



## A systematic review of emerging technologies and their impact on adolescent well-being and religious identity

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### ABSTRACT

The rapid growth of emerging digital technologies is reshaping youth psychological well-being and religious identity in increasingly plural social contexts. This systematic review examines the impact of deepfakes, gaming, the metaverse, virtual reality, and chat applications on youth well-being, with particular attention to religion as both a protective factor and a target of digital harm. A PRISMA 2020-guided systematic review was conducted using Scopus, PubMed and Web of Science. Eligible studies were peer-reviewed articles published between 2000 and 2025, focused on youth aged approximately 10–24 years, and examined emerging digital technologies in relation to psychological well-being, identity development, bullying, or religiosity. Quantitative, qualitative, experimental, and intervention studies were included. Due to methodological heterogeneity, findings were synthesized thematically, and study quality was appraised narratively rather than through meta-analysis. The thematic synthesis revealed that moderate gaming and virtual reality applications can enhance well-being, empathy, and religious literacy, while religiosity is frequently associated with reduced addiction risk. In contrast, chat applications were consistently linked to higher levels of cyberbullying, with religious minorities experiencing two to three times greater exposure to harassment, exclusion, and identity-based attacks, contributing to depression and social isolation. Deepfakes were associated with erosion of trust and identity-related distress, while metaverse environments amplified body image pressures and faith-based harassment. Limitations include the scarcity of longitudinal research explicitly addressing religion–technology interactions. Future studies should adopt cross-cultural, longitudinal designs and evaluate school- and community-based interventions that promote digital literacy, empathy, and protection of religious identity.

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## 1. Introduction

The rapid expansion of artificial intelligence, immersive environments, and interactive digital platforms has transformed the conditions in which young people grow, learn, and negotiate identity. What was once largely guided by family, school, and faith communities is increasingly shaped by online environments where communication, play, and cultural exchange occur continuously. Youth are especially implicated in this transformation, not only because they are enthusiastic adopters of new technologies but also because they are at a life stage characterized by both heightened plasticity and vulnerability. Developmental theory has long established that identity formation, ethical orientation, and spiritual commitments are shaped in adolescence, and it is precisely at this moment that digital platforms have become dominant social arenas (Avci, Baams, & Kretschmer, 2025; Murillo-Ligorred, Ramos-Vallecillo, Covaleda, & Fayos, 2023).

The societal significance of these changes cannot be overstated. Emerging digital technologies no longer function only as supplementary tools of leisure or occasional aids to education. They have become structural elements of everyday life that shape how well-being is experienced, how social trust is established, and how religion is negotiated in plural societies. As a result, they influence key issues that resonate across disciplines: mental health outcomes, resilience in the face of cyberbullying, avenues for religious expression and discrimination, and the ethics of truth and deception in digital culture. For religiously plural settings, the implications are even sharper, since ritual practices, cultural distinctiveness, and minority identities are being refracted through technological mediation. In such contexts, what happens on games, in virtual spaces, or in group chats cannot be separated from broader questions of inclusion, identity, and psychosocial adaptation.

In this context, it becomes evident that digital technologies contribute to broader societal transformations by simultaneously shaping not only individual experiences but also young people's well-being and religious identities. Religious identity represents a particularly salient dimension of adolescent identity development in digitally mediated environments. Developmental theories emphasise adolescence as a critical period for identity consolidation, meaning-making, and moral orientation (Erikson, 1968; Schwartz, Luyckx, & Vignoles, 2011). Unlike other identity markers, religious identity integrates cognitive beliefs, moral frameworks, behavioural practices, and social belonging, positioning it at the intersection of psychological well-being and social vulnerability (Glock & Stark, 1965; Hill et al., 2000; King & Boyatzis, 2004). In digital contexts, religious identity is therefore not merely a background characteristic but a dynamic construct that can function both as a protective psychosocial resource, through meaning-making, community support, and behavioural regulation, and as a salient marker of vulnerability to discrimination and cyberbullying (Koenig, McCullough, & Larson, 2012; Pargament, 1997; Ysseldyk, Matheson, & Anisman, 2010). Examining technological impacts without accounting for religious identity risks overlooking both a key source of resilience and a central axis along which identity-based digital harm is enacted, particularly for religious minority youth in plural and online environments (Campbell, 2012; Tajfel & Turner, 1979; Verkuyten, 2018).

The effects of digital technologies on young people's well-being have been examined extensively in recent years across the fields of psychology, educational sciences, and public health. Research indicates that digital environments can exert both supportive and detrimental influences on adolescents' emotional regulation, social relationships, and subjective well-being. For instance, online social interaction and digital gaming have been associated with positive outcomes such as social connectedness and stress reduction when used within appropriate limits, whereas excessive or unregulated use has been linked to increased anxiety, loneliness, and depressive symptoms (Boyalı & Aktas, 2023; Kavlak, Sarilir, & Tonbol, 2022). Similarly, experiences of cyberbullying and online social exclusion have been shown to significantly undermine adolescents' psychological well-being, with particularly pronounced

effects among groups exposed to identity-based harassment (Xue Li et al., 2022; Kshitij & Pandey, 2025). With the growing prevalence of immersive technologies and algorithmically curated digital content, scholars increasingly emphasise that well-being can no longer be assessed solely through individual mental health indicators, but must also account for young people's capacity to feel safe, establish belonging, and express their identities sustainably within digital environments (Orben, 2020). In this context, the five technological domains that have been shown in the literature to shape young people's experiences are considered particularly significant for understanding both religious identity and well-being (**deepfakes, gaming, the metaverse, virtual reality, and chat-based applications**).

The emergence of deepfakes illustrates how technological innovation can simultaneously inspire creativity and increase vulnerability. Research demonstrates that these highly realistic but manipulated images and videos can be applied in education or therapy to enhance engagement and awareness (Liberatore, Kim, Brenner, & Milanaik, 2025; Maathuis, Derous, & Rahimi, 2024). At the same time, they produce confusion, anxiety, and erosion of trust, especially among younger users within the youth population who struggle to discern manipulated from authentic media (Laczi & Póser, 2024; Sharevski & Vander Loop, 2024). Parents consistently highlight the inadequacy of current media literacy frameworks, and scholars argue that critical capacities must evolve alongside the technology itself (Chapagain, Kshetri, & Aryal, 2024; Turan, 2021). These patterns document the ambivalence of innovation, where benefits exist but are overshadowed for vulnerable groups by the risks of deception and identity distortion.

A similar duality characterizes gaming. Digital play offers opportunities for stress relief, identity exploration, and social connection. At moderate levels, evidence suggests it can improve well-being and cognitive functioning (Allahverdipour, Bazargan, Farhadinasab, & Moeini, 2010). Yet problematic gaming behaviors have become common, with significant physiological and psychological consequences, and clear links have been demonstrated between maladaptive coping strategies and gaming disorder (Bányai et al., 2021). Here religion appears repeatedly as an important factor. Research from Switzerland and cross-cultural comparisons show that religiosity often protects against excessive gaming and addiction (Braun, Kornhuber, & Lenz, 2016; Dossi, Buja, & Montecchio, 2022). Patterns are not universal, however, and regional sociocultural differences significantly shape outcomes (Belkacem, Asakawa-Mener, & Firmino, 2013). While gaming is also being employed pedagogically, for instance in interventions to reduce bullying and prejudice (Willems et al., 2024), results are mixed and underline the wider finding that structural contexts remain as important as technological intervention itself (Myers & Cowie, 2019).

The metaverse extends these findings by illustrating on a much larger scale how identity and well-being are renegotiated in digital environments. Studies have shown that metaverse participation can enhance social engagement and foster new forms of autonomy (Paquin, Ferrari, Sekhon, & Rej, 2023). However, users consistently encounter risks of addiction, detachment from offline social life, and vulnerability to cyberbullying (Upadhyay et al., 2023). Research on avatars reveals identity construction in line with societal norms, for instance when female youth create digital bodies with aspirational or culturally idealized features (Ko & Kim, 2024). These practices support creative self-expression but also reinforce insecurities. For religious minorities, the metaverse also provides a visible extension of discrimination: the risk of harassment targeting religion or ethnicity appears at least as strong as the potential for positive engagement.

Virtual reality has been positioned as a transformative educational tool, with growing research on its use in religion and moral education. VR enriches learning by fostering empathetic engagement with sacred rituals and spaces (Johnson, 2018; Soboslai, 2025) and increasing students' depth of interaction with moral problems when role-playing through avatars (Jamaludin, Chee, & Ho, 2009). In broader psychosocial contexts, VR serves as a test bed for examining decision-making

under peer pressure and for providing therapeutic simulations that aid psychological well-being (Bilello, Swancott, Kloess, & Burnett Heyes, 2023). Yet it is equally associated with problematic withdrawal and overuse, and in some cases encourages confusion around agency and the perception of supernatural forces (Tratner, Shackelford, Zeigler-Hill, Vonk, & McDonald, 2018). Philosophical traditions such as Confucian ethics have been mobilized to provide guidance on integrating VR into education responsibly (Lam, 2025), illustrating once again that ethical and value frameworks, some drawn from religion, are needed to accompany technical adoption.

Perhaps the most socially pervasive phenomenon in this field is the use of chat applications. Social networks and messaging platforms are the lifeblood of youth' peer interactions. They provide spaces for identity experimentation, for expressions of religiosity, and for solidarity among marginalized groups (Ahn, 2011a; Pempek, Yermolayeva, & Calvert, 2009; Rubin & McClelland, 2015). Yet the risks are severe. Cyberbullying within chat groups is among the most frequently documented harms. Research across Europe, the Middle East, and Asia demonstrates high levels of verbal abuse, identity usurpation, and exclusion based on cultural or religious belonging (Camerini, Marciano, Carrara, & Schulz, 2020; Kashy-Rosenbaum & Aizenkot, 2020; Tomé-Fernández, Ortiz-Marcos, & Olmedo-Moreno, 2019). Religious minorities in particular have been shown to suffer disproportionate rates of victimization (Ansary, 2020; Syahid, Sudana, & Bachari, 2023). Scholars note that school-based interventions have been insufficient in addressing these complexities, especially as roles of bully, bystander, and victim frequently rotate in fluid digital contexts where anonymity emboldens aggression (Nesi, Choukas-Bradley, & Prinstein, 2018; Nilan, Burgess, Hobbs, Threadgold, & Alexander, 2015). Digital identity can also become dangerously entwined with patterns of self-harm. Balt et al. (2023) described youth who embedded suicidal thoughts into their online personas and experienced recovery attempts as a threat to their sense of self. These studies illuminate the intimate connections between digital interaction, psychosocial development, and the vulnerabilities of religious or minority identities in environments designed for connection yet prone to exploitation.

Taken together, the literature documents a shared set of dynamics across these technological fields. Each innovation carries genuinely promising opportunities for education, creativity, and community building, but each also creates new conditions for harm, where identity, mental health, and religious belonging converge. What is striking is the recurrent implication of religion not only as a protective factor but also as one of the most visible lines along which discrimination is enacted. This duality, together with fragmented results across separate domains, highlights the need for integrative analysis.

In this review, *religious identity* is used as an umbrella construct referring to how individuals understand, express, and integrate religion into their sense of self. Consistent with established frameworks in the psychology and sociology of religion, three analytically distinct but overlapping dimensions are recognized: (a) **religious affiliation**, referring to self-identified membership in a religious tradition; (b) **religious practice**, referring to behavioural engagement such as ritual participation or observance; and (c) **spiritual or value-based identity**, referring to broader existential beliefs and moral orientations that may or may not be linked to organized religion (Glock & Stark, 1965; Hill et al., 2000; King & Boyatzis, 2004). This inclusive definition reflects the heterogeneity of operationalisations across the reviewed studies while maintaining conceptual clarity.

The five technological domains examined in this review (deepfakes, gaming, the metaverse, virtual reality, and chat-based applications) were selected because they represent distinct yet converging modes of digital engagement that directly shape identity formation, social interaction, and moral evaluation among adolescents. While these technologies frequently overlap in practice, they differ analytically in their primary mechanisms of influence: synthetic representation (deepfakes), interactive play (gaming), immersive social worlds (metaverse),

embodied simulation (virtual reality), and everyday peer communication (chat applications). Examining them as analytically distinct but interrelated domains allows for clearer identification of both shared and technology-specific risks and protective factors.

The aim of the present review is to draw together the dispersed findings on deepfakes, gaming, the metaverse, virtual reality, and chat applications in order to provide a comprehensive assessment of how these technologies shape young people's well-being and religious identity. Rather than treating religion as peripheral to digital research, the review positions it alongside well-being as an essential dimension of analysis. Doing so allows us to address the protective role religiosity often plays in buffering against addictions, as well as the susceptibility of religious minorities to targeted harassment. It also makes visible the ways that religion itself is reorganized through the affordances of immersive and manipulative technologies.

This synthesis is guided by the following overarching research questions:

RQ1: In what ways do emerging technologies such as deepfakes, gaming, the metaverse, virtual reality, and chat applications affect the psychological well-being of youth?

RQ2: How do these technologies interact with processes of religious identity development and the broader role of religiosity in youth culture?

RQ3: What recurring patterns can be identified across technological domains that link both opportunities and risks for well-being and religion?

RQ4: How can insights from the literature inform the development of ethically grounded, culturally sensitive, and practically effective strategies for education, intervention, and policy?

## 2. Methodology

This study employs a systematic literature review approach to examine the intersections between emerging technologies, psychological well-being, and religious identity among young people. For the purposes of this review, the term "youth" is used as an umbrella category referring to individuals aged approximately 10 to 24 years, in line with widely adopted international definitions. While adolescents (typically aged 12–18 years) constitute the primary analytical focus, studies including younger adolescents or broader youth samples were retained when they addressed early exposure to emerging digital technologies or platform-wide dynamics not strictly confined to a single developmental stage. The methodology followed the PRISMA 2020 guidelines for systematic reviews (Page et al., 2021), with particular attention to transparency, replicability, and methodological rigor. The scope of the review was designed to capture not only studies explicitly concerned with religion and technology, but also broader scholarship on identity, bullying, and youth well-being, since intersections with religion are often implicit or underreported in existing work.

### 2.1. Data collection

The review was based on a search across the Scopus database. This database was selected because of its wide coverage of peer-reviewed publications across disciplines ranging from psychology and sociology to computer science and education, which are all relevant in understanding the impact of digital technologies. The search was global in scope, without restrictions regarding year of publication or country of origin. The temporal inclusivity was intended to capture both early stage research on digital environments as well as the more recent scholarship that aligns with the rapid uptake of artificial intelligence and immersive technologies.

To mitigate potential selection bias, the search strategy was expanded to include both PubMed and Web of Science (WoS) in addition to the initial Scopus search. This strategic expansion significantly strengthens the review's interdisciplinary scope and biomedical

coverage. While **Scopus** provides a broad foundation of technical and social science literature, **PubMed** was integrated for its extensive indexing of health communication, nursing, and adolescent psychiatry, offering clinically grounded research essential for understanding psychological health and vulnerability. Furthermore, **Web of Science** contributes high-impact empirical studies from the behavioural sciences. By applying the same conceptual framework and keywords across all three databases, this integrated approach ensures a more robust and comprehensive synthesis of how emerging digital environments shape identity development and well-being among adolescents.

Primary keywords reflected the core technologies under investigation. These were deepfakes, digital games, metaverse, virtual reality, and chat or messaging applications. To narrow the focus to questions of adolescent development and well-being, these terms were cross-referenced with obligatory keywords such as identity, religious identity, bullying, and well-being. The complete set of search terms is provided in the Appendix (OSF, 2025). The initial search was conducted between 17 February and 14 March 2025.

Following identification, results were first screened at the level of titles and abstracts to remove irrelevant records. Studies that passed this stage were then retrieved in full text form and assessed for eligibility based on pre-established inclusion and exclusion criteria. Inclusion required that studies contain relevant keywords, address issues of identity or well-being, and be directly relevant to the impact of emerging technologies. Studies were required to be retrievable in full-text form from Scopus in order to ensure accessibility for quality assessment. Exclusion applied to any studies not directly related to youth, well-being, identity, bullying, or religion, and to any records for which full texts were unavailable.

### 2.1.1. Eligibility criteria

Studies were included in this systematic review if they met all of the following criteria: (1) focused on youth, broadly defined as individuals aged approximately 10–24 years; (2) examined emerging digital technologies, including but not limited to gaming, virtual reality, metaverse environments, chat-based applications, or deepfake-related technologies; and (3) addressed psychological well-being, mental health, identity development, or related psychosocial outcomes, with explicit analytical relevance to identity processes, including religious identity.

Eligible study designs comprised quantitative observational studies (e.g., cross-sectional and longitudinal surveys), qualitative studies, experimental or quasi-experimental designs, and intervention-based research. Only peer-reviewed journal articles were included in order to ensure a minimum standard of methodological quality and transparency.

Publications were restricted to articles written in English and published between 2000 and 2025. This temporal restriction reflects the emergence and rapid evolution of contemporary digital technologies and aims to capture evidence relevant to current digital environments. Grey literature, conference abstracts, dissertations, book chapters, editorials, and commentaries were excluded.

Studies were excluded if they (1) focused exclusively on adult populations without a youth-specific subsample; (2) addressed digital technology use without reference to psychological well-being, identity, or related psychosocial outcomes; or (3) referred to religion solely as a demographic variable without analytical integration into the study's research questions or findings.

Studies focusing exclusively on professional training, surgical simulation, psychometric scale validation without applied outcomes, or adult clinical populations without youth-relevant implications were excluded.

### 2.1.2. Search strategy

Full Boolean search strings for Scopus, PubMed and Web of Science, including all keywords, truncations, and field specifications, are provided in Appendix A. The PubMed strategy incorporated Medical Subject Headings (MeSH) where applicable.

## 2.2. Inclusion of studies

Language and publication-type restrictions were applied to enhance consistency in study appraisal and to prioritize peer-reviewed evidence with established methodological standards. The exclusion of grey literature and non-empirical publications was intended to reduce heterogeneity in study quality and to improve comparability across findings. The initial global Scopus search identified 1123 records across all five technological domains. After removing duplicates, which in this case did not occur, 1123 unique records were retained. Following title and abstract screening, 880 articles were excluded as either irrelevant or outside the scope of the review. The remaining 243 records were subject to further scrutiny, leading to retrieval of 67 full-text articles. Two texts could not be retrieved, and three additional articles were excluded following full-text evaluation. This resulted in a final sample of 62 studies that were included in the review. Prisma flow diagram is shown on Fig. 1.

On the other hand, the PubMed search yielded approximately 140 records. Following title and abstract screening, the majority were excluded due to population mismatch (adult clinical samples), outcome mismatch (absence of psychosocial or identity related outcomes), or focus on non relevant technologies (e.g., surgical simulation, professional training). After full text screening, 5 PubMed studies met inclusion criteria and were integrated into the final thematic synthesis.

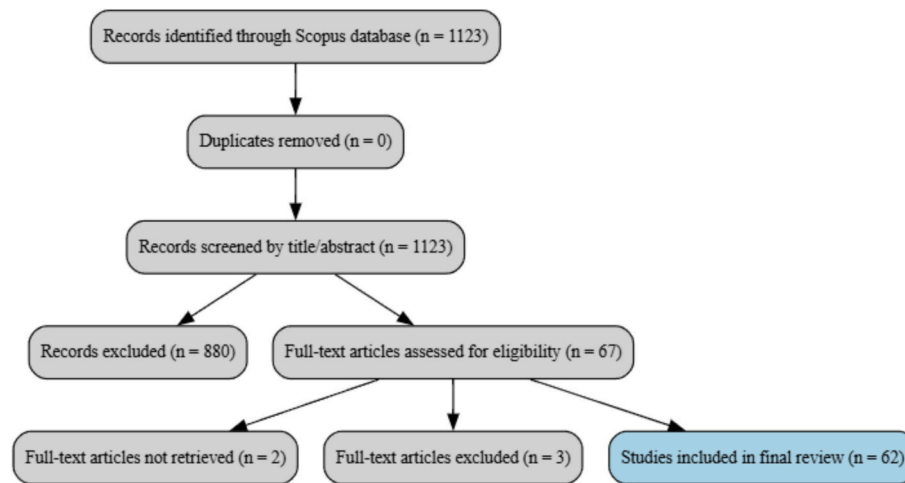
Finally, the search was extended to the Web of Science (WoS) Core Collection, where a total of 1189 records were identified across the five technological domains. During the initial screening of titles and abstracts, 1042 records were excluded for failing to meet the developmental age criteria or for lacking focus on psychosocial outcomes. Out of the remaining 141 potentially eligible studies, 136 were identified as duplicates already present in the Scopus or PubMed results. Consequently, 5 unique studies from WoS were included in the final synthesis, providing specific insights into gender-based gaming identities, ethical risks of synthetic media in education, and the intersection of digital culture with spiritual dimensions.

Across individual domains, the distribution of included records varied. The field of deepfake technology yielded 44 initial records, of which six were included in the final analysis after screening and full-text review. Gaming returned 12 studies, all of which were included upon full-text assessment. The metaverse produced 20 records, narrowed to seven eligible for detailed analysis. Virtual reality initially returned a large set of 1020 records, screened down to 12. Finally, chat application studies amounted to 27 identified, of which 25 were retained after exclusion of two at the eligibility stage. The distribution reflects the relative prominence of certain technologies in current scholarly debates. While VR research dominates the literature numerically, studies on deepfakes and the metaverse are still developing rapidly and therefore remain fewer in number.

## 2.3. Study selection and analytical process

Eligibility decisions were made based on full-text screening against all predefined inclusion and exclusion criteria. Title and abstract screening was conducted by the first author. Full-text eligibility was independently verified, and uncertainties regarding inclusion were resolved through iterative re-examination of eligibility criteria. The identification, screening, eligibility assessment, and inclusion of studies followed the PRISMA 2020 flow framework. These steps are illustrated in Appendix 2, which provides both the overall study selection diagram as well as domain-specific breakdowns. Screening involved careful evaluation of titles and abstracts to eliminate records that did not substantively address youth, religious identity, or well-being. Eligibility was then confirmed through full-text reading, in which studies were excluded if their focus shifted exclusively onto technical descriptions of technology rather than psychosocial applications.

Studies were included if they addressed at least one dimension of



**Fig. 1.** Prisma flow diagram for Scopus. An additional PubMed search was conducted post reviewer feedback; eligible records are included in the final synthesis but not shown separately in the Scopus based PRISMA count for clarity.

religious identity, religious affiliation, religious practice, or spiritual/value-based identity, in relation to emerging technologies and youth well-being.

Once the final corpus was assembled, articles were analyzed with attention to conceptual focus, methodologies employed, and principal findings. Studies varied significantly in empirical design, ranging from large-scale surveys and cross-sectional analyses to experimental interventions, quasi-experimental evaluations, literature reviews, qualitative interviews, and theoretical contributions. To account for this diversity, the review adopted a thematic rather than purely methodological synthesis. Findings were grouped conceptually according to how each technology was reported to affect well-being, bullying, identity development, and specifically religious identity. These thematic clusters were then compared across domains to identify recurring patterns.

This process also required engagement with the dual nature of the literature. In many cases, explicit discussion of religion was scarce or absent. When studies referred primarily to identity development, social behavior, or cultural difference, those findings were retained, coded, and subsequently reinterpreted in light of the research questions concerning religious identity and bullying. This inclusion criterion was deemed necessary to avoid artificially narrowing the review and to identify the research gaps that continue to exist regarding faith-specific or spiritual perspectives in technological contexts. Data extraction focused on study design, sample characteristics, country, technology type, outcomes related to well-being or identity, and religion-related variables. Extraction was guided by a standardized template developed for this review to ensure consistency across heterogeneous study designs.

### 2.3.1. Quality appraisal

Due to substantial heterogeneity in study designs, outcomes, and disciplinary traditions, a formal quantitative risk-of-bias tool was not applied uniformly. Instead, methodological quality was appraised narratively, considering study design, sample size, transparency of methods, and consistency of findings. Quality considerations were integrated into interpretation of results, with greater emphasis placed on convergent findings across multiple high-quality studies.

### 2.4. Validity

This research involved only secondary analysis of previously published studies and therefore did not require ethical approval. All reviewed studies were already in the public domain, and the analysis did not process sensitive or personal data. The methodological emphasis was

instead placed on transparency, replicability, and reliability. Full documentation of search strategies, inclusion and exclusion processes, and thematic grouping has been provided in supplementary materials so that future researchers may assess, replicate, or update the review.

The adoption of PRISMA 2020 guidelines ensured that the review was conducted according to recognized standards of systematic scholarship. The multi-stage process from identification through inclusion provided a replicable pathway that reduced bias and improved comprehensiveness. While the focus on Scopus may limit inclusion of some regionally published studies not indexed in that database, this choice guaranteed methodological consistency and access to peer-reviewed academic content. The rigorous, transparent documentation of all steps ensures that findings can inform both theory and practice while remaining open to verification.

## 3. Results

The systematic review yielded 62 studies that met the inclusion criteria and were analyzed across the five focal technological domains: deepfakes, gaming, the metaverse, virtual reality, and chat applications. Full-text exclusions were primarily due to population mismatch (adult-only samples), absence of psychosocial outcomes, or focus on technical development without identity- or well-being-related analysis. While the overarching aim of the review was to integrate findings on well-being and religious identity, the distribution of studies across these domains reflects the uneven state of current scholarship. Virtual reality and chat applications are comparatively well-represented, suggesting that both immersive technologies and everyday communication platforms have already attracted sustained research attention. On the other hand, deepfakes and the metaverse remain emerging fields, with fewer but growing numbers of studies addressing their implications for adolescent development. Gaming occupies a middle position, supported by a decade of accumulated research on problematic use, coping, and the moderating effects of religiosity. This can be seen on Fig. 2.

### 3.1. Deepfakes

Recent studies indicate that deepfake technologies are rapidly becoming intertwined with questions of youth well-being, education, and digital citizenship. Sharevski and Vander Loop (2024) reported that early-stage youth users encountering deepfakes often rely on technological verification by asking Siri or Google whether a video is authentic, but their final judgment commonly depends on parental input. This orchestration of fact-checking suggests both opportunities and risks:

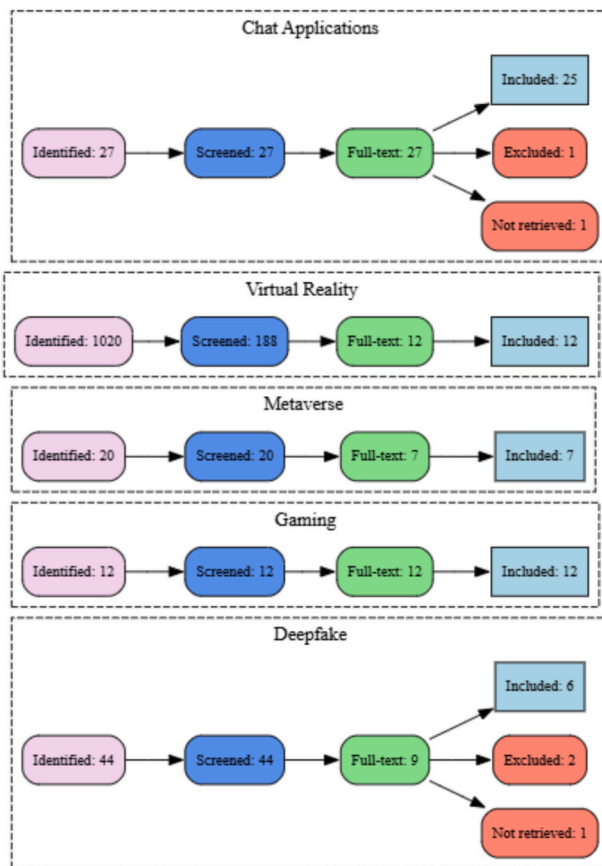


Fig. 2. Domain-specific study selection and inclusion.

early-stage youth users are developing instincts to question digital media, yet they lack sufficient independent critical thinking tools. Parents, in turn, not only feel responsible for mediating early-stage youth users' interactions with manipulated media but also highlight inadequacies in school-based instruction, arguing for structured media literacy curricula that incorporate practical training on misinformation.

The need for media literacy is reinforced in Chapagain et al. (2024) systematic review, which emphasized the paradoxical potential of deepfakes. Although creative applications such as film production and artistic experimentation highlight innovative uses, reputational harm, identity theft, and political misinformation dominate most documented cases. The authors underscore the urgency of detection systems, legislative defenses, and pedagogical strategies to counter malicious uses. Legal and policy gaps, particularly around transnational governance, are flagged as particularly pressing.

For vulnerable groups such as early-stage youth users, Laczi and Póser (2024) found that the technology's harmful applications far outweigh any perceived benefits. Deepfakes were described as exacerbating risks of digital exploitation, harassment, and psychological distress when early-stage youth users' likenesses were misappropriated. Privacy concerns therefore become not only technical but also developmental, with consequences for trust and identity formation during formative years. Their case analyses revealed patterns in which early-stage youth users not only fail to distinguish real from manipulated content but also risk losing confidence in digital environments altogether.

To counter such risks, interventions based on interactive learning demonstrate encouraging results. Maathuis et al. (2024) detailed how deepfake awareness games cultivate both empathy and critical thinking in youth. By situating misinformation within narrative-based digital environments, such interventions supported safe digital behaviors and promoted moral responsibility. This resonates with Turan (2021), who

argued that digital citizenship is the most sustainable protection against harmful deepfakes. According to this perspective, ethical awareness, social responsibility, and the ability to resist manipulation together form the essential groundwork of resilience.

The broader context of artificial intelligence itself introduces further complications. Liberatore et al. (2025) reviewed uses of AI in education and therapy, emphasizing dual potentials. AI promises tailored instruction, speech therapy tools, and personalized learning plans that may improve accessibility and outcomes. Yet these benefits are balanced against risks of academic dishonesty, erosion of independent problem-solving skills, and fairness concerns when automated systems evaluate students differently from human teachers. Importantly, the same technological infrastructure that supports adaptive learning also enables deepfake production and circulation, raising the prospect that the technology which aids early-stage youth users' education may simultaneously undermine their psychological safety.

### 3.2. Gaming

During the COVID-19 pandemic, gaming and related digital behaviors not only increased in frequency but also became closely tied to a spectrum of addiction-like experiences. Efrati and Spada (2022), surveying more than two thousand Israeli adolescents, reported a high prevalence of self-perceived addictions across multiple domains that included gaming, shopping, and social networking. The researchers observed significant differences between subgroups, with religiosity, immigration background, and socioeconomic status moderating the emergence of compulsive behaviors. These findings illustrate that cultural, spiritual, and economic factors act as both mediators and barriers in how youth engage with digital gaming technologies. Consistent with these findings, Cini et al. (2024) reported that excessive screen time and sedentary behaviors, including extended gaming, were linked to increased psychological distress and lower health-related quality of life among adolescents, highlighting the importance of balanced digital habits and the integration of physical and social well-being in prevention strategies. Complementing these findings, Efrati, Kolubinski, Marino, and Spada (2021) modelled the contribution of metacognitions, impulsiveness, and thought suppression to behavioural addictions in adolescents, showing that cognitive confidence and beliefs about the need to control thoughts significantly predicted Internet Gaming Disorder. These results underline that cognitive self-regulation mechanisms play a central role in explaining why certain individuals are more vulnerable to compulsive gaming behaviors.

Religious practice appears to have a notable protective effect. Braun et al. (2016), working with a Swiss cohort, observed that stronger belief in God was associated with both lower gaming frequency and lower addiction scores. Christians reported substantially less gaming compared with non-religious individuals, suggesting that structured spiritual communities help youth moderate engagement. This aligns with the review by Dossi et al. (2022), which summarized evidence that religiosity reduced vulnerability to internet gaming disorder, whereas spirituality not linked to organized religion was often correlated with increased risk. In this context, individualized spirituality can encourage exploration of digital technologies, while organized religiosity may provide external boundaries that discourage excess.

Psychological symptoms and coping strategies further shape the outcomes of gaming. Bányai et al. (2021) showed that depression and anxiety symptoms often overlapped with gaming disorder indicators and that maladaptive coping such as denial amplified problematic use. Conversely, reliance on emotional support from peers and active coping reduced disorder severity. Allahverdipour et al. (2010) also documented a U-shaped relationship between play intensity and mental health. Moderate gamers reported better well-being compared with both non-gamers and excessive gamers, but the latter group displayed elevated aggression, especially among boys. These findings suggest that the relationship between gaming and well-being is contingent not only on

quantity but also on context and coping resources.

Cultural comparisons accentuate these complexities. [Belkacem et al. \(2013\)](#) observed that MMORPG addiction was influenced by local traditions in both Japan and Brazil. Economic structures, cultural norms, and religious expectations played central roles in shaping treatment responses. [Kim and Kim \(2010\)](#) supported this conclusion with a South Korean survey in which variables such as gender, family structure, and religious involvement emerged as strong predictive features of addiction patterns.

Gaming has also been used deliberately for education and intervention. [Willems et al. \(2024\)](#) tested the GATE-BULL program, a serious game designed to encourage pro-social bystander behavior in bias-based bullying scenarios. Although the intervention produced modest improvements, particularly concerning weight-based bullying, it showed limited wider effects. [Myers and Cowie \(2019\)](#) placed these results into broader context by showing that cyberbullying manifests consistently across all levels of education, highlighting that digital interventions alone cannot resolve systemic issues surrounding bullying and harassment. Overall, gaming can both enhance and undermine psychological well-being depending on use patterns and context... In line with this, the international COH-FIT study by [Solmi et al. \(2024\)](#) demonstrated that global well-being and mental health significantly deteriorated during the COVID-19 pandemic, yet exercise, walking, internet use, and digital leisure activities such as gaming were among the coping strategies most frequently identified as effective for maintaining psychological well-being during this period ([Solmi et al., 2024](#)).

### 3.3. The metaverse

The broader category of immersive virtual environments, often referred to as the metaverse, has received increasing academic scrutiny as a potential site of psychological development and cultural negotiation. Recent evidence demonstrates that metaverse-based interventions can effectively provide psychosocial support for young patients facing isolation due to illness. In a pioneering study, [Hasei et al. \(2024\)](#) showed that customizable avatars and immersive environments allowed pediatric and adolescent cancer patients to overcome appearance-related anxiety, share experiences, and build emotional resilience across geographic and social barriers, illustrating the metaverse's transformative potential in healthcare and psychological well-being ([Hasei et al., 2024](#)). [Lee et al. \(2023\)](#) demonstrated through an open-label, single-centre, randomised controlled pilot trial that a metaverse-based social skills training program significantly improved social responsiveness and reduced emotional and behavioural problems in early-stage youth users with high-functioning autism spectrum disorder, underscoring the metaverse's therapeutic potential for enhancing social interaction and mental well-being. The metaverse is emerging as a highly adaptable three-dimensional environment that bridges the physical and digital worlds, offering novel possibilities for diagnosis, treatment, and prevention in mental health, though research and development in adolescent populations remain limited ([Nawaz et al., 2024](#)). [Paquin et al. \(2023\)](#) found that the metaverse offers youth benefits such as autonomy, perceived competence, and novel forms of social connection. These experiences emerge in part through avatar control and immersive simulations that may provide cognitive stimulation and feelings of presence. At the same time, these affordances carry risks. Users vulnerable to withdrawal from offline communities may become highly dependent on metaverse interactions in ways that mimic addictive behavior. Individual outcomes are highly variable, reflecting factors such as age, personal motivation, developmental stage, and pre-existing mental health conditions.

Cyberbullying is a recurring challenge in the metaverse. [Upadhyay et al. \(2023\)](#) documented multiple forms of bullying specific to these emerging platforms, noting that the lack of stable social norms complicates prevention. Experiences of harassment within such immersive spaces were shown to have pronounced emotional and physical

consequences that were in some cases broader than harms observed in traditional social media.

Identity construction within the metaverse represents another field of concern. [Ko and Kim \(2024\)](#), in a study of the platform Zepeto, reported that female youth in particular engaged in extensive avatar modification. Although many participants maintained their offline characteristics such as gender and student status, others used avatars to experiment with alternative roles and appearance. Avatar adjustment frequently involved slimming body shapes or lightening skin tone, behaviors closely aligned with prevailing societal beauty norms. The findings suggest that avatars function not only as tools of creativity but also as reflections of deeply ingrained social expectations, which may reproduce patterns of dissatisfaction and vulnerability. Building on these perspectives, recent research has begun to empirically validate the positive applications of metaverse technologies in health and well-being contexts. [Shamim et al. \(2025\)](#) found that trust in metaverse platforms and the level of immersion are key determinants of user engagement and the sustainable use of metaverse-based environments for health and well-being, highlighting the technology's potential to deliver immersive therapeutic experiences and promote digital psychological support ([Shamim et al., 2025](#)).

### 3.4. Virtual reality

Virtual reality technologies are at the forefront of contemporary research on the intersection of digital immersion, well-being, and religious learning. [Soboslai \(2025\)](#) demonstrated that using extended reality to teach religious rituals allowed youth to develop deeper appreciation of sacred practices and heightened empathy toward practitioners. Students engaged not only at the cognitive level but also at an affective level that emphasized respect and curiosity toward cultural traditions. [Johnson \(2018\)](#) similarly reported that the introduction of 360-degree video environments into a religious studies course enhanced ethnographic understanding, providing new insights into ritual spaces while supporting more empathetic classroom discussion. Similarly, immersive 3D environments such as Second Life have been shown to enhance global collaboration and intercultural competence by enabling avatar-based interaction that fosters empathy, trust, and cultural awareness through experiential learning ([Corder & Alice, 2012](#)). [Jamaludin et al. \(2009\)](#) added experimental evidence that immersive role-play encouraged sophisticated engagement with ethical and religious debates, specifically around the topic of euthanasia.

Beyond educational contexts, [Lam \(2025\)](#) proposed Confucian ethics as a guiding framework for the integration of VR in schools. This perspective emphasizes benevolence, propriety, trustworthiness, and loyalty in order to safeguard well-being, particularly as avatars blur boundaries between authenticity and identity. Parallel concerns have been raised regarding the psychosocial management of VR use among youth. [Bajwa and Yunus \(2024\)](#) highlighted the responsibility that parents and educators carry in moderating digital exposure and stressed the need for balanced approaches when integrating VR into youth' lives. Supporting this, [Chassiakos and Stager \(2020\)](#) observed that virtual reality provides youth with diverse opportunities for education, therapy, and emotional training (such as improvements in emotional competencies among early-stage youth users with autism) while emphasizing the importance of further research into both its benefits and risks to promote safe, healthy use.

At a psychological level, VR provides valuable tools for examining peer pressure and risk decision-making. [Bilello et al. \(2023\)](#) simulated encounters with gangs in which participants reported genuine emotional responses. The focus groups demonstrated that the immersive quality of VR fosters authentic moral tension and decision-making that mimic real-world risks. [Rubtsova, Panfilova, and Artemenkov \(2018\)](#) also studied how personality traits and identity conflicts shape engagement within VR gaming, revealing that youth' play reflects underlying psychological structures. [Zamperini, Testoni, and Marzini \(2021\)](#) focused on socially

withdrawn Italian youth and described how VR merged with their lifestyles to reinforce withdrawal patterns, linking virtual immersion with trajectories of low or high self-esteem.

Studies also highlight complex interactions between VR and supernatural or religious belief. [Tratner et al. \(2018\)](#) found that VR can produce false agency detection in which participants perceive non-existent agents. Women in their study reported stronger overall belief in supernatural phenomena than men, and although agency detection did not correlate with belief in traditional supernatural agents, it did align with belief in Feng Shui. These findings complicate assumptions about how VR affects religious cognition. [Kim and Kim \(2023\)](#) contextualized VR's growing influence as part of a wider technological shift accelerated by the COVID-19 pandemic. In their review, they emphasized new risks of antisocial behavior, addiction, and confusion around identity among youth increasingly integrated into metaverses.

### 3.5. Chat applications

Chat applications and social networking platforms function as developmental stages for youth' identities, placing them at the center of research on online well-being. [Saif and Purbasha \(2023\)](#) show that cyberbullying among youth in developing countries (particularly young females) manifests as interconnected social, psychological, and privacy violations, and that chat/messaging platforms both amplify exposure to harassment and mirror broader social inequalities ([Saif & Purbasha, 2023](#)). Cross-national evidence indicates that chat and messaging platforms are not only sites of identity work but also prominent vectors for exposure to hateful content. [Hawdon, Oksanen, and Räsänen \(2017\)](#) found that young people who use multiple social networking and chat services have a substantially higher likelihood of encountering online hate (an effect amplified in less-regulated national contexts such as the United States and Finland) highlighting chat apps' dual role as social connectors and conduits of harmful material. [Ahn \(2011a\)](#) observed that youth' presentation of self through profile features, friend lists, and peer interactions was inseparable from identity formation. Digital profiles served as platforms for social negotiation, and peer evaluation often reinforced self-concept. [Pempek et al. \(2009\)](#) extended this understanding to college students who used Facebook to explore and express emerging adult identities, including religious affiliation and political ideology, suggesting that social media acts as both a mirror and amplifier of developmental processes. [Rubin and McClelland \(2015\)](#) demonstrated that sexual and gender minority youth of color actively curated what to reveal online in order to manage stigma and seek validation, illustrating how digital spaces operate as sites of both liberation and surveillance. These peer dynamics are further explained by experimental evidence showing that bystanders' responses to online harassment depend on contextual and relational cues. [Bastiaensens et al. \(2014\)](#) found that youth were more likely to help a victim when the incident was severe, yet tended to mirror the behavior of close friends rather than acquaintances, reinforcing the bully when friends did so and defending the victim when friends intervened.

Cyberbullying research dominates literature on chat applications. [Antoniadou and Kokkinos \(2015\)](#) explored drivers that include jealousy, revenge, or perceived power advantages, while anonymity facilitated disinhibition. [Allison and Bussey \(2016\)](#) showed that intervention depended on group norms: bystanders were reluctant to act against peers for fear of social costs, particularly in collectivist cultures where social harmony is prioritized. [Kashy-Rosenbaum and Aizenkot \(2020\)](#) showed that one-third of students in WhatsApp class groups endured some form of cyberbullying. Girls were more affected by exclusion and verbal insults, while boys experienced a prevalence of swearing and direct confrontation. [Kaur and Saini \(2023\)](#) found that more than half of Indian university students surveyed had experienced cyberbullying, with WhatsApp and Instagram identified as the most common platforms, underscoring that lack of awareness of legal protections and limited parental discussion exacerbate vulnerability. [Camerini et al. \(2020\)](#)

reported that the consequences included long-term effects such as depression, feelings of loneliness, and negative self-concept.

Targeting of religion and ethnicity through cyberbullying is particularly evident. [Tomé-Fernández et al. \(2019\)](#) validated a scale specific to cultural and religious diversity, showing that youth who belonged to religious minorities were disproportionately targeted through threats, intercultural insults, or identity usurpation. [Ansary \(2020\)](#) noted that despite clear offline evidence of such risks for Muslim, Jewish, and Sikh youth, few peer-reviewed studies focus on their digital experiences, creating an urgent gap in prevention science. [Syahid et al. \(2023\)](#) provided an Indonesian analysis of intergroup bullying in social media environments, detailing systematic insults and blasphemy directed against religious symbols and prophets. Legal responses attempt to address these issues, most prominently through Constitutional Court rulings, but practical enforcement lags behind the extensiveness of the problem. [Rahmida \(2022\)](#) described a parallel rise in sectarian attacks online, noting insufficient legal frameworks and calling for collaboration between civic organizations and religious leaders to build tolerance and interfaith understanding.

Other studies describe the reinforcement of harmful or even suicidal identities through chat applications. [Balt et al. \(2023\)](#) described young women who created online identities centered on suicidal ideation and feared losing social presence if they pursued recovery. [Ephraim \(2013\)](#) tracked how African youth navigate similar tensions, reshaping online personas to conform to peer stereotypes or modern status symbols, while religious leaders often lacked awareness of the harm being inflicted upon their congregations. [Nesi et al. \(2018\)](#) illuminated how cue absence and anonymity encouraged self-presentation experimentation but simultaneously facilitated harassment and relentless social comparison. [Nilan et al. \(2015\)](#) argued that victims, bystanders, and perpetrators frequently rotate roles, creating a cyclical culture of aggression in which discrimination perpetuates itself.

Migrant, religious, and ethnic minority youth are particularly vulnerable. [Schultze-Krumbholz, Pfetsch, and Lietz \(2022\)](#) reported that first-generation youth faced high levels of cyber-victimization relating to language, appearance, and faith. In southern Thailand, [Sittichai and Smith \(2018\)](#) found small but notable differences between Muslim and non-Muslim pupils. While rates of cyber-victimization were comparable, coping choices differed, with non-Muslim pupils expressing greater inclination toward retaliation or passive strategies such as ignoring abuse. [Rice et al. \(2015\)](#) observed that LGBTQ youth were disproportionately affected by cyberbullying, especially those who were heavy users of chat and texting, linking these risks to broader questions of intersectionality and digital identity.

The constructive side of identity negotiation has also been analyzed. [El Jurdi, Moufahim, and Dekel \(2022\)](#) documented how Muslim female cosplayers adapted religious markers such as the hijab into cosplay practices, reframing participation as compatible with belief while expanding leisure practices. [Maranto and Barton \(2010\)](#) similarly showed that platform structures encouraged identity classification, including religious affiliation, which guided the ways young people represented themselves in online settings. Although neutral in design intention, these preferences for categorical self-representation revealed how digital identity work was deeply tied to cultural expectations. Building on these concerns, recent youth-centred research suggests practical directions for platform design and moderation. [Milosevic et al. \(2023\)](#) report that youth generally welcome AI-based cyberbullying interventions when these are transparent, optional (opt-in), privacy-preserving and situated within social-support frameworks (e.g. a nominated "support contact" and bystander activation). Participants emphasized concerns about facial-recognition and DM monitoring, the risk of false positives, and the need for youth consultation in design. Indicating that effective AI solutions should prioritize supportive, educative responses over intrusive or purely punitive moderation ([Milosevic et al., 2023](#)).

The diagram illustrates how deepfakes, gaming, metaverse, virtual

reality, and chat applications shape adolescent outcomes (Fig. 3). Each technology exerts differentiated influences on well-being and on religious identity. Pathways are shown as directional links that highlight specific mechanisms, such as addiction risk in gaming, authenticity concerns in deepfakes, identity experimentation and harassment in the metaverse, ritual learning in virtual reality, and targeted faith-based bullying in chat applications. These effects converge on two overarching categories: opportunities, including creativity, empathy, religious literacy, and social connection; and risks, including misinformation, cyberbullying, addiction, and erosion of trust. The framework highlights both protective and harmful dynamics and underscores that religion functions at once as a resource for resilience, a target of discrimination, and a field for ethical engagement in digital environments.

### 3.6. PubMed-indexed health and psychosocial evidence

To address reviewer feedback and extend the interdisciplinary scope of the review, an additional synthesis of PubMed-indexed studies was conducted, with particular emphasis on health communication, nursing, psychiatry, and public health research. These studies complement the Scopus-derived literature by providing clinically grounded and empirically robust insights into how emerging digital technologies shape identity processes, psychological well-being, and vulnerability among adolescents and young adults.

Qualitative evidence from healthcare education highlights marked ambivalence toward deepfake technologies. Nursing students identified clear educational and training benefits, including learning enhancement and clinical simulation, while simultaneously emphasizing risks related to identity loss, cyberbullying, and psychological harm. Participants

consistently stressed the need for ethical regulation and digital literacy to mitigate adverse well-being outcomes, indicating early professional awareness of the psychosocial consequences of synthetic media (Navarro Martínez, Fernández-García, Cuartero Monteagudo, & Forero-Rincón, 2024).

Experimental findings further suggest that deepfakes personalized to the self may undermine rather than enhance well-being. Self-deepfake mental health disclosures elicited heightened affective resistance and reduced intentions to seek help, particularly among individuals with poorer baseline mental health. These results point to identity threat and perceived loss of agency as key psychological mechanisms through which personalized deepfakes may become counterproductive in supportive or therapeutic contexts (Lee, Dobmeier, Heo, & Woo, 2025).

In the domain of gaming, PubMed-indexed evidence reinforces the central role of identity processes. A systematic review of avatar-related mechanisms demonstrated that negative self-concept, strong avatar identification, and large self-avatar discrepancies are robust risk factors for problematic gaming, especially in environments that encourage identity experimentation and role immersion (Green, Delfabbro, & King, 2020). These findings align with broader concerns regarding digital identity fragmentation and maladaptive coping strategies.

With respect to immersive environments, pediatric mental health reviews caution that metaverse participation may intensify identity confusion, addiction, and cyberbullying among children and adolescents, particularly during sensitive developmental periods characterized by identity consolidation (Kim & Kim, 2023).

Virtual reality interventions indexed in PubMed also contribute evidence on identity-related well-being. Experimental research demonstrated that immersive VR storytelling can significantly reduce identity-related anxiety resulting from microaggressions, with character

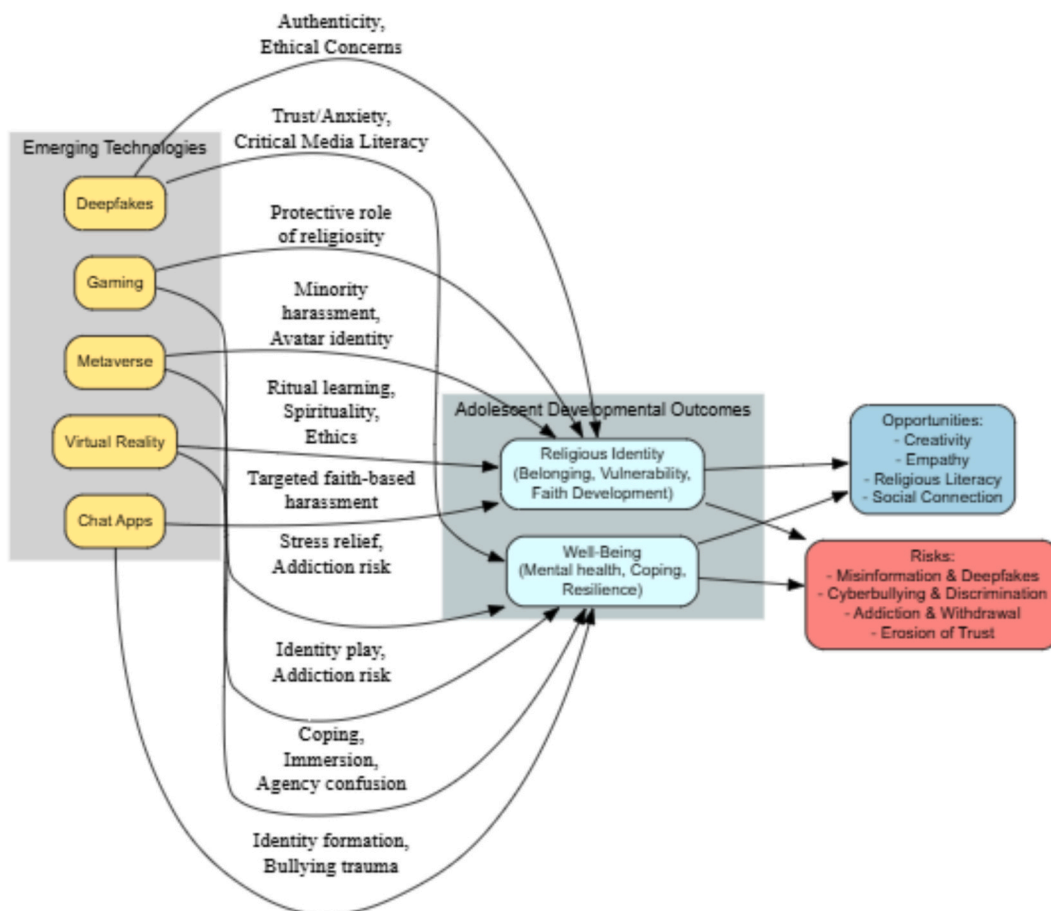


Fig. 3. Conceptual framework of emerging technologies, adolescent well-being, and religious identity.

identification, rather than humor or immersion alone, emerging as the primary therapeutic mechanism (Yan, Eno, & Wagler, 2024). These findings underscore the potential of VR as a targeted psychosocial intervention when identity and minority stress are explicitly addressed.

### 3.7. Web of Science-indexed evidence

To address the reviewer's feedback and mitigate potential selection bias, the search strategy was expanded to include Web of Science (WoS) in addition to the initial Scopus search. WoS adds high-impact empirical studies from behavioural sciences. This integrated approach allows for a more robust synthesis of how emerging digital environments shape identity development and well-being among adolescents.

The expansion of the search to the Web of Science (WoS) database provided a more detailed look at how adolescents explore and shape their identities within digital environments. The findings indicate that these spaces are not merely tools, but active environments for social and personal development. A key theme is the gendered dimension of gaming; McLean and Griffiths (2013) highlight how young female gamers must often manage a “double identity” to reconcile their gaming passion with traditional social expectations. In cases of acute identity-related suffering, Malaussena and Jung (2024) describe how digital immersion can contribute to a “splitting of the ego,” affecting psychological stability.

Group dynamics also play a critical role in psychological well-being. Bleize, Tanis, Anschütz, and Buijzen (2021) identifies a “herd behavior” on platforms like WhatsApp, where the desire for group conformity among early adolescents can override individual moral judgment, leading to increased cyber-aggression. In contrast, other studies explore the constructive potential of these spaces; Bezir and Baran (2014) show how virtual roles in Second Life can enhance learning and social confidence.

A unique contribution of the WoS literature is the exploration of the spiritual and ethical dimensions of new technologies. This is exemplified in the work of Liu, Li, and Huang (2024), who examine how folk beliefs and spiritual traditions are being preserved and transmitted through VR and the Metaverse. Together, these studies suggest that digital worlds have become the main environment where today's youth internalize both their personal values and their broader cultural or religious identity.

### 3.8. Religion-specific findings across technologies

Although research on emerging technologies frequently refers to general issues of well-being, the role of religion appears consistently as either a protective factor or a target of digital harm. Across the reviewed domains several recurring patterns can be identified. They are depicted in Table 1.

In the context of digital addictions, religiosity often functions as a protective mechanism. Evidence from gaming studies shows that belief structures and active religious practice correlate with lower addiction rates (Braun et al., 2016; Dossi et al., 2022). Similar protective

mechanisms feature in chat applications, where religious identity can provide youth with community support and ethical guidelines, although in some contexts these very markers of identity become reasons for victimization.

Religious minorities often experience disproportionate vulnerability to online abuse. Studies on chat applications provide compelling documentation of intercultural harassment, racist digital threats, and identity usurpation specifically aimed at religion (Ansary, 2020; Syahid et al., 2023; Tomé-Fernández et al., 2019). While bullying on the basis of gender or appearance is prevalent, the combination of faith with ethnicity or migration status creates compounded risks. This highlights the intertwined nature of digital discrimination against religious minorities.

Religion emerges as a pedagogical resource in technological education. Research on VR has already demonstrated benefits of immersive learning about religious rituals (Johnson, 2018; Soboslai, 2025). These findings suggest that carefully designed applications of advanced technology can not only respect but also enhance religio-cultural literacy among youth. Confucian ethics applied to VR (Lam, 2025) represents a further example of using religious philosophy to frame equitable and ethical integration of technology.

Digital manipulation technologies such as deepfakes raise concerns that intersect deeply with religious ethics, particularly around issues of truth, deception, and authenticity. Parents and teachers express concern that young people's inability to discern deepfakes undermines not only psychological well-being but also broader moral and civic values. Religious education and moral frameworks may therefore serve an important social function in equipping youth to withstand manipulation through appeal to values of honesty, responsibility, and truth discernment.

Religion is therefore neither peripheral nor incidental in these findings. Rather, its role emerges as a critical intersection between emerging technologies and well-being. It serves at times as a shield, at times as a target of harm, and at other times as a resource for ethical renewal, depending on the technology and the social context in which it operates.

## 4. Discussion

The findings of this review point clearly to the complexity of the relationship between emerging technologies, youth well-being, and the construction of religious identity. Across all domains examined, deepfakes, gaming, the metaverse, virtual reality, and chat applications, youth and young adults encounter a continuum of opportunities and risks. Technologies that promise creativity, learning, and social connection also introduce new forms of vulnerability, ranging from misinformation and reputational harm to identity-based bullying. The relationship with religion is especially significant, since religiosity frequently emerges as a protective factor against addictions and maladaptive behaviors, yet religious identity also consistently functions as a salient marker of difference that invites targeting, exclusion, or discrimination. Across domains, a consistent pattern emerged whereby technologies that afford identity experimentation simultaneously

**Table 1**  
Summary of results by technological domain.

Domain	Opportunities	Risks	Religion-related findings
Deepfakes	Creative learning, media literacy games, therapeutic use	Misinformation, mistrust, identity theft, psychological distress	Raises ethical issues of truth/authenticity; potential for religious manipulation
Gaming	Stress relief, social connection, moderate improvements in well-being	Addiction, aggression, maladaptive coping, cultural pressures	Religiosity often protective against addiction; cultural/religious differences shape outcomes
Metaverse	Autonomy, social connection, identity exploration via avatars	Addiction, withdrawal, bullying, body-image insecurities	Avatar identity intersects with ethnicity and religion, exposing minorities to bullying
Virtual Reality	Empathy, religious literacy, role-play for moral dilemmas	Over-immersion, identity confusion, withdrawal	Enhances understanding of rituals, but may distort perception of supernatural agency
Chat Applications	Identity exploration, community-building for marginalized youth	Cyberbullying, exclusion, suicidal identity formation	Religious minorities disproportionately targeted; faith both resource and vulnerability

heightened vulnerability to identity-based harm. This pattern was most pronounced in immersive and communicative technologies (metaverse, chat applications), whereas more structured applications (moderate gaming, educational VR) showed stronger protective effects when embedded within supportive value frameworks such as religiosity.

Importantly, differences in outcomes across studies often reflected whether religious identity was operationalised as affiliation, practice, or spirituality, underscoring the need for conceptual precision when examining technology–religion–well-being interactions.

In the case of deepfakes, the findings reveal not only the educational potential of simulated figures for classroom or therapeutic use but also the deep anxieties provoked when truth, authenticity, and identity are destabilized. For younger users within the youth population, the inability to reliably discern falsified material creates a reliance on parents or external authorities, which underscores the central role of intergenerational trust in navigating digital environments (Sharevski & Vander Loop, 2024). The danger is that without reinforced critical capacities, youth may not only struggle with misinformation but may also internalize broader forms of digital distrust that affect their social development. When viewed in relation to religion, these dynamics are especially salient. The circulation of manipulated religious imagery or speeches could generate both personal distress and community-wide mistrust, highlighting the need for educational systems that prioritize critical thinking and moral literacy alongside technical literacy.

Gaming demonstrates a similarly ambivalent set of outcomes. While moderate play may support coping, socialization, and identity exploration, patterns of addiction, aggression, and psychiatric comorbidity are clearly documented (Allahverdiipour et al., 2010; Bányai et al., 2021). The protective role of religiosity is one of the stronger themes here, with multiple studies showing lower prevalence of gaming disorder among youth who participate in structured religious practices (Braun et al., 2016; Dossi et al., 2022). Rather than simply restricting gaming, such practices appear to provide youth with frameworks of discipline, value orientation, and meaning that buffer against compulsive play. Yet gaming environments themselves are also sites where discrimination and bias-based bullying occur, often directed against vulnerable or minority groups (Willems et al., 2024). The juxtaposition of recreation, moral protection, and prejudice shows that gaming culture remains a contested field in which well-being, religiosity, and social conflict converge.

The metaverse takes these processes into more immersive domains by enabling youth to project and experiment with avatars that embody their identities. These affordances can promote creativity, social belonging, and autonomy (Paquin et al., 2023). They also reflect cultural hierarchies, for instance when female youth redesign avatars to correspond to dominant beauty ideals (Ko & Kim, 2024). The metaverse is thus not merely a neutral environment for exploration but a mirror that can amplify existing insecurities. Cyberbullying emerges here in uniquely troubling forms. Avatar-based interactions allow for ridicule or harassment that attacks both digital and embodied identities, simultaneously undermining well-being and destabilizing how young people experience themselves. When faith and ethnicity are inscribed into these avatars, religious identity becomes yet another axis along which bullying takes place, echoing but intensifying the patterns already observed in broader chat-based platforms (Upadhyay et al., 2023).

Virtual reality research provides some of the most striking intersections with religion. Studies demonstrate that VR can deepen religious literacy and empathy, allowing students to inhabit sacred spaces or reenact ritual performances (Johnson, 2018; Soboslai, 2025). These interventions not only improve cognitive awareness but also affective understanding, strengthening respect for cultural and religious otherness. At the same time, VR underscores the risk of over-immersion, creating conditions for withdrawal or identity confusion (Zamperini et al., 2021). Experiments have also shown that VR experiences can evoke perceptions of supernatural forces, suggesting that technology is not only simulating realities but actively shaping religious cognition

(Tratner et al., 2018). The implications are considerable: VR does not merely transport youth to simulated versions of known spaces but adjusts the very frameworks through which reality, presence, and belief are interpreted. This highlights both the promise and risks of religious education in virtual media, raising important ethical questions about authenticity and indoctrination.

Chat applications represent the most immediate and socially pervasive environments of risk and opportunity. Youth routinely engage in identity performance on these platforms, constructing and reconstructing selves through curated profiles and peer interactions (Ahn, 2011b; Pempek et al., 2009). These spaces expand possibilities for marginalized youth by providing communities of support, particularly for those navigating multiple minority identities, such as sexual orientation and religion (Rubin & McClelland, 2015). Yet chat applications are also consistently identified as the most concentrated arenas for cyberbullying, with exclusion, impersonation, and threats targeting cultural or religious belonging (Ansary, 2020; Rice et al., 2015; Tomé-Fernández et al., 2019). The significance of anonymity and disinhibition in enhancing harassment is well evidenced (Antoniadou & Kokkinos, 2015). Religious minorities are especially vulnerable, disproportionately subject to ridicule, blasphemy, and defamation, often without clear institutional recourse (Rahmida, 2022; Syahid et al., 2023). These experiences map directly onto psychological outcomes such as anxiety, loneliness, and depression (Camerini et al., 2020), reinforcing the intimate connection between digital interactions and mental health.

These findings underscore that digital harms cannot be understood solely in terms of technological capacity, nor can solutions rest in technical fixes alone. Artificial intelligence systems designed to detect and filter harmful content show value (Milosevic et al., 2023), but they cannot substitute for cultural, educational, and social infrastructures. Social identity processes, group norms, and wider structures of inequality remain decisive. As Allison and Bussey (2016) illustrate, intervention willingness depends heavily on bystander identity and cultural expectations, which suggests that community values matter as much as platform design. Similarly, Schultze-Krumbholz et al. (2022) show that migrant youth suffer disproportionate harms because their vulnerabilities intersect across religion, language, and cultural difference.

The broader picture is therefore one of intersectionality. Technologies amplify both the affordances and the harms that young people experience, and religion often operates at this intersection, serving either as a protective support or as a site of heightened vulnerability. Without culturally sensitive approaches that integrate identity, social norms, and technological design, efforts to address these harms risk remaining partial. What emerges from this review is a strong case for interdisciplinary strategies that cut across education, psychology, sociology of religion, policy design, and computer science in order to safeguard youth well-being.

#### 4.1. Policy recommendations

The findings of this review indicate that safeguarding youth well-being in digital environments that incorporate deepfakes, gaming, metaverse platforms, virtual reality, and chat applications cannot be addressed through technical interventions alone. Policy frameworks must instead reflect the layered nature of digital harm, which is simultaneously technological, social, cultural, and religious. A policy response that is narrowly designed to regulate content at the level of algorithms or that seeks only to criminalize perpetrators will be partial and, ultimately, ineffective. The present evidence demonstrates a pressing need for approaches that bring together legislation, platform accountability, international cooperation, and at the legislative level, the reviewed studies highlight insufficient protections against identity-based cyberbullying, particularly when the targeting involves religious belief or affiliation. Laws in some jurisdictions, such as Indonesia's Constitutional Court ruling against religious blasphemy in digital

spaces, offer an indication of how regulation can articulate religious identity as a protected category. However, these regulatory frameworks are not consistently implemented and remain uneven across different national contexts (Syahid et al., 2023). This reveals the importance of international coordination. Digital harms are not constrained by borders, yet legal enforcement often is. Effective policy must therefore prioritize transnational collaboration that aligns legal definitions of cyberbullying and hate speech, enhances mechanisms for cross-border data exchange, and strengthens the ability to prosecute identity-based digital harms at an international level. Organizations such as the United Nations, UNESCO, and regional bodies like the European Union and ASEAN could provide frameworks for shared standards that both expand protections and reduce legal fragmentation.

Beyond legislative reforms, the accountability of technology companies must form a central part of policy design. Research on deepfakes, for example, shows that the absence of meaningful oversight allows misinformation and identity manipulation to proliferate, producing psychological distress and mistrust among youth (Chapagain et al., 2024). Similarly, unregulated avatar design in the metaverse easily reproduces body image insecurities and cultural stereotypes that reinforce developmental vulnerabilities (Ko & Kim, 2024). Policy measures need to mandate clearer obligations for companies to monitor content, implement user protections, and invest in the ethical design of digital environments. Transparency requirements, such as publishing annual content moderation reports and disclosing algorithmic recommendations, may contribute to restoring youth and parental trust in these platforms.

At the level of infrastructure, policies must recognize cyberbullying as not purely a matter of individual aggression but as embedded in group dynamics, peer norms, and cultural conflicts. This requires national strategies that extend beyond digital policing and into community programs. For example, youth from migrant backgrounds and religious minorities have been shown to encounter layered forms of discrimination online, rooted in both cultural difference and structural inequality (Schultze-Krumbholz et al., 2022). Public policy must therefore integrate digital initiatives with existing agendas on social integration, equality of educational access, and anti-discrimination. Only through such systemic integration can youth be protected from harms that mirror or amplify broader patterns of exclusion already present in society.

Policies must also address the recovery and rehabilitation of victims. The literature indicates that religious minority youth affected by cyberbullying experience long-lasting impacts on self-esteem, anxiety, and belonging (Ansary, 2020; Tomé-Fernández et al., 2019). Interventions that focus narrowly on punishing perpetrators overlook the psychological support and community resilience needed in the aftermath of harm. Comprehensive victim support should include access to counseling, school-based interventions, and, where necessary, faith-sensitive therapies that recognize the spiritual dimension of identity. Policies should therefore be written not only in terms of criminal accountability but also in terms of rehabilitative responsibility.

Finally, policies must reflect youth participation. Too often, regulations are crafted and implemented without consulting those most directly affected. As Milosevic et al. (2023) argue, young people themselves must have a voice in shaping the policies that govern digital interactions. Mechanisms such as youth advisory panels for regulatory agencies, participatory policy workshops in schools, and inclusion of adolescent perspectives in platform governance can ensure that legal frameworks remain relevant to the lived experiences of those they seek to protect.

#### 4.2. Educational implications

Education emerges as perhaps the most significant avenue for long-term intervention in addressing both the opportunities and the risks outlined in this review. The evidence shows that youth rely on external guidance when navigating uncertain digital terrains, whether in

identifying deepfakes, managing gaming patterns, or responding to harassment in chat groups (Kashy-Rosenbaum & Aizenkot, 2020; Sharevski & Vander Loop, 2024). Schools and educators therefore occupy a pivotal position in equipping youth with the capacities needed to engage with technologies in healthy and responsible ways.

The first implication concerns the cultivation of critical digital literacy. In an age of manipulated media, misinformation, and synthetic identities, basic technical familiarity is insufficient. What is required is literacy that integrates evaluative judgment, ethical responsibility, and awareness of manipulation strategies. Deepfake education games, as documented by Maathuis et al. (2024), illustrate one promising pathway for building these competencies. When youth learn not only how to recognize falsification but also why it is harmful, they develop protective habits of skepticism and mindfulness that extend beyond a single technology. In religious contexts, such literacy may also help youth recognize when faith-based images or narratives are being distorted as tools of harassment or misinformation.

Secondly, education must nurture empathy as a social value. Findings across gaming and chat-based environments demonstrate that bystander behavior represents one of the most critical determinants of whether cyberbullying is interrupted or perpetuated (Allison & Bussey, 2016). Educators are therefore positioned not only to teach technical recognition of harmful behavior but also to cultivate norms of solidarity, defense of victims, and collective accountability. Incorporating empathy-focused curricula, possibly through role-play and simulation using virtual reality, can strengthen students' willingness to intervene, while simultaneously counterbalancing the anonymity and disinhibition that amplify aggression online.

Religious literacy should also be integrated into digital education. The disproportionate targeting of religious minorities in online bullying reveals that lack of understanding and prejudice are reproduced in digital contexts just as in offline life. By familiarizing students with diverse traditions, practices, and beliefs, schools can not only reduce prejudice directly but also prepare youth to identify and resist discriminatory behaviors that occur in digital interactions. Virtual reality experiences of sacred spaces, as shown in studies of religious education (Johnson, 2018; Soboslai, 2025), offer an innovative avenue for cultivating such literacy while simultaneously enhancing cultural empathy.

Education can provide structured coping and resilience strategies for mitigating the risks of excessive digital engagement. Evidence from gaming and VR studies shows that maladaptive coping strategies exacerbate negative outcomes whereas emotional support and active coping reduce them (Bányai et al., 2021). Schools that integrate discussions around stress, moderation, and reflective use of technology help prepare youth to self-regulate habits of consumption. This is particularly critical in environments such as the metaverse, where immersive engagement blurs boundaries between offline and online life, making moderation less intuitive.

Educational institutions should see themselves not only as sites of individual instruction but also as partners in broader social change. Policies may set frameworks, but classrooms are where norms are practiced and internalized. By positioning digital literacy, empathy, and inclusivity as core values of curricula, schools contribute to a culture where cyberbullying and identity-based harassment are delegitimized. Importantly, inclusive efforts should extend to active collaborations with parents, religious leaders, and community organizations in order to ensure that interventions are culturally embedded and religiously sensitive. Only by situating digital education within these wider networks can adolescent well-being and identity development be effectively supported across domains of life.

## 5. Conclusion

This review demonstrates that emerging technologies such as deepfakes, gaming, the metaverse, virtual reality, and chat applications affect

adolescent psychological well-being by offering opportunities for creativity, social connection, and learning while simultaneously generating risks of addiction, misinformation, cyberbullying, and identity confusion (RQ1). These same technologies intersect with processes of religious identity development by positioning religiosity both as a protective factor that mitigates digital harms and as a salient marker of difference that renders youth, especially minorities, vulnerable to targeted harassment and exclusion (RQ2). Across technological domains, recurring patterns emphasise the coexistence of benefits such as empathy, empowerment, and religious literacy with risks including hate-based bullying, erosion of trust, and reinforcement of inequality (RQ3). These findings underline the necessity of ethically grounded and culturally sensitive responses that combine technical safeguards with education, community engagement, and policy frameworks attentive to the intersectional vulnerabilities of religious, ethnic, and migrant youth (RQ4).

More broadly, the evidence illustrates that technologies which foster identity exploration also destabilize boundaries of authenticity and belonging. Deepfakes highlight the fragility of trust in mediated environments; gaming illustrates both stress relief and addiction tempered by the protective influence of religious practice; the metaverse underscores the tensions between creativity, body image insecurities, and faith-based discrimination; virtual reality expands educational horizons through immersive empathy yet risks over-immersion and altered perceptions of the supernatural; and chat applications reveal the most persistent convergence of identity construction, peer solidarity, and cyberbullying. Together these domains show that adolescent well-being and religious identity are deeply entangled, with religion variously functioning as a source of resilience, a target of hostility, and a framework for ethical engagement with technology.

The findings confirm that technological interventions alone are insufficient. Algorithmic monitoring cannot substitute for critical digital literacy in schools, empathetic bystander cultures among peers, or culturally embedded forms of resilience within faith and family networks. Policy frameworks must address protection, accountability, and victim support in equal measure, while acknowledging that harms linked to religion often intersect with migration, ethnicity, and socioeconomic vulnerability.

Although the initial search was conducted in Scopus, an additional PubMed and Web of Science search was subsequently performed to enhance coverage of nursing, mental health, and clinical communication research. While this strengthened the review's interdisciplinary scope, the literature remains limited by a scarcity of longitudinal studies directly examining religious identity development within immersive digital environments. Future research that actively incorporates the experiences of young people across diverse cultural and religious contexts will be essential for designing interventions that are both protective and empowering. Interdisciplinary collaboration across psychology, education, sociology of religion, computer science, and policy studies remains indispensable if emerging technologies are to be harnessed in ways that support adolescent flourishing rather than deepen lines of exclusion.

#### Protocol registration

This review was registered in OSF, on 2025/09/30, [https://osf.io/5x6du/overview?view\\_only=76512c665cd3439f83f172083b63ef89](https://osf.io/5x6du/overview?view_only=76512c665cd3439f83f172083b63ef89).

#### CRediT authorship contribution statement

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#### Informed consent

Not applicable.

#### Ethical approval

Not applicable.

#### Statement regarding research involving human participants and/or animals

This research did not involve any studies with human participants or animals performed by any of the authors.

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#### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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#### Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.actpsy.2026.106601>.

#### Data availability

This study does not involve the generation or analysis of any empirical datasets. All discussions and conclusions are drawn from existing literature. Thus, there are no datasets or materials associated with this research to be made available.

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