therapy, which can be performed outside the context of therapy (Grosjean et al., 2024). Nonetheless, the potential risk of AI suggesting family roles rather than merely supporting them must be considered, as it may lead to a reduction in organic role evolution and personal agency.

The Effect of AI on the Communication Within the Family

Effective communication is a cornerstone of healthy family dynamics. AI has the potential to enhance communication within the family system through various means. Natural language processing (NLP) algorithms can be employed to analyze communication patterns and identify issues such as miscommunication or conflict triggers. AI-driven platforms can offer communication training, conflict resolution strategies, and even real-time mediation during disputes (Pereira, 2020). For example, AI can search the pattern of active-constructive communication (Roelle et al., 2015) and can support this type of response. AI can support non-verbal communication enhancements through tools that analyze body language and emotional expressions (Pereira, 2020), offering insights and feedback to family members on improving their interpersonal interactions. Of course, relying on AI for communication support must be balanced with the need for genuine human connection and empathy, which are essential components of effective communication.

Family Rituals and the AI

Family rituals are defined as a symbolic form of communication and patterned family interactions (Wolin & Bennett, 1984). Rituals contribute to the family's collective sense of itself (also known as the family identity, Wolin & Bennett, 1984). AI may promote family cohesion by suggesting and organizing family rituals and activities that foster unity. By analyzing family schedules and preferences, AI may recommend shared activities, holidays, and traditions that strengthen family bonds. Following the family's "life cycle", AI may suggest new rituals or traditions based on the family's interests and values, helping to create meaningful practices – for keeping them fresh and engaging (Johannessen, 2023).

Could AI help the Narrative and Meaning-Making Process in the Families?

Narrative therapy emphasizes the stories and meanings families create about their lives and relationships. AI can support this process by helping families identify and articulate their narratives (Megala et al., 2024). For narrative creation, AI can use information about the ancestors (stories or narratives based on family history), integrating names, places, and events unique to the family. In this way, the narrative-creation might become a more social, more deep and more engaging process (Wilson et al., 2025).

Parental Training and Technology

AI and NLP could transform the provision of parenting support, skill development, and in turn, lead to behaviour change (Petsolari et al., 2024). Although parental training is widely recognised as an effective and evidence-based intervention for parents to become equipped with parental skills and techniques (Morris et al., 2020), it has some limitations. In-person parental training programs require engagement from parents (Dumas et al., 2007), which can be challenging. In addition to that, these programs face challenges when it comes to parental retainment. Besides, a great number of parents – who actually make it to the sessions – report difficulties in implementing the learnt methods into practice (Mockford & Barlow, 2004). Moreover, the effectiveness of parental training programs depends on parents consistently applying the skills they have acquired in the appropriate settings and with the intended goals in mind (Petsolari et al., 2024). AI-based technologies may possess the ability to enhance the effectiveness of parental trainings in several ways. First, AI-based parental trainings are delivered through smart gadgets (instead of in-person), which might increase scalability and reach (Entenberg et al., 2021). It also allows parents to ask for immediate help in stressful family situations. In addition, this feature might contribute to helping bridge the gap between parents who would attend parental trainings and parents who actually enrolled into the trainings, since it increases the availability.

Intelligent technologies may offer support, advice and guidance for parents in various ways; however, these technologies may also lead to potential pitfalls. First, privacy concerns and security risks need to be addressed since these devices are vulnerable to hacking and other cybersecurity threats, resulting in sensitive information of the family becoming accessible or even being misused (Salah et al., 2024). Second, parental over-reliance of these technologies may result in misinformed decisions, since the responses generated by AI systems may not always be accurate; there is a chance of their information being biased (Shroff, 2022).

Augmented Parenting: Potential Positive and Detrimental Impacts on Children's Development

Certain AI systems, such as smart speakers like Amazon's Alexa, Google Assistant, and Apple's Siri can be considered as social actors and play a mediating role in constructing family relationships (Wang et al., 2023). Millions of households have adopted and integrated these "invisible" technologies, embedded in the background of their everyday lives (Garg & Sengupta, 2020). They might help families to manage their day-to-day activities by setting reminders, playing music, providing weather updates, and answering questions. These technological systems hold the capability to carry out tasks instead of family members (Beneteau et al., 2020). They might help with traditionally parental tasks such as reading bedtime stories or assisting school-age children with homework. According to Beneteau et al. (2020) this type of smart speaker use behaviour is called *augmented parenting*.

When an AI-based technology may become present in a child's life to such a significant extent that it takes over the role of a parent, questions arise about its impact on the child's psychological and cognitive development. The excessive use of smart agents may impact children's social and cognitive development. Overuse of smart agents potentially leads to reduced interpersonal interactions between parents and their children. Since personal interactions between parents and their children are essential for the children's development of social skills, problem-solving skills, cognition and empathy (Lanjekar et al., 2022), excessive use of smart agents might have disadvantageous effects. As Garg and Sengupta (2020) identified, children primarily use these devices to engage in conversations through small talk and to express emotions, and they attribute a human-like identity to devices, trying to understand them as people. Young children (5–7 years old) tend to develop emotional attachment to these devices (Garg & Sengupta, 2020). Since smart agents offer quick and simple answers, children who frequently use them might have reduced opportunities to develop critical thinking (Zhai et al., 2024) and they might also have a shorter attention span. Over-reliance on smart agents might impact children's language skills as well. Even though smart agents may assist in language learning and are capable of NLP (Huang et al., 2022), using them excessively may limit children's exposure to nuanced and rich human language interaction, affecting their vocabulary and comprehensive skills. Similarly, conversational skills development requires meaningful two-way conversations. Since parent-infant interaction is a key factor in language development (Topping et al., 2018), children who interact with smart agents more than with humans, might not develop strong conversational skills. While AI-based technologies may offer various benefits for families, it is essential to ensure that technologies complement, rather than replace, parent-child interaction in order to support children's well-rounded development.

In addition, a growing body of work has explored how tracking children has implications within the broader family ecosystem (Lupton, 2021; Wang et al., 2017). Previous studies identified positive effects of implementing personal informatics tools to track children's data. They highlighted that it not only improves parents' understanding of their child's patterns but also reduces the need for frequent physical check-ups by facilitating the transfer of baby-related information, such as sleep patterns, movements, signs of distress, heart rate or breathing, to mobile applications (Lupton, 2020). Conversely, Wang et al. (2017) also identified that using baby monitoring or child habits monitoring may have detrimental effects on parents' mental health as it can increase their anxiety. Moreover, we suggest that reverse causality can be present, too, meaning that increased anxiety might result in more child monitoring. Balancing the downsides and benefits of technology use, while also practicing traditional parenting methods, is crucial for the child's development as well as the parents' mental well-being.

Conclusion

In this perspective article, the authors drew attention to the possible beneficial and detrimental effect of integrating AI into family systems. AI may enhance communication between family members, support role negotiation, and promote family cohesion. However, it also raises ethical and privacy concerns. In addition, it must be managed carefully to ensure it aligns with family values and strengthens family bonds. The rapid advancement of AI has made the development of AI literacy inevitable (Pinski & Benlian, 2024), that is, to increase human proficiency in different subject areas of AI that enable the purposeful, efficient, and ethical usage of AI technologies.

As Anggriani et al. (2024) point out, an AI literacy gap might exist between generations in the family. Parents may need to learn new digital skills to help their children with their education. They must also model positive adaptation, demonstrating openness to learning and change (Ahmed, 2020). Ideally, in a parent-child partnership process, AI literacy is increasing (Druga et al., 2022). By considering these potential impacts, families can navigate

the integration of AI in ways that enhance communication and strengthen their relationships while being mindful of the possible downsides.

Looking ahead, the complex relationship between AI and family dynamics highlights several questions for further research. Longitudinal studies are needed to explore how ongoing exposure to AI influences developmental milestones in children and whether optimal "dosages" or use patterns exist that support rather than hinder growth. Qualitative and mixed-method research could offer insights into how families renegotiate roles, boundaries and communication patterns when living with AI-driven agents. Such studies may shed light on the potential of AI to enhance or undermine family well-being.

Funding
The authors received neither financial nor non-financial support for the research (including data acquisition) and/or authorship and/or publication of this article.

Author contribution
Máté Bene SZONDY: conceptualization, design, investigation, interpretation, writing original draft, writing review and editing.
Ágnes MAGYARY: conceptualization, design, investigation, interpretation, writing original draft, writing review and editing.

Declaration of interest statement
The authors have no conflicts of interest to disclose.

Declaration on using artificial intelligence in research and manuscript preparation
The authors declare that all AI-assisted processes were controlled and checked by the authors themselves.

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