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Implementing IVR for family therapy training: a prototype for first family therapy sessions

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Role plays and live supervision have been core methods in family therapy education, offering trainees experiential opportunities to practice therapeutic techniques, engage in reflexivity, and develop systemic awareness. However, these traditional methods face limitations in scalability, standardization, and emotional safety. Immersive Virtual Reality (IVR) —a technology capable of eliciting realistic affective and cognitive responses through a sense of presence—presents new possibilities for addressing these challenges. Drawing upon research in simulation-based learning, this article explores how IVR can enhance the acquisition of core family therapy competencies (technical skills, relational, epistemological, and context sensitivity). The paper synthesizes existing family therapy education models and methods and IVR-based training research. It highlights the unique pedagogical affordances of IVR, i.e., embodied perspective-taking, emotional safety, standardization, and repeatability, and links these to family therapy training goals. An IVR prototype developed by the authors simulates a first family therapy session, providing a proof of concept for integrating virtual simulations into therapist education. Preliminary feedback from professionals indicates that IVR can foster engagement and self-reflexivity, though challenges remain regarding content realism, cost, and trainers' digital skills. The article concludes by identifying future directions for research and practice, emphasizing the need for interdisciplinary collaboration, empirical validation, and ethical frameworks to guide the responsible implementation of IVR in family therapy education.

KEYWORDS

family therapy, immersive virtual reality, live supervision, peak experience, psychotherapy competencies, psychotherapy training, reflexivity, simulation-based learning

1 Introduction

Family therapy training has long relied on role-plays and live supervision as core pedagogical tools (Liddle et al., 1988; Shurts et al., 2006). These exercises provide a dynamic space for trainees to hone therapeutic skills, receive supervision while practicing in a clinical context, and engage in reflective feedback loops (Metcalf, 2023). However, while simulations

and real-time supervision foster experiential learning, they do not scale systematically. Their efficacy is often limited by supervisor availability, scenario consistency, and the variability of human actors.

In recent years, fields that deal with human conflict and empathy (policing, nursing, and medicine) have increasingly turned to simulation-based learning to address similar training challenges (Bienstock and Heuer, 2022; Elendu et al., 2024; Zechner et al., 2023). Among these, immersive virtual reality (IVR) stands out as a particularly powerful medium. IVR is a computer-generated, interactive environment experienced through head-mounted displays that update digital visuals in response to a user's body movements (Bailenson, 2018). By fully engaging the senses, IVR can elicit emotional and physiological reactions that closely mirror real-life experiences, fostering *presence* (Cummings and Bailenson, 2016). Presence is the "perceptual illusion of non-mediation" (Lombard and Ditton, 1997), in which individuals respond to a mediated environment as if the technology itself had disappeared, experiencing the illusion of being in the mediated space rather than merely observing it. IVR fully replaces the view of the physical environment with a computer-generated one, enabling trainees to engage in controlled, emotionally charged simulations without real-world consequences (Bailenson, 2018). In the context of family therapy education, IVR immerses learners in realistic family therapy sessions, allowing them to practice with different problem presentations and receive immediate feedback on the physiological, emotional, and interpersonal aspects of their interactions in the virtual scenario.

Despite the growing body of research demonstrating IVR's effectiveness in medical and interpersonal skill training, mainly correlated with the feeling of presence (Kim and Kim, 2023), its potential within family therapy education remains largely unexplored. Traditional pedagogical methods struggle to capture systemic and relational complexities inherent to family work, limiting opportunities for consistent, emotionally authentic practice. While role-playing can simulate different forms of interactions among participants, it rarely conveys the nuanced emotional exchanges, overlapping conversations, shifting alliances, and nonverbal cues that occur in real multi-member family sessions (Atuel and Kintzle, 2021). Similarly, live supervision requires the presence of supervisors, and ongoing feedback introduces interruptions and exposure to judgment (Smith et al., 1991; Maaß et al., 2022).

This paper bridges insights from IVR-based simulation research and family therapy education models and methods to outline opportunities, challenges, and directions for future research that leverage IVR to enhance family therapist training. An illustration of an IVR-based prototype developed by our team provides further insights into the feasibility of this approach.

2 Family therapy training: conceptual models and training methods

Family therapy is a form of clinical practice that requires the development of complex social-emotional skills compared with other psychotherapeutic interventions. Born in the 1950s in North America, family therapy encompasses psychotherapeutic

work with multiple persons present at the same time and in the same room, with the purpose of assessing and modifying dysfunctional patterns that affect family functioning (Carr, 2012). In family therapy sessions, therapists and clients construct and deconstruct hierarchies, identities, relationships, roles, psychological states, and social realities that reflexively influence the therapeutic process (Fruggeri et al., 2022).

Recently, a competency-based approach has emerged in family therapy training (Bobek et al., 2025; Celano et al., 2010; Nelson et al., 2007). Fruggeri et al. (2022) introduced a comprehensive conceptual framework of four core psychotherapeutic competencies: *technical*, *relational*, *epistemological*, and *context sensitivity*. This model further distinguishes between *first order competencies* (technical competency: theoretical knowledge, personal experiences, emotional resonances), and *second order competencies* (relational, epistemological, context sensitivity), which require higher-level skills, such as reflecting on therapeutic practice from a multi-process perspective as it unfolds (Fruggeri et al., 2025). This work highlights the need to consider how pedagogical methods in family therapy education can best account for these complexities.

Historically, simulations, role plays, and live supervision have been core teaching methods in family therapy education (e.g., Berg, 1978; Ferber and Mendelssohn, 1969; Hardy, 1993; Montalvo, 1973). Role plays allow participants to fully immerse themselves in situations that reproduce a 'real' scenario (e.g., Hodgson et al., 2007) enhancing learning processes related to psychotherapy practice, such as: embodiment of emotions, perspective taking, and reflexivity (if role plays are followed by reflections on the task). However, students are often reluctant to participate in role plays, feeling judged by their peers and supervisors (Dickerson, 2008).

Live supervision is often considered the hallmark of marriage and family therapy (Hardy, 1993). Students learn by actively participating in a treatment team with a supervisor and working with families within a clinical site, often using a therapy room and an observing room with a one-way mirror (Montalvo, 1973). Despite being an effective teaching method (Rait, 2019a, 2019b), researchers have identified limitations, such as increased anxiety for trainees, disruption of therapy processes, and challenges in supervisor-trainee relationships (e.g., Maaß et al., 2022).

The COVID-19 pandemic introduced new possibilities to innovate training and supervision but also challenges and limitations (Borcsa and Pomini, 2025). The need for service delivery and training to continue implied moving family therapy training courses to video conferencing platforms (e.g., Zoom): Trainers and supervisors had to reconsider how to teach core clinical skills online, such as: supporting trainees to create a therapeutic alliance with clients or reflecting on the trainees' personal resonances and containing possible emotional reactions without being physically co-present or assess family functioning with limited nonverbal cues given the mediation of a screen (Sahebi, 2020). Videoconferencing platforms allow for interactive two-way dialogues with participants (students and/or clients). However, conducting role plays or supervising students while they provide therapy to clients connecting from their homes or other locations can be problematic. For instance, supervisors and trainers have limited control on their students and clients' environments, i.e., who is in the room with them during the therapeutic session? Are clients

comfortable enough to talk? Trainees struggle to grasp clients' nonverbal cues when online and similarly for supervisors it can be challenging observing clients and students' reactions on a screen and give instructions to supervisees using live private chats while trainees interact with clients (Hanly and O'Brien, 2021). To the best of our knowledge after the pandemic very few family therapy courses continued to provide online supervision and training.

3 The potential benefits of IVR for professional training in family therapy

The integration of immersive technologies into educational frameworks represents a relevant pedagogical shift, driven by the technology's unique capacity to generate the *feeling of presence* (Lombard and Ditton, 1997). This offers a solution to bridging the gap between abstract theoretical knowledge and real-world application. As IVR technology becomes more accessible, it becomes a tool for creating *experiential learning* environments that transform the learner from a traditional passive observer into an active participant (Queiroz et al., 2023).

Extant research on IVR's educational efficacy is concentrated in several key areas. The most established domain is procedural and simulation-based training (Bailenson et al., 2025), particularly in high-stakes fields like medicine, where IVR provides a safe-fail environment for mastering complex skills without real-world risk (Kim and Kim, 2023). Beyond motor skills, IVR leverages the principles of *embodied cognition* (Repetto and Riva, 2024; Riva, 2008) by allowing learners to physically manipulate and navigate abstract or inaccessible concepts, leading to documented gains in conceptual understanding and procedural knowledge (Bailenson et al., 2025; Queiroz et al., 2022).

Furthermore, a novel and psychologically significant application of IVR lies in its capacity to modulate affective and social learning. Emerging research on virtual perspective-taking (VRPT), where users "embody" the avatar of another, demonstrates a measurable impact on fostering empathy (Martingano et al., 2021; Ventura et al., 2020), social awareness (Muratore et al., 2019; Passig et al., 2007), and the reduction of implicit biases (DeVeaux et al., 2023; Salmanowitz, 2018; Schulze et al., 2019). This suggests IVR's utility extends beyond cognitive gains to social and emotional competencies (Hamilton et al., 2021; Mystakidis et al., 2021).

The immersive qualities of IVR supporting affective engagement may also allow trainees to access transient moments of self-actualization (Kaufman, 2023), which in turn can give rise to deeper transformative states and perspectives, namely, *peak experiences*—brief but intense moments of insight, unity, or transcendence (Maslow, 1961; Maslow, 1964; Privette, 1983). Peak experiences in IVR encompass five experiential dimensions—*surprise and difference*, *expansion of perspective*, *reshaping of realities*, *meaningful interactivity and achievement*, and *connection and belonging*—that together describe how these environments can occasion transformative moments characterized by heightened presence and reflexive insight (Thaker et al., 2025; Thaker and Heitmayer, 2025).

For family-therapy education, these dimensions map closely onto established pedagogical and epistemological goals. *Surprise and difference* support the development of reflexivity by disrupting habitual interpretive frames through the introduction of new

information (news of difference: Bateson, 1972), a core systemic competence in family therapy (Fruggeri, 2012). *Expansion of perspective* corresponds to the competence of holding multiple viewpoints, with virtual perspective-taking shown to increase empathy and reduce implicit bias (Martingano et al., 2021; Ventura et al., 2020). Such perspective expansion is not merely cognitive but embodied and affective: in IVR simulations, family therapy trainees can embody different family members or an external observer. This enhances the development of complex thinking and the ability to hold together multiple—sometimes contradictory—perspectives (epistemological competency), which is crucial in family therapy practice due to its systemic and multivocal nature (Fruggeri et al., 2022; 2025).

Reshaping of realities provides emotionally credible yet risk-free and repeatable spaces (Queiroz et al., 2025) in which trainees can experience how shifts in therapeutic stance reorganize meanings. In IVR, this temporary but vivid sense that reality can change helps trainees recognize that realities are constructed and shaped through interaction, and that personal and interpersonal patterns are embedded in broader sociocultural forces. IVR can also make visible how dimensions such as gender, race, class, culture, age, ability, and spirituality influence the co-construction of meaning in therapy. This experiential exploration strengthens context sensitivity (a second-order competency; Fruggeri et al., 2025) by fostering the understanding of clients' difficulties as emerging from the intersection of individual, relational, and societal structures.

Meaningful interactivity and achievement allow trainees to experience emergent agency, as their actions produce coherent and observable changes within the simulation. This supports the development of relational competency (Fruggeri et al., 2022), i.e., trainees can experiment with different relational positions and immediately observe how the system reorganizes, thereby learning to re-shape relational patterns in real time. Finally, *connection and belonging* complement relational competency, since it concerns relational attunement with participants, thereby fostering genuine emotional connection and potentially "healing" trajectories (Thaker and Heitmayer, 2025).

The aim of IVR training is not to induce peak experiences *per se*, but to create conditions in which they may arise, with psychological safety as a necessary precursor. IVR can complement traditional role plays and live supervision, offering structured opportunities for experiential and affective learning that integrate technical proficiency with personal and relational growth. This helps develop therapists who are skilled and reflexively and relationally attuned. Therefore, family therapy can leverage IVR as a specialized, controllable, and scalable training environment. It provides a safe space to fail, allowing trainees to practice difficult de-escalation or intervention techniques without real-world consequences (Bailenson, 2018). This virtual environment can also mitigate the risk of social judgment from peers or supervisors (Kluger and Adler, 1993; Queiroz et al., 2025). Social evaluation can trigger anxiety and threat responses, particularly in live supervision settings, reducing a learner's sense of safety and, consequently, the effectiveness of training (Dickerson, 2008; Gagnon and Wagner, 2016; Gruenewald et al., 2004). Furthermore, IVR offers training consistency by presenting standardized, repeatable scenarios (Pottle, 2019)—a fidelity difficult, if not impossible, to replicate in traditional role-play or live supervision—thus providing a stable platform for competency-based assessment.

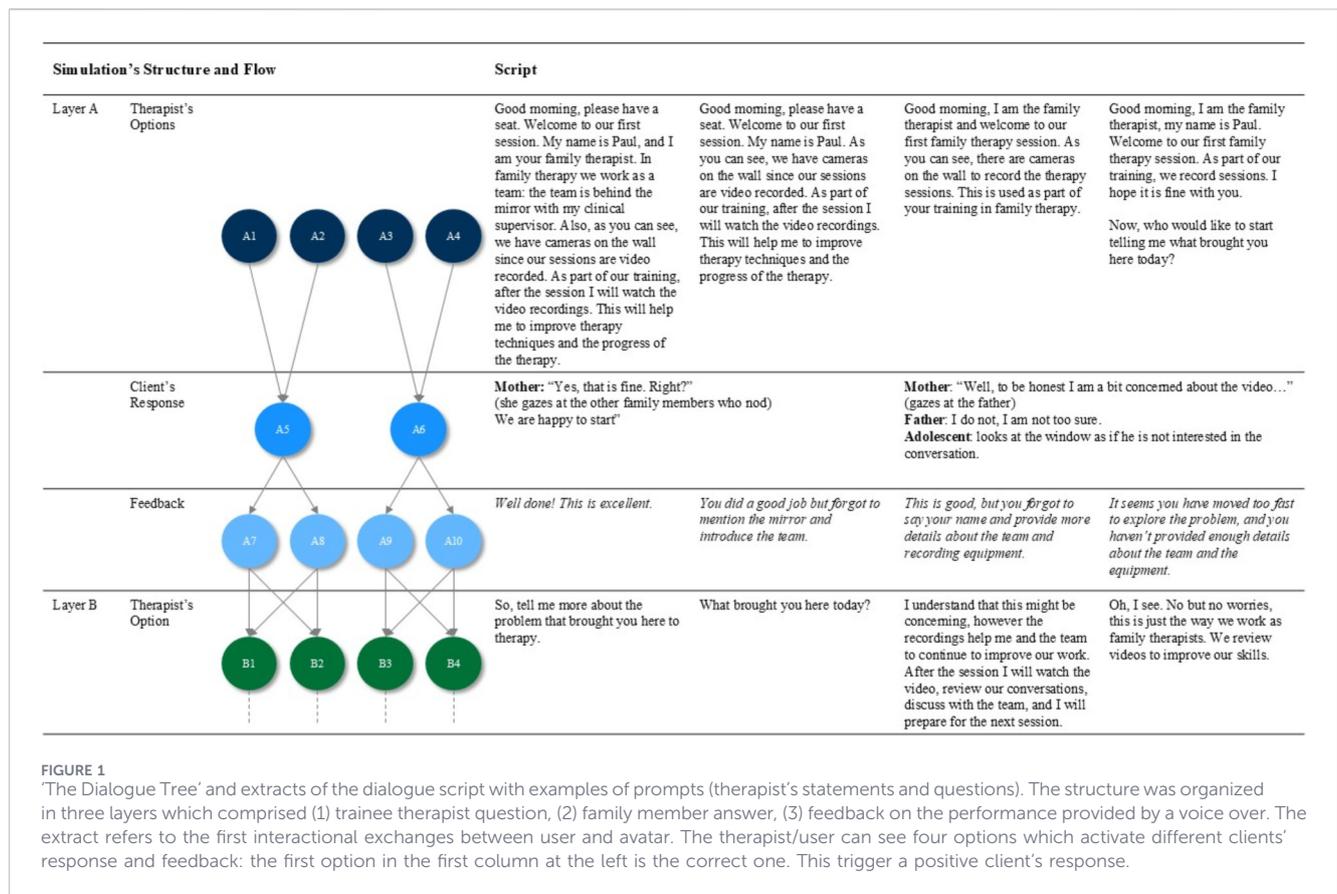


FIGURE 1
 'The Dialogue Tree' and extracts of the dialogue script with examples of prompts (therapist's statements and questions). The structure was organized in three layers which comprised (1) trainee therapist question, (2) family member answer, (3) feedback on the performance provided by a voice over. The extract refers to the first interactional exchanges between user and avatar. The therapist/user can see four options which activate different clients' response and feedback: the first option in the first column at the left is the correct one. This trigger a positive client's response.

4 An IVR prototype for family therapy first sessions

Our team developed a prototype using the *Unity* engine to pilot the use of IVR for training family therapists, first for desktop VR and later ported to the *Meta Quest 3* IVR headset (Everri et al., 2025). The simulation script—a first family therapy session with a family of three (mother, father, 15-year-old boy)—was implemented in the prototype as a 'Dialogue Tree' that a user could click through to progress the simulation. The simulation included dialogue options for how the therapist introduced themselves, the setting, and started asking questions, as well as tracked where the trainee was looking, informing the trainee how much time they spent looking at each family member after the session. The script content was created by the family therapists that contributed to this paper who are experienced family therapist trainers and researchers. During the meetings for the development of the prototype, they discussed clinical cases that they supervised in youth mental health services and their experiences of typical mistakes made by trainees during first sessions. Also, they drew on family therapy models for conducting first sessions (Dallos and Draper, 2024) and question formulation (e.g., Tomm, 1988; Shotter, 1987) to develop the different options available to users. As shown in Figure 1—an example of the Dialogue Tree—the script changed at each iteration based on the user's interaction with avatars.

4.1 The simulation

First family therapy sessions are usually challenging (Patterson et al., 2018). Therapists need to convey practical information (e.g., videorecording, consent) while simultaneously setting the scene to develop a good therapeutic alliance (Dallos and Draper, 2024). Therapist-family members' communications during the first family therapy session further have an impact on family retention (Marchionda and Slesnick, 2013; Rober and Van Tricht, 2023). Therapists enter the therapy room with hypotheses, but the therapeutic process cannot be controlled unilaterally, as it is a coordinated joint interaction (Shotter, 1987). Every action is a response to the previous one (context-shaped) and creates the ground for what follows (context-renewing; Schegloff, 2007). Consistently, trainees need to be equipped with skills to manage unexpected and unpredictable situations.

Designing a virtual scenario that captures this level of complexity presented a specific challenge. The training environments must not only reproduce prototypical situations but also allow room for the unexpected—emergent responses, ambiguous emotions, or unanticipated shifts in the interaction that mirror the fluidity of real therapeutic encounters. Achieving such ecological validity requires balancing structure and openness: the scenario should be sufficiently scripted to meet learning objectives, yet flexible enough to evoke the uncertainty that characterizes live family therapy. Figure 2 demonstrates such an interactive exchange with 'unexpected conversational events': trainees are prompted to answer choosing



FIGURE 2
 The simulation: First family therapy session using IVR-based simulation. 1. Family members sit in front of the therapist. The trainee can choose between two options for asking the family members about the reason for coming to therapy. 2. Here, the trainee encounters the first “unexpected” event: one parent does not want the session to be video recorded. The first option shown on the panel triggers a more positive response from the family members compared to the second option. 3. One parent says that Max is the problem and that this is the reason they sought family therapy. This triggers Max’s reaction—he opposes his parents, shows frustration, takes out his phone, and withdraws from the interaction. This image shows the options available to trainees after Max’s reaction. Depending on the response chosen by the trainee, the response of the client will generate an interaction which could be more helpful or less helpful to the advancement of the therapeutic process. At the end of the simulation, trainees receive visual feedback on their eye contact with clients and vocal feedback on their overall performance.

alternatives (see Figure 1) that create a safe space for the exploration of dysfunctional patterns and ultimately introduce positive change.

4.2 Assessing the usefulness of the IVR-based prototype

As part of the further development of this prototype, a workshop was organized at the International Congress of the European Association of Family Therapy held in Lyon, France, in August 2025 (Everri et al., 2025). The workshop lasted 60 min and participants (N = 16) were family therapists, practitioners, and academics. Three authors of this paper facilitated the workshop which comprised (a) an introduction of the competency-based approach for family therapy, (b) a brief questionnaire to assess participants’ knowledge and interest in IVR, (c) an interactive trial of the simulation using a Meta Quest 3 IVR headset, and (d) a short answers questionnaire to collect feedback.

Only six out of 16 participants knew what IVR was and most were initially hesitant to adopt it for training or practice. After they tried the prototype, the majority expressed interest in using IVR in their training (12 out of 16). Participants (P1-P16) acknowledged the simulation’s usefulness for enhancing self-reflexivity and embodiment (e.g., *The proprioceptive feedback for the trainee can enhance self-reflexivity: P1; [IVR-simulation] enables different ages and cultures to be brought in: P4*). Some concerns pertained to students’ dependence on this technology and the limitations of the training feedback, which was confined to IVR only (e.g., [...] *relying on the “safety” of controlled environments: P1; I’d be concerned about the power of the feedback process. When feedback is given face to face to trainees it is more*

powerful versus when happening in a virtual environment: P6; Perhaps it does not foster individual authenticity but rather expected behavior: P8). All provided useful suggestions regarding the software design, emphasizing the need for implementing nonverbal cues and avatar design (e.g., the appearance of avatar and voice tone for vocal feedback: *Script could be more invitational and nuanced: P2; The animation could be refined to make gestures more fluid: P7; Nonverbal cues and tone of voice should be improved for better engagement with IVR simulation: P5*).

5 Discussion: IVR and the future of family therapy education

The landscape of research in family therapy education and IVR professional training offers interesting opportunities for cross-fertilization. While role plays and live supervision have been mainstays for over 70 years, IVR opens new possibilities for innovation. IVR affords learning processes that can productively augment, not replace, traditional in-person training. It also facilitates professional training that requires the development of a complex set of skills and core competencies through its unique features. The combination of first order competencies (i.e., technical) such as, how to ask different types of questions, and more complex, second-order competencies, such as reflectively observing the impact of therapists’ questions by capturing clients’ feedback (Fruggeri et al., 2022; 2025), can be sustained by virtual simulations.

Compared to traditional methods, IVR-enhanced family therapy training presents a different logistical and pedagogical profile. While

role plays are less expensive than live supervision because they use peers as actors, both methods are difficult to scale (Elendu et al., 2024). IVR has a high initial development cost but a low/almost no per-session cost over time, making it highly scalable (Farra et al., 2019). IVR can address key gaps in traditional training such as standardization and the repetition of specific scenarios, as well as practicing challenging or sensitive situations (e.g., high-conflict de-escalation) in a safe, controlled environment. This safe space to fail, free from social judgement, is one of IVR's most significant advantages over live supervision for novices (Dickerson, 2008). Moreover, trainees can practice, fail, and retry as many times as needed without real-world consequences for a client or their own professional evaluation.

IVR can be designed to help trainees practice core systemic skills, such as family assessment, and maintain balance between multiple family members when in conversations with them (via eye- and speech-tracking). The ability to record and review a session from multiple perspectives (including embodying a family member), can enhance a trainee's ability to track interactional cycles and develop the second-order competency of self-reflection (e.g., Queiroz et al., 2025: findings of an investigation of self-review and feedback in IVR on improving empathetic communication). However, there are still several challenges to the large-scale adoption of IVR in family therapy training. First, the cost and time required to develop high-quality content is still considerable. Second, trainers often lack technical skills and maintenance expertise to deal with IVR and cultural resistance within the field of psychotherapy education (as initially shown in our workshop) is high. Third, trainees may not adapt well to IVR, experiencing cybersickness and discomfort related to the technology.

This perspective explores the opportunities of IVR in family therapy training, but it also points out the need for a research agenda. As recently highlighted by Slater et al. (2025), the navigation of the metaverse requires rethinking epistemologies, models and methods. IVR-enhanced training in family therapy requires more empirical studies, including randomized control trials, to validate these approaches; and multidisciplinary teams to develop complex scenarios that can augment core competencies. Longitudinal studies are needed to identify whether skills learned in IVR transfer and persist in real-world practice. Finally, these findings should inform the development of evidence-based curricula, assessment tools, and ethical guidelines for the use of IVR in family therapy training and education.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding authors.

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Author contributions

ME: Conceptualization, Writing – original draft, Writing – review and editing. AQ: Writing – original draft, Writing – review and editing. MH: Writing – original draft, Writing – review and editing. AC: Software, Visualization, Writing – review and editing. FB: Writing – review and editing. DH: Writing – review and editing. LF: Writing – review and editing. JJ: Writing – review and editing. MM: Writing – review and editing. TM: Writing – review and editing. VO: Writing – review and editing. DR: Writing – review and editing. AR: Software, Visualization, Writing – review and editing. ST: Writing – review and editing.

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