

Parenting in the digital environment: comparing digital practices, trust, and AI-related concerns in adoptive and non-adoptive families

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Abstract

In recent years, the widespread use of digital technologies and the rapid integration of generative artificial intelligence (AI) have significantly reshaped family dynamics, influencing how parents guide and supervise their children's digital interactions. While AI technologies offer considerable educational and social opportunities, they also present significant risks to minors' safety, privacy, and emotional development. The present study explores AI usage, trust, and perceived risks among 180 parents (87 biological, 93 adoptive), specifically aiming to identify potential differences between these two groups. Results indicated cautious behavior and low trust in AI across both groups, without significant differences. However, adoptive parents reported higher digital literacy and greater involvement in monitoring their children's online activities. Additionally, qualitative findings highlighted specific concerns among adoptive parents, especially related to unwanted contact with birth families and exposure to emotionally sensitive digital content. The findings underscore the importance of targeted community-based educational interventions to enhance parental skills and confidence in managing AI-related opportunities and risks.

Keywords: artificial intelligence, adoptive families, parenting, digital literacy, digital risk, adolescents.

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Riassunto. Genitorialità nell'ambiente digitale: confronto tra pratiche digitali, fiducia e preoccupazioni legate all'intelligenza artificiale nelle famiglie adottive e non adottive

Negli ultimi anni l'intelligenza artificiale (IA) ha profondamente modificato le dinamiche familiari, influenzando le modalità con cui i genitori guidano e supervisionano l'interazione dei propri figli con le tecnologie digitali. Questo fenomeno presenta opportunità educative e sociali importanti, ma anche rischi rilevanti per la sicurezza, la privacy e lo sviluppo emotivo dei minori. Lo studio ha esplorato l'utilizzo, la fiducia e le percezioni dell'IA in 180 genitori (87 biologici, 93 adottivi), con l'obiettivo specifico di individuare eventuali differenze tra i due gruppi. Entrambi i gruppi hanno manifestato comportamenti prudenti e un livello generalmente basso di fiducia verso l'IA, senza differenze significative. Tuttavia, i genitori adottivi hanno mostrato una maggiore alfabetizzazione digitale e un coinvolgimento più intenso nella supervisione delle attività digitali dei figli. Inoltre, dai risultati qualitativi emergono preoccupazioni specifiche per i genitori adottivi, legate soprattutto al rischio di contatti indesiderati con le famiglie biologiche e alla possibile esposizione di contenuti digitali emotivamente sensibili. Si discutono implicazioni pratiche per interventi educativi mirati e orientati alla comunità.

Parole chiave: intelligenza artificiale, famiglie adottive, genitorialità, alfabetizzazione digitale, rischi digitali, adolescenti.

1. Introduction

In recent years, digital technologies have profoundly transformed contemporary family life, altering how parents and children communicate, interact, and manage challenges related to safety, privacy, and psychological well-being (Basso, 2023; Boerchi, Valtolina & Milani, 2020; Livingstone & Helsper, 2008). Within this landscape, parents play a crucial role as mediators of children's digital experiences (Steinfeld, 2021). In this regard, a growing body of research highlights how parenting styles shape adolescents' online engagement: a good digital literacy and parental involvement with their adolescents' digital uses as well as authoritative parenting, are consistently linked to safer, more balanced digital practices, while authoritarian approaches, marked by rigid control and limited dialogue, may increase vulnerability to online risks by limiting adolescents' autonomy and critical thinking (Gruchel *et al.*, 2022; Livingstone *et al.*, 2025).

Within the broad spectrum of digital experiences, Artificial Intelligence (AI) constitutes a distinct and rapidly expanding category, characterized by its generative, interactive, and adaptive functionalities, which qualitatively differ from those of more traditional digital technologies (Ho *et al.*, 2025; Yu *et al.*, 2024). Unlike traditional digital media, which primarily involve passive information retrieval or content consumption, AI technologies facilitate dynamic interactions, personalized feedback, and creative content generation, presenting novel educational and developmental opportunities, as well as unique risks (Pentina *et al.*, 2023).

Recent research showed that the rapid advancement of artificial intelligence (AI) is opening up significant opportunities across multiple sectors: from emergency response and healthcare in terms of real time incident detection, predictive analytics for disasters and healthcare crisis management (Bajwa, 2025) to educational opportunities and intervention with families in terms of AI-based tools designed to alert or coach parents to reduce technologic interference during interaction with their children early childhood (Glassman *et al.*, 2021).

On the other hand, while the promise of AI to enhance learning, creativity, and socialization is widely acknowledged, its rapid and pervasive integration into daily life also presents complex challenges, particularly for the safety, digital literacy, and emotional development of minors.

Specifically, navigating these challenges requires parents to have adequate knowledge of and trust in using AI technologies, which are critically linked to their overall digital literacy and trust in digital systems (Celik, 2023). Indeed, parental digital literacy, defined as the capacity to critically understand, use, and evaluate digital tools, represents a fundamental prerequisite for effectively mediating children's interactions with complex AI-driven applications. Moreover, the degree of trust parents place in AI systems significantly influences their willingness to guide and support their children's engagement with such technologies. Trust in AI has emerged as a distinct psychological construct, situated at the intersection of classical trust in automation and contemporary human-computer interaction research (Glikson & Woolley, 2020). Appropriately calibrated trust, neither blind faith nor blanket skepticism, has been shown to foster collaborative use of educational chatbots and health-monitoring apps, ultimately enhancing children's learning outcomes and well-being (Glikson & Woolley, 2020; Choi & Kim, 2022). Parents with higher digital literacy and appropriate trust in AI may feel better equipped to identify both the opportunities and potential risks associated with AI-based interactions, enabling them to foster safer and more informed digital environments for adolescents (Celik, 2023).

In this context, understanding adolescents' emotional experiences in the digital environment and in the use of AI becomes essential. A key aspect in navigating these emotional dynamics is parents' ability to accurately evaluate their children's emotional competencies, such as Trait Emotional Intelligence (Trait EI). This construct, encompassing emotional self-awareness, regulation, and empathy, is a recognized protective factor against digital risk-taking (Argyriou *et al.*, 2016; Petrides *et al.*, 2007). Parents who perceive and support their children's emotional skills are better positioned to foster critical thinking, autonomy, and responsible engagement with AI technologies. Moreover, recent studies have shown that trait EI serves as a protective

factor in adolescence, reducing psychological vulnerability (Mikolajzak *et al.*, 2009) and also mediating the impact of social media use, thereby enhancing the buffering effect of perceived social support suggesting that adolescents with higher Trait EI may be better equipped to regulate their emotional responses in terms of both positive and negative affect, without excessive reliance on technology, thereby promoting a more balanced and intentional use of AI-powered systems (Novara *et al.*, 2025; Riolo *et al.*, 2025).

1.1 Adoptive families in the digital and AI ecosystem

All the challenges mentioned above, become especially intricate for adoptive families. Adoption often entails distinctive relational dynamics, including heightened sensitivity to emotional needs, identity development, and potential developmental vulnerabilities (Palacios & Brodzinsky, 2010). As a result, adoptive parents may be particularly attuned to both the opportunities and the risks that digital technologies, especially AI, present for their children. Recent contributions in developmental psychology emphasize the importance of establishing a secure “digital base” within families, akin to Bowlby’s secure attachment, enabling all adolescents, but especially those from adoptive backgrounds, to explore digital environments with confidence and appropriate support (Lancini, 2019; Lancini & Turuani, 2020).

However, literature explicitly comparing adoptive and non-adoptive parents’ attitudes toward these distinct facets of digital experiences is still limited. Previous studies have consistently shown that adoptive families face specific vulnerabilities in digital contexts, particularly in relation to social media use and online interactions. For instance, research has highlighted concerns about privacy breaches, unsolicited contact with birth relatives, and the circulation of sensitive adoption-related content in online communities (Aroldi & Vittadini, 2017; Mackenzie, 2024). These findings underscore that many digital risks are not unique to AI but rather form part of the broader online experience of adoptive families. Nonetheless, the advent of AI technologies – with their generative, predictive, and highly personalized mechanisms – appears to amplify these longstanding challenges, introducing qualitatively new risks that may affect adoptive and biological families differently (Colaner *et al.*, 2022). One such risk involves the possibility of unexpected contact with birth relatives: social media algorithms and AI-powered search tools can now suggest kinship links or enable direct communication, bypassing adult supervision and potentially triggering complex emotional responses (Livingstone *et al.*, 2025; Fursland, 2021).

Another growing concern is the long-term impact of the digital footprint:

personal stories, images, or sensitive details about adoption, once shared online, may reappear years later through search engines or AI-driven recommendations, raising questions about privacy and identity management (Brodzinsky & Palacios, 2023).

Furthermore, adopted adolescents may turn to AI-powered chatbots to explore identity or existential questions, such as queries about their origins, that require nuanced and empathetic responses. Current AI technologies, lacking authentic empathy and contextual understanding, may be inadequate or even harmful in addressing such delicate issues (Pentina *et al.*, 2023). In addition, algorithm-driven content curation may lead to repetitive exposure to adoption-related stories, loss, or reunions, which can intensify emotional distress and reinforce unresolved questions for vulnerable youths (Brodzinsky & Palacios, 2023).

In response to these complexities, adoptive parents often demonstrate heightened vigilance and a strong desire for guidance tailored to their family's unique needs—guidance that addresses not only general digital risks but also the specific privacy and emotional challenges intrinsic to adoption in the digital age (Mackenzie, 2024; Aroldi & Vittadini, 2017).

Despite the relevance of these issues, empirical research directly comparing adoptive and biological parents in terms of their perceptions, strategies, and capacities related to AI remains limited. In particular, little is known about how these two groups may differ in their use of AI, perceived digital risks and opportunities, parenting styles, and ability to assess their children's emotional competencies and how all these variables can relate each other.

2. Materials and methods

2.1 Participants and procedures

The sample consisted of 180 parents of 14-17-year-old adolescents residing in southern Italy (Mean age: 49.22; SD:8.91; 149 mothers, 31 fathers), including 87 biological parents and 93 adoptive parents. Parents in both groups were of comparable age, with no statistically significant differences, as were their adolescents. Participants were recruited through local schools, parent associations, and online forums dedicated to parenting and adoption. The sample represented a range of educational backgrounds and socio-economic statuses. Data collection was conducted between October 2024 and March 2025 via online structured questionnaires administered through the Qualtrics platform. Parents completed a comprehensive online questionnaire, distributed via email and messaging platforms, which took approximately

25-30 minutes to complete. The study was approved by the Bioethics Committee of the University of Palermo (n. 180/2023). Participation was voluntary, and all responses were anonymized to ensure confidentiality.

2.2 Measures

2.2.1 Digital literacy

The digital literacy was measured using the Digital Literacy Scale developed and validated by Rodríguez-de-Dios, Igartua, and González-Vázquez (2016). This scale assesses parents' competence in navigating and understanding digital media environments through a multidimensional framework.

The questionnaire includes four key dimensions such as Technological Skills – ability to use digital tools and platforms (e.g., search engines, devices). Information Skills – evaluating, selecting, and managing online information. Critical Understanding – awareness of media biases, persuasive content, and risks in digital communication. Digital Participation – responsible engagement in online communities and content creation.

The reliability for the global score was good for this study (Cronbach's $\alpha=.87$).

2.2.2 The parental involvement in internet use

Parental involvement was measured using the scale developed by Gruchel *et al.* (2022), assessing various aspects of parental involvement in their children's internet use, including parental instruction, co-use, and mediation strategies. Parents responded to items such as “I help my child search for information online” and “I discuss internet safety with my child” on a 5-point Likert scale from 1 (never) to 5 (always). The reliability for this study was good (Cronbach's $\alpha=.90$).

2.2.3 Usage and trust in AI

Participants' behaviors regarding AI usage were assessed through a specifically developed set of four items designed to capture the frequency and nature of their interactions with AI-powered systems. Parents rated their engagement with AI using a 5-point Likert scale ranging from 1 (*never*) to 5 (*very often*). The items specifically addressed the following behaviors: “I

share personal data with AI software”, “I ask AI software for advice on how to behave in certain situations”, “I seek general cultural information using AI software”, and I use AI software as support in my schoolwork/professional tasks. Higher scores on this scale indicated more frequent interaction with AI-based technologies.

Additionally, participants’ trust in AI was evaluated through five items explicitly developed to assess the perceived reliability, accuracy, and security of AI systems. The respondents indicated their agreement with each statement using a 5-point Likert scale ranging from 1 (never) to 5 (very often). The items measuring trust included statements such as: “I think that the data I provide to AI software is secure”, “I think that AI software can provide better advice than members of my family”, “I think that AI software can provide better advice than my friends”, “I believe the information provided by AI software is truthful and accurate”, and “I think AI software can perform certain tasks better than human beings”. Higher scores indicated greater trust in the capabilities, accuracy, and security offered by AI-based technologies. Finally, a qualitative section was included with two open-ended questions to collect parents’ opinions on what the main opportunities and risks of AI use are (e.g., “what are the main risks of using AI?”; “what are the main opportunities of using AI?”). Both scales demonstrated satisfactory internal consistency, with Cronbach’s alpha values ranging from .78 to .82 in the current study.

2.2.4 Parenting style

Parenting styles were assessed using the Parenting Styles and Dimensions Questionnaire (PSDQ) developed by Robinson and colleagues (2001). The PSDQ is a widely used self-report instrument designed to evaluate parenting behaviors based on Baumrind’s theoretical model, identifying three core parenting styles: authoritative, authoritarian, and permissive. Each style encompasses multiple sub-dimensions that reflect specific parenting practices. In the Italian context, research has shown some culturally specific interpretations of parenting behaviors. In particular, practices typically labeled as permissive (e.g., involving children in decision-making) are not perceived as a distinct parenting style, but rather as a core component of the authoritative style.

This was confirmed by Tagliabue *et al.* (2018), who found that in Italian adolescent samples, factor structures revealed a strong overlap between permissive elements and authoritative dimensions. As such, the authoritative

style in this study is interpreted broadly to include democratic behaviors. Recent research confirms its reliability and validity in different cultural settings, and the reliability of this study was good: Cronbach's $\alpha=.85$

2.2.5 Trait emotional intelligence

The Italian version of the Trait Emotional Intelligence Questionnaire-360 Short Form (TEIQue-360-SF; Petrides, 2009) adapted for parent-report was used to measure parents' ratings of their adolescents' trait EI. This version comprises 30 short statements on a 7-point Likert scale designed to measure global trait EI and the four broad factors of trait EI: Well-being, Self-Control, Emotionality, and Sociability. For the purpose of this study only global trait EI scores were used, and the questionnaires showed good internal reliability, both for parents' rating version (Cronbach's $\alpha=.92$).

2.3 Statistical analysis

All quantitative data were analyzed using SPSS (Version 25). Descriptive statistics (means, standard deviations, frequencies) were computed for all main study variables. To examine group differences between adoptive and biological parents, we performed a series of univariate analyses of variance (ANOVA) for continuous variables. In addition, Pearson's correlations were computed within the total sample to explore associations between the variables. Qualitative responses concerning perceived risks and opportunities of AI were analyzed using thematic content analysis, following established procedures for inductive thematic analysis in line with Braun & Clarke's six-phase framework (Braun & Clarke, 2006) identifying, coding, and interpreting recurring themes across parental subgroups. Specifically, two trained researchers independently conducted the initial coding in NVivo 14, and any discrepancies were resolved through discussion to reach full consensus. The final set of themes result into six primary categories: Dependency/Abuse (e.g., risk of over-reliance or misuse), Privacy/Data Misuse (e.g., unauthorized data collection, identity theft), Misinformation (e.g., false or manipulated content), Cognitive Disengagement (e.g., reduced critical thinking or creativity), Identity/Emotional Triggers (e.g., unwanted reminders of adoption, emotional distress), and Don't know/No response.

For all analyses, statistical significance was set at $p < .05$.

3. Results

3.1 Descriptive results on use and trust in AI

Descriptive analyses of parental behaviors and attitudes toward artificial intelligence (AI) revealed similar patterns among biological and adoptive parents, with only minor, non-significant differences emerging between groups (*Tab. 1*).

Through both groups, parents reported generally infrequent and cautious use of AI technologies for sharing personal information, seeking advice, and supporting work or daily life tasks.

For example, the majority of both biological and adoptive parents indicated that they “never” or “rarely” shared personal data with AI-based platforms, and most refrained from relying on AI for behavioral advice or guidance in everyday situations.

Use of AI for information-seeking was somewhat more frequent, yet even here, the most common responses were “rarely” or “sometimes”, with only a small proportion of parents slightly more often among adoptive parents, reporting frequent use.

Similarly, when considering the use of AI to support work or household tasks, both groups tended to report low to moderate engagement, with distributions closely mirroring one another. Overall, the statistical comparisons between biological and adoptive parents on these usage patterns were not significant, with p-values for all chi-square tests ranging from .09 to .60.

Turning to trust in AI, both biological and adoptive parents exhibited generally moderate to low levels of trust. Most respondents in both groups indicated that they only occasionally believed the data they provided to AI systems were secure, and few parents viewed AI advice as superior to that given by family or friends.

Notably, although a small minority of adoptive parents tended to express slightly greater trust in AI – both in terms of information accuracy and perceived utility for completing certain tasks, these tendencies did not reach statistical significance (all p-values >.09).

Tab. 1 – Frequencies of use and Trust in AI among biological and adoptive parents

<i>Use and Trust in AI</i>	<i>Biological parents (n=83) N (%)</i>	<i>Adoptive parents (n =91) N (%)</i>	χ^2
AI usage: Share personal data			7.41
Never	42(50.6)	45(49.5)	
Rarely	24(28.9)	32(35.2)	
Sometimes	9(10.8)	7(7.7)	
Often	8(9.6)	3(3.3)	
Very Often	0(0.0)	4(4.3)	
AI usage: Seek advice for situations			3.45
Never	63(75.9)	61(67.0)	
Rarely	11(13.3)	18(19.8)	
Sometimes	5(6.0)	6(6.6)	
Often	4(4.8)	4 (4.4)	
Very Often	0(0.0)	2 (2.2)	
AI usage: seeking general information			7.12
Never	26(31.3)	33(36.3)	
Rarely	13(15.7)	19(20.9)	
Sometimes	26(31.3)	24(26.4)	
Often	16(19.3)	8(8.8)	
Very often	2(2.5)	7(7.7)	
AI usage:work support			1.84
Never	36 (43.4)	34(37.4)	
Rarely	12(14.5)	18(19.8)	
Sometimes	23(27.7)	22(24.2)	
Often	9(10.8)	12(13.2)	
Very often	3(3.6)	5(5.5)	

(follow)

<i>Use and Trust in AI</i>	<i>Biological parents (n=83) N (%)</i>	<i>Adoptive parents (n =91) N (%)</i>	χ^2
Trust AI: data security			2.45
Never	32(38.6)	33(36.3)	
Rarely	17(20.5)	23(25.3)	
Sometimes	17(20.5)	22(24.2)	
Often	16(19.3)	11(12.1)	
Very often	1(1.2)	2(2.2)	
Trust AI: better advice than family			5.72
Never	44(53.0)	45(49.5)	
Rarely	18(21.7)	27(29.7)	
Sometimes	18(21.7)	15(16.5)	
Often	3(3.6)	1(1.1)	
Very often	0(0.0)	3(3.3)	
Trust AI: better advice than friends			4.96
Never	38(45.8)	45(49.5)	
Rarely	19(22.9)	27(29.7)	
Sometimes	20(24.1)	14(15.4)	
Often	5(6.0)	2(2.2)	
Very often	1(1.2)	3(3.3)	
Trust AI: accuracy of information			.75
Never	10(12.0)	14(15.4)	
Rarely	20(24.1)	20(22.0)	
Sometimes	35(42.2)	38(41.8)	
Often	17(20.5)	17(18.7)	
Very often	1(1.2)	2(2.2)	
Trust AI: tasks better than humans			7.82
Never	27(32.5)	23(17.6)	
Rarely	23(27.7)	39(26.4)	
Sometimes	21(25.3)	71(38.5)	
Often	11 (13.3)	33(13.2)	
Very Often	1(1.2)	4(4.4)	

Note: Percentages are calculated within each parental group for each AI use behavior

3.2 Group differences between biological and adoptive parents in the variables

Statistical analyses revealed several notable differences between biological and adoptive parents in the measured variables (*Tab. 2*). Notably, adoptive parents reported significantly higher levels of digital literacy than biological parents, as evidenced by higher mean scores on the digital literacy scale. This difference was statistically significant, $F = 26.13$, $p < .001$, with a moderate effect size ($\eta^2 = .13$), suggesting a greater self-perceived competence with digital tools among adoptive parents. When considering perceptions of their children's emotional intelligence, biological parents rated their children as possessing significantly higher Trait EI compared to adoptive parents. This group difference was robust, $F = 59.27$, $p < .001$, $\eta^2 = .25$. Parental involvement in digital activities also differed by group, with adoptive parents reporting greater involvement in their children's digital lives than biological parents, $F = 16.98$, $p < .001$, $\eta^2 = .09$.

In contrast, no significant group differences emerged with respect to authoritative or authoritarian parenting styles. Mean scores for authoritative and authoritarian parenting were comparable across groups, with F-values close to zero and p-values far from significance.

Tab. 2 – Descriptive Statistics and Group Comparisons between Adoptive and Biological Parents on Key Study Variables

<i>Variable</i>	<i>Biological Parents (n = 87)</i>	<i>Adoptive Parents (n = 93)</i>	<i>F</i>	<i>p</i>	<i>η^2</i>
Digital literacy	97.10 (17.24)	109.49 (15.18)	26.13	<.001	.13
Trait EI	5.20 (0.69)	4.30 (0.86)	59.27	<.001	.25
Par. Invol.	24.58 (6.41)	28.64 (6.67)	16.98	<.001	.09
Authoritative	4.10 (0.58)	4.13 (0.43)	0.11	.74	.00
Authoritarian	2.12 (0.55)	2.10 (0.60)	0.05	.83	.00

Note: Values are presented as mean (standard deviation). EI = Emotional Intelligence. η^2 = partial eta squared.

3.3 Thematic analysis of perceived risks and opportunities of AI

Qualitative analysis of open-ended responses revealed that both biological and adoptive parents expressed substantial concerns about their children using AI. The qualitative content analysis identified five principal risk themes and four opportunity themes and revealed subtle differences in how biological and adoptive parents perceive AI.

Among risks, both biological and adoptive parents frequently cited Privacy/Data Misuse (25% vs. 27%), Misinformation (18% vs. 20%), Dependency/Abuse of AI tools (16% vs. 24%), and Cognitive Disengagement (19% vs 17%). Moreover, Identity/Emotional Triggers concerns about algorithms resurfacing sensitive personal or adoption-related content and exacerbating emotional vulnerabilities were almost twice as common among adoptive (28%) as biological parents (14%). Finally, 12.5% of biological parents (48%) and 14.3% of adoptive parents (34%) either responded “I don’t know” or left the question blank (*Table 3*).

Tab. 3 – Frequency of thematic categories in Open-Ended AI Risk responses by Parent Type

<i>Thematic Category</i>	<i>Biological Parents (n = 83)</i>	<i>Adoptive Parents (n = 91)</i>
Dependency/Abuse	13(16.0)	21(24.0)
Privacy/Data Misuse	20(25.0)	24(27.0)
Misinformation	14(18.0)	18(20.0)
Cognitive Disengagement	15(19.1)	15(17.0)
Identity/Emotional Triggers	11(14.3)	25(28.0)
“Don’t Know” / No Response	6(12.5)	9(14.3)

Note: Percentages reflect the proportion of respondents in each group who mentioned that theme at least once. Categories were derived via inductive content analysis of parents’ open-ended answers.

On the opportunity side, efficiency and speed (rapid information retrieval, streamlined tasks) featured prominently, cited by 27.1% of biological and 30.2% of adoptive parents. Around a third of biological (14.6%) and adoptive (22.2%) parents highlighted learning support benefits (homework help, instant explanations). Smaller proportions pointed to innovation and creativity (idea generation, curiosity stimulation) and inclusion and accessibility gains (*Table 4*).

Overall, both groups share core concerns around privacy, dependency, and accuracy. However, adoptive parents uniquely emphasize relational and child-protection risks, whereas biological parents more frequently stress practical benefits like efficiency and educational support.

Prominent risks identified by both groups included the potential for di-

minished critical thinking and creativity, increased exposure to misinformation, privacy violations, data theft, social isolation, and excessive dependency on technology. However, adoptive parents’ responses also reflected heightened sensitivity to risks uniquely salient in the context of adoption.

They reported particular concerns about the possibility of unexpected contact with birth families facilitated by algorithmic suggestions, as well as anxieties surrounding the resurfacing of sensitive adoption-related information due to children’s digital footprints. Moreover, adoptive parents highlighted the emotional impact of repeated exposure to adoption-related content and recognized the limitations of AI technologies in addressing children’s existential or identity-related questions with empathy and contextual understanding.

Tab. 4 – Frequency of thematic categories in Open-Ended AI Opportunities responses by Parent Type

<i>Thematic Category</i>	<i>Biological Parents (n = 83)</i>	<i>Adoptive Parents (n = 91)</i>
Efficiency and Speed	13(27.1)	19(30.2)
Learning Support	7(14.6)	14(22.2)
Innovation and Creativity	4(8.3)	1(1.6)
Inclusion and Accessibility	4(8.3)	4(6.3)
“Don’t Know” / No Response	6(12.5)	9(14.3)

Note: Percentages reflect the proportion of respondents in each group who mentioned that theme at least once. Categories were derived via inductive content analysis of parents’ open-ended answers.

4. Discussion

This study explored parents’ perceptions, behaviors, and trust related to Artificial Intelligence (AI) technologies, comparing biological and adoptive families in their engagement and experiences. Overall, both adoptive and biological parents reported similarly cautious behaviors in terms of AI use and expressed moderate-to-low trust in AI systems. This lack of significant differences in usage and trust across groups suggests that, independent of family structure, parents approach digital technologies cautiously, likely reflecting shared societal concerns regarding data security, misinformation, and privacy (Livingstone & Helsper, 2008; Basso, 2023). Such convergence across family types highlights the broad relevance and generalizability of digital literacy programs aiming to enhance responsible AI use and trust.

However, meaningful differences emerged with respect to digital literacy and parental involvement in children’s digital experiences. Adoptive parents

reported significantly higher digital literacy and a greater level of active involvement in their children's digital activities. From a community psychology perspective, these findings can be explained by the particular context and dynamics within adoptive families. Adoptive parents typically undergo extensive informational preparation and rigorous procedures involving prolonged use of online platforms and digital resources (Palacios & Brodzinsky, 2010). This sustained exposure to digital tools during the adoption process likely enhances their digital competencies and fosters greater confidence in their abilities to navigate online environments, explaining their higher digital literacy scores. Furthermore, the heightened parental involvement reported by adoptive parents might reflect increased sensitivity and vigilance arising from awareness of their adopted children's potential vulnerabilities. Previous literature consistently shows that adoptive parents display intensified protective attitudes, driven by their heightened awareness of their children's unique developmental histories and needs (Fursland, 2021; Palacios & Brodzinsky, 2010).

In line with this interpretation, our qualitative findings reinforce the idea that adoptive parents manifest heightened concern regarding relational and child-specific harms associated with AI (e.g., unwanted contacts, emotional triggers due to identity-related content). From the standpoint of community psychology, this heightened vigilance can be seen as an adaptive parental response aiming to create a secure "digital base" (Lancini, 2019; Turuani & Lancini, 2020). A secure digital environment, much like the secure attachment base theorized by Bowlby (1972), might empower adopted adolescents to safely navigate and explore the digital sphere, supporting their developmental and emotional needs while mitigating potential harms specific to adoption contexts.

An intriguing aspect of our findings concerns parents' perceptions of their children's Trait Emotional Intelligence (EI). Specifically, biological parents rated their children's emotional competencies significantly higher compared to adoptive parents. Several explanations might account for this finding. First, adopted children frequently come from challenging backgrounds characterized by early adverse experiences or institutionalization, potentially impacting their emotional development and competencies (Batki, 2017; Paine, 2021) and, in light of these considerations, it is plausible that adoptive parents' lower Trait EI ratings reflect actual difficulties experienced by their children. Alternatively, methodological considerations must also be acknowledged: as our measure of Trait EI relied exclusively on parental ratings, it is conceivable that biological parents overestimated their children's competencies due to cognitive biases and positive parental expectations (Gugliandolo *et al.*, 2019; Kawamoto *et al.*, 2021). Conversely, adoptive parents, possibly more

attuned to their children's emotional complexities through heightened involvement, might offer more realistic appraisals of their children's emotional functioning. Further research employing both self-report and objective measures of Trait EI could clarify this critical issue.

Lastly, the analysis of perceived AI risks and opportunities yields important insights into parental concerns and priorities. Both adoptive and biological parents identified similar core concerns: privacy, misinformation, cognitive disengagement, and dependency. Nonetheless, adoptive parents more frequently highlighted relational and emotional risks uniquely relevant to adoption experiences, such as unintended emotional triggers related to identity and family history. This differential focus is consistent with broader evidence that adoptive families experience distinct relational dynamics and are thus more attuned to potential emotional risks (Brodzinsky, Gunnar & Palacios, 2022). The fact that a substantial proportion of parents across both groups provided no clear response or stated "I do not know" further underscores the significant knowledge gap that exists around AI. From a community psychology perspective, this finding indicates the urgent need for targeted educational interventions designed to build digital competence and awareness, enhancing parents' capacities to guide their children's digital engagement effectively.

4.1 Limitation and future directions

This study has several limitations. First, our sample of 180 parents from southern Italy may not fully represent the wider population. Extending the research to include parents from other regions or countries would strengthen the conclusions. Second, a further concern regards the demographic information available for our sample. Aside from age and sex, we did not collect more granular indicators such as parents' years of formal education, household income, or detailed occupational classifications. Although preliminary analyses showed no group differences in the broad categories of education and employment we did record, the absence of finer-grained data restricts our ability to examine how socioeconomic factors might intersect with digital literacy and parental involvement. Future studies should gather a fuller demographic profile, particularly educational attainment and socioeconomic status, to clarify whether these variables moderate parents' attitudes toward AI and their capacity to support adolescents' digital engagement. Third, we relied exclusively on parent-reported measures, particularly regarding their children's emotional intelligence, which individual perceptions may influence. Future studies should consider incorporating direct assessments or self-reports from adolescents to improve objectivity. Fourth, many open-ended

responses were left blank, particularly regarding AI benefits and risks; in the future, combining interviews or focus groups could encourage richer and more complete feedback. Finally, our data are cross-sectional, and exploratory, capturing only a single point in time. To understand changes in parents' digital attitudes and behaviors, especially as AI technologies evolve, it will be important to implement longitudinal studies.

5. Conclusions and practical implications

Our findings suggest a real opportunity to strengthen parents' digital knowledge and role in guiding their children's interactions with AI. Even though biological and adoptive parents showed similar levels of AI usage and trust, adoptive families reported higher digital literacy and more active involvement. This suggests that educational support programs specifically designed for parents can help everyone engage more confidently with AI. Workshops or online courses could cover basic digital skills, data privacy, and emotional regulation when interacting with AI tools. In adoptive families, particular attention should be given to building a "safe digital base" – a supportive environment where adolescents feel secure exploring technology without exposing themselves to emotional harm or privacy risks. Involving schools and community centers in co-led group sessions can help parents learn together and share best practices, creating stronger family–technology alliances across the broader community.

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