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Ecological momentary interventions in social work: a psychological approach to enhancing client well-being

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Abstract. Ecological Momentary Interventions (EMIs) are an exciting development in the provision of psychosocial and mental health services, providing real-time, context-aware therapeutic interaction via mobile technologies. In this paper, the application of EMIs in social work practice is discussed from a psychological viewpoint, with a focus on their potential for supporting increased client well-being, empowerment, and resilience. Grounded in recent research, we review the psychological mechanisms of EMI effectiveness, including self-monitoring, feedback loops, and cognitive-behavioral processes used in daily life settings. Applications of EMIs in crisis management, support of vulnerable populations, and prevention of mental health deterioration are critically examined. Ethical concerns, such as confidentiality, data protection, and client autonomy, are addressed alongside new technology developments, like AI-driven personalization. The article concludes by emphasizing EMIs' revolutionary potential in bridging gaps between traditional services and dynamic client needs. By embedding interventions within everyday life contexts, EMIs align with social work's and psychology's core values, promoting more immediate, personalized, and equitable care. Future directions highlight the need for inclusive design, rigorous ethical frameworks, and practitioner training to fully leverage the potential of EMIs across diverse practice settings.

Keywords. Ecological Momentary Interventions, social work, mental health support, real-time interventions, client empowerment

1. Introduction

In the evolving landscape of psychosocial and mental health care, Ecological Momentary Interventions (EMIs) represent a new paradigm that defies traditional therapeutic practice boundaries. EMIs are characterized by the delivery of therapeutic guidance in real time and in individuals' natural environments, often facilitated through mobile technology such as smartphones and wearable sensors (Heron & Smyth, 2010). In comparison to conventional interventions that occur most frequently in official clinical settings at scheduled times, EMIs place therapeutic moments into clients' ordinary lives and consequently provide contextually relevant and opportune support (Myin-Germeys, Klippel, Steinhart, & Reininghaus, 2016).

The increasing complexity of mental health needs addressed by social work practice further underscores the relevance of EMIs. Client populations encountered by social workers often encounter compound vulnerabilities like chronic stress, socio-economic adversity, trauma, and co-occurring mental illness. Conventional episodic treatments—conducted at weekly or bi-weekly intervals—may not specifically address the dynamic and unpredictable nature of clients' suffering (Balaskas, Schueller, Cox, & Doherty, 2021). EMIs, by contrast, offer continuous, adaptive support, mitigating risks prior to crisis development and facilitating clients to develop coping skills short-term and long-term.

The necessity of real-time, personalized support for social work is now considered core rather than secondary. EMIs on mobile phones, for instance, have been shown to be effective in promoting health behavior, reducing anxiety, and preventing relapse in a variety of populations (Dao et al., 2021; Loo Gee, Griffiths, & Gulliver, 2016). Moreover, interventions like the SmartCAT platform have demonstrated the potential of mHealth technologies to extend cognitive-behavioral treatments to anxious children and deliver coping skills exactly when and where they are needed (Pramana, Parmanto, Kendall, & Silk, 2014). These findings have particular significance for social workers, who have a tendency to empower clients outside of the confines of formal therapy sessions.

The psychological underpinnings of EMIs are solidly rooted in empirically supported theories of behavior change, cognitive-behavioral therapy (CBT), and self-regulation models. By facilitating self-monitoring, offering in-situ cognitive restructuring, and building adaptive behaviors, EMIs transfer core principles of CBT to support emotional and behavioral regulation in the moment (Smith & Juarascio, 2019). Additionally, by intervening on proximal emotional experience, EMIs are able to interrupt maladaptive sequences prior to consolidation, aligning with psychological models of emotion regulation and habit formation.

More recent meta-analyses and systematic reviews provide further evidence for the effectiveness of EMIs in enhancing mental health outcomes. For example, Versluis et al. (2016) demonstrated that EMIs significantly improved psychological well-being and reduced distress symptoms among a variety of clinical and non-clinical populations. Similarly, Businelle et al. (2016) found that real-time smoking cessation interventions increased cessation rates by offering timely motivational feedback, suggesting broader utility in behavioral change interventions within social work. Moreover, Schueller, Aguilera, and Mohr (2017) note that EMIs can effectively treat depression and anxiety symptoms by offering sparse, frequent interventions that maintain treatment momentum between scheduled sessions.

Simultaneously, EMIs introduce novel ethical issues that must be addressed with care in social work environments. Issues of privacy, data protection, and client autonomy become paramount, particularly in light of the intimate nature of real-time data collection and intervention (Balaskas et al., 2021; Dao et al., 2021). Thus, while EMIs offer unprecedented potential for scalable and tailored interventions, they also necessitate rigorous ethical standards to protect clients' rights and promote trust.

In this context, the current paper aims to critically analyze the inclusion of ecological momentary interventions in mainstream social work practice, framed in psychological theory and evidence-based practice. Specifically, the objectives of the paper are to: (1) provide an overview of the theoretical and technological underpinnings of EMIs; (2) discuss their applications and performance in promoting client well-being; (3) discuss ethical considerations inherent in their use; and (4) enumerate future research and practice areas. In doing so, we encourage the ethical use of EMIs as a creative, evidence-based enhancement to traditional

social work practice, opening up new opportunities for encouraging client resilience, autonomy, and well-being.

2. Theoretical background

2.1 The evolution of EMIs

Development of Ecological Momentary Interventions (EMIs) is just one element in a greater paradigm shift for the delivery of mental health and behavioral treatment, from the traditional, clinic-based model of treatment to mobile, real-time treatment models. First envisioned in the general realm of Ecological Momentary Assessment (EMA) — methods meant to take advantage of the immediate acquisition of information regarding individuals' lives in naturalistic contexts — EMIs continue this rationale by not just witnessing but taking action within day-to-day events as well (McDevitt-Murphy, Luciano, & Zakarian, 2018).

This evolution was provoked by growing recognition of the inherent limits of retrospective self-report and sporadic therapy sessions, particularly in the case of populations with variable symptoms such as those having depressive or psychotic disorders. For example, Colombo et al. (2019) point out that traditional therapeutic approaches often fail to capture the moment-to-moment variability that is characteristic of disorders like major depressive disorder, but EMIs allow for timely, adaptive treatment that is aligned with the lived experience of clients. Similarly, Bell, Lim, Rossell, and Thomas (2017) discuss the use of EMIs in psychotic disorders, where real-time intervention facilitates coping with symptoms like auditory hallucinations by offering coping strategies in real time.

Technological innovation — above all, the widespread diffusion of smartphones, wearables, and mobile apps — has been central to enabling the mass dissemination of EMIs. These technologies enable the smooth integration of assessments, feedback, and micro-interventions into individuals' daily lives, reducing barriers to engagement while enhancing ecological validity (Marciniak et al., 2020). Mobile EMIs can send personalized messages, passively measure emotional or behavioral states, and initiate intervention that is specifically tailored to detected risk patterns, with unbeatable scalability and customization.

Empirical studies demonstrate the effectiveness and usefulness of EMIs across a variety of behavioral and psychological situations. For instance, Stieger and Lewetz (2018) examined the impact of a smartphone-delivered EMI encouraging a social media break, with significant short-term improvements in well-being and emotional functioning. Similarly, Brookie et al. (2017) developed an EMI to increase fruit and vegetable consumption in young adults, demonstrating the potential of momentary prompts to influence health behaviors in real-world contexts.

Substance use interventions have also been enhanced by EMI approaches. Riordan, Conner, Flett, and Scarf (2015) developed a brief orientation week EMI that reduced alcohol consumption among college students, demonstrating that situation-specific messages at risk times can influence decision-making. Wright et al. (2018) also generalized this application in a randomized controlled trial, using mobile phone-based EMIs to reduce alcohol use during events among young adults, establishing the effectiveness of EMIs to drive behavior in high-risk, dynamic social environments.

These technological and empirical advancements position EMIs as a game-changing innovation, synchronizing intervention strategies with the real-world complexity of clients' lives. The portability, immediacy, and personalization offered by mobile technologies reframe the therapeutic relationship, rendering an "always-available" companion that optimizes clients'

autonomy and enhances adaptive coping mechanisms among traditional face-to-face sessions (McDevitt-Murphy et al., 2018).

Within social work practice, where clients often face intersecting psychosocial, economic, and mental health concerns, having the capacity to offer real-time, context-sensitive assistance can go far towards enhancing the effectiveness of interventions. By weaving psychological strategies into the rhythms of daily living, EMIs enable social workers to promote behavior change, emotional management, and resilience building with a responsiveness and timeliness hitherto unattainable.

2.2 Psychological mechanisms behind EMIs

The success of Ecological Momentary Interventions (EMIs) is their ability to activate fundamental psychological processes for behavior change and emotion regulation in real-world environments. Most salient among them are self-monitoring, feedback processes, and the application of cognitive-behavioral processes dynamically in everyday life. They set EMIs apart from standard interventions, with the potential to affect more adaptive, real-time, and enduring changes in psychological processes.

Self-monitoring

Self-monitoring is a key component of EMI efficacy. It involves active, continuous monitoring and record-keeping of oneself's own feelings, thoughts, or behaviors, resulting in heightened awareness and earlier detection of pathological tendencies. As demonstrated by Pavlacic, Schulenberg, Witcraft, and Buchanan (2022), mindfulness-based EMIs that foster continuous awareness have strong effects on emotion regulation, stress, and resilience among college students. Similarly, Folkersma et al. (2021) showed that self-monitoring, when used with personalized feedback, was associated with improvement in depressive symptoms, indicating its clinical relevance.

This active monitoring enhances understanding of self-statements precipitating emotional experience and coping behavior use, and leads to more anticipatory response than reaction. LaFreniere and Newman (2016) demonstrated in a randomized controlled trial based on the "worry outcome journal" that planned worries to self-monitor had positive impacts in symptom reduction from generalized anxiety disorder, directly establishing therapeutic outcomes with ongoing monitoring of current awareness. Besides, Gründahl, Deckert, and Hein (2020) emphasize that effective EMI design needs to facilitate making self-monitoring tasks meaningful and light enough to sustain users over the long term.

Feedback loops

To accompany self-monitoring are feedback loops, through which clients receive immediate, tailored feedback from their real-time reports or observed behavior. Feedback increases the salience of adaptive behavior, reinforces effective coping strategies, and rectifies cognitive reframing where necessary. Fechtelpeter et al. (2024) propose a control theoretic model for EMIs, illustrating how continued feedback can dynamically steer clients toward therapeutic goals on the basis of real-time deviations from optimal psychological states.

Empirical evidence confirms the salience of feedback loops in maintaining client motivation and smooth therapeutic advancement. For instance, Hébert et al. (2018) demonstrated how unilaterally provided, personalized messages significantly reduced smoking lapse risk among participants and illustrated how prompt feedback can operate at moments of maximal exposure. In depression-specific EMIs, Bastiaansen et al. (2022) found modules with

personalized feedback, compared with monitoring alone, to generate more pronounced symptom reductions, once again affirming feedback as an active ingredient.

The dynamic, interactive feedback process creates a dynamic, two-way process between the client and the intervention system. As Runyan and Steinke (2015) explain, this kind of process simulates learning processes in real life, where instant reinforcement or correction produces more cognitive and emotional change than delayed feedback in conventional forms of therapy.

Cognitive-behavioral mechanisms in real-time contexts

Finally, EMIs use cognitive-behavioral processes by delivering real-time cognitive restructuring, activation of behavior, and exposure techniques embedded within routine daily activities. Cognitive-behavioral principles, particularly CBT and Acceptance and Commitment Therapy (ACT) constructs, were effectively ported to EMI media (Vaessen et al., 2019; Newman et al., 2014).

Among the anxiety disorders, Newman et al. (2014) reported that the combination of EMI with brief group therapy yielded greater symptom reduction than therapy alone, emphasizing the value of real-time intervention in the fight against maladaptive thinking patterns when they arise. Similarly, Vaessen et al. (2019) successfully employed ACT-based EMIs for individuals in the early phases of psychosis, demonstrating improvement in experiential acceptance and psychological flexibility.

In addition, EMIs have also been used to enhance motivational processes and behavior change among young people. For example, Shrier et al. (2018) had combined motivational counseling and EMI in order to suppress marijuana use among adolescents and discovered that real-time intervention enhanced internalization of motivational intentions.

The adaptability of EMIs enables them to present cognitive-behavioral content at critical "teachable moments," enhancing the probability of cognitive reframing or behavioral reaction to here-and-now emotional or contextual cues. Bastiaansen et al. (2022) highlight that real-time context is more than merely a delivery vehicle, being inherent to the therapy process itself, enabling situated learning and facilitating generalization of therapeutic skills across environments.

Nonetheless, as Schulte-Strathaus, Rauschenberg, Baumeister, and Reininghaus (2022) further recommend, the integration of cognitive-behavioral mechanisms into public mental health by applying EMIs should go forward with careful attention to accessibility, digital literacy, and ethics to avoid inadvertently exacerbating health inequities.

By combining self-monitoring, dynamic feedback, and real-time cognitive-behavioral strategies, EMIs offer a powerful, flexible approach that is conducive to contemporary notions of behavior change and psychological support. Each of these mechanisms contributes to the scaffolding on which real-time, specific interventions can be provided powerfully within the complicated changing environments experienced by clients in social work settings.

2.3 Relevance for social work

Application of Ecological Momentary Interventions (EMIs) in social work is a valuable innovation that can increase responsiveness, personalize care, and prevent exacerbating psychosocial problems in high-risk groups. Based on psychological theory and aided by technological advances, EMIs are consistent with the central values of social work: client centrality, empowerment, and mental health equity promotion.

Crisis intervention

One of the most straightforward uses of EMIs in social work practice is their potential to augment crisis intervention services. Traditional models of crisis intervention often rely on the potential for clients to accept in-person services in the midst of or shortly after a critical incident. However, this may be undermined by logistical barriers, stigma, or the unpredictable nature of crises. Conversely, EMIs offer the potential for real-time identification of emotional distress and the delivery of immediate, tailored coping skills directly to the client's mobile phone (Heron & Smyth, 2010; Bell, Lim, Rossell, & Thomas, 2017).

The use of momentary interventions in crisis management has been particularly useful for individuals experiencing acute psychotic symptoms or overwhelming anxiety, where early intervention can prevent symptom escalation (Bell et al., 2017; Schueller, Aguilera, & Mohr, 2017). Smartphone-delivered EMIs, for example, can activate grounding exercises, breathing exercises, or motivational messages at the onset of a panic attack, thereby enhancing clients' self-regulation ability until professional assistance is accessed.

Importantly, EMIs complement, rather than replace, traditional crisis intervention services. They constitute a continuum of care, bridging critical time gaps and augmenting clients' internal strengths during periods of heightened vulnerability (McDevitt-Murphy, Luciano, & Zakarian, 2018).

Support for vulnerable groups

Social work is especially concerned with groups that have systemic access to mental health care, including those who are poor, minority ethnic groups, foster youth, and those with chronic diseases. EMIs offer a low-threshold, scalable intervention that can be used to reach these groups at low cost and minimal disruption (Balaskas, Schueller, Cox, & Doherty, 2021).

Evidence has shown that technology-mediated EMIs are not just acceptable but preferable among young adults and minority groups who value the privacy, flexibility, and autonomy offered by technology-mediated support (Loo Gee, Griffiths, & Gulliver, 2016; Stieger & Lewetz, 2018). For instance, Stieger and Lewetz (2018) demonstrated that short-term EMI interventions delivered via smartphones were effective in reducing negative emotional states related to overuse of social media, highlighting the applicability of EMIs in youth social work settings.

Besides, EMIs can be adapted to the cultural, linguistic, and contextual needs of diverse populations for enhanced relevance and engagement. Smith and Juarascio (2019) underscore that EMIs' capacity for customization — content adaptation with real-time feedback — is critical to addressing the distinctive circumstances of marginalized or high-risk clients, a founding assumption of social work's practice of culturally competent practice.

Preventing escalation of mental health problems

Prevention is one of the pillars of effective social work practice, and EMIs offer a proactive strategy for preventing the escalation of mental health problems by addressing distress as and when it arises. Unlike retrospective interventions that rely on clients' memory and report of past emotional experience, EMIs work in the moment, at a point where psychological symptoms are unfolding but may not yet be at a level requiring intensive intervention (Heron & Smyth, 2010; Schueller, Aguilera, & Mohr, 2017).

By promoting ongoing emotional regulation and consolidating healthy behavior patterns, EMIs have the potential to buffer against the accumulation of stress and trauma that more commonly give rise to acute mental health crises (Balaskas et al., 2021; Loo Gee et al.,

2016). For example, real-time interventions that cue practice in coping skills or behavioral activation have been shown to reduce symptoms of depression and anxiety in the long term (Schueller et al., 2017; McDevitt-Murphy et al., 2018).

In addition, EMIs may be used as early warning systems: passive sensor data or self-report data trends can foreshadow deteriorating mental health status, precipitating preemptive contact by social workers or allied professionals. This predictive quality of EMIs represents one of the most exciting dimensions of the future of preventative mental health intervention in social work, moving from reactive to anticipatory intervention models.

The incorporation of EMIs into social work practice holds extensive potential in crisis intervention, protection of vulnerable populations, and prevention of mental health deterioration. By utilizing principles of psychology through real-time, mobile technologies, EMIs offer a powerful complement to traditional social work methods, affirming the profession's dedication to promoting well-being, dignity, and resilience in the aftermath of complex social problems.

3. Applications of EMIs in social work

The integration of Ecological Momentary Interventions (EMIs) with practice in social work holds dynamic promise for improving mental health treatment, empowering clients, and case management. Through facilitating real-time personalization, EMIs facilitate more adaptive and client-centric interventions that are responsive to the evolving needs of social work in diversified advanced societies.

3.1 Mental health support

EMIs have proved to have high potential for improving mental health care for clients under stress, depression, trauma recovery, and related psychosocial issues. By providing therapeutic cues, coping skills, and mood management tools on clients' mobile devices directly, EMIs provide sustained care away from the confines of an office.

One of the most straightforward applications is stress management. EMIs through mobile can teach clients to apply brief relaxation procedures, mindfulness skills, or cognitive restructuring procedures at times of acute stress, possibly precluding progression to anxiety disorders or maladaptive coping (Schueller et al., 2017; Loo Gee et al., 2016). Similarly, trauma recovery is facilitated by EMIs that offer grounding skills or self-affirmation messages in triggers experienced in daily life, enhancing emotional resilience and stability (Heron & Smyth, 2010; Balaskas, Schueller, Cox, & Doherty, 2021).

The COVID-19 era has particularly underlined the need for low-threshold, universal interventions to buffer mental health crises. Delcea et al.'s (2023) network analysis study determined coping-resilience strategies constructed in Romanian populations amidst the pandemic, with emphasis placed on the practicability of universal, real-time psychological support systems. EMIs, as such, present themselves as key devices for buttressing such resilience, offering constant micro-interventions that augment adaptive coping capacities.

Furthermore, the need to address emotional well-being among vulnerable youth, such as in family environments, has been identified by Gavrilă-Ardelean and Gavrilă-Ardelean (2017), who emphasized the need for communication-based therapy to minimize socialization issues. EMIs designed for children and adolescents can take on this task, offering explicit social-emotional learning cues and skill reinforcement in their natural settings.

In treating chronic needs such as depression, the use of real-time cognitive-behavioral content — e.g., activity scheduling reminders or encouragement statements — has been shown

to facilitate step-by-step but sustained enhancements in functioning and mood (Smith & Juarascio, 2019; McDevitt-Murphy, Luciano, & Zakarian, 2018). EMIs thus provide social workers with a scientifically proven, convenient tool for augmenting mental health treatment for a variety of client needs.

3.2 Case management and client empowerment

Apart from symptom management, EMIs have a role of transformation in care management through facilitating client empowerment and dynamic tracking of progress and need. Empowerment in traditional social work practice typically means the creation of clients' ability for self-determination, decision-making, and advocacy — concepts that EMIs can operationalize in daily practice.

With real-time feedback, goal tracking, and individualized encouragement, EMIs facilitate clients to move actively towards goals between formal sessions. This dialogic process is in line with a Gavrilă-Ardelean (2014) study, which emphasized participation within communities and respect for indigenous traditions as central to resilience and agency in rural contexts. Likewise, EMIs can be refined to respect and engage local, cultural, or individual values, fostering clients' reported sense of agency in their development work.

Further, EMIs allow for continuous, real-time assessment of client need, with the potential to record a more nuanced and multifaceted view of advances and setbacks over time. As opposed to relying on real-time self-reporting during face-to-face sessions, social workers can tap into ecological streams of data that reflect real-time emotional, behavioral, and situational fluctuations. As Vișcu and Rad (2024) suggest in their book on reflective supervision and integrative models, there needs to be continuous feedback and reflective practice to ensure responsive, effective interventions — a principle technologically enabled by EMIs.

This real-time data is particularly valuable in social work among vulnerable groups such as adolescents recovering from substance use disorder (Runcan & Lupșa, 2020) or NEETs (Not in Employment, Education, or Training), where daily stressors can contribute to a sudden impact on motivation and progression (Runcan, Marici, & Rad, 2024). EMIs act as a facilitating scaffolding that maintains client interest and motivation between formal sessions through offering temporary aid and monitoring.

Furthermore, studies from the field of prevention of cyberbullying (Runcan, 2020) and research on marital satisfaction and resilience (Nadolu, Runcan, & Bahnaru, 2020; Bahnaru, Runcan, & Runcan, 2019) show that adaptive, real-time interventions can have a substantial influence on social behavior and interpersonal relationships — fields of increasing interest to social work case management.

Finally, organizational perspectives inform the strategic merit of incorporating EMI. Vișcu and Rad (2024, 2025) promote the development of learning organizations in social work institutions and emphasize the evolving roles of social workers in adopting new technology tools. EMIs, in enabling more flexible, real-time, and client-centered interaction, embody the kind of adaptive, innovation-oriented practice that modern social work increasingly demands.

In short, EMIs have robust applications for individual mental health treatment and systemic empowerment methods, equipping social workers with techniques to maximize resilience, self-functioning, and adaptive functioning among clients in a personalized and sustained manner.

3.3 Ethical considerations and challenges

The application of Ecological Momentary Interventions (EMIs) in social work intervention holds vast potential for enhancing client support but also raises essential ethical concerns and challenges, particularly regarding confidentiality, data protection, and client autonomy. Addressing these is crucial to ensure that the integration of EMIs remains consistent with the fundamental ethical principles of both social work and psychological intervention.

Confidentiality is among the most important ethical concerns. Time-honored foundations of therapeutic relationships, confidentiality is more difficult in the context of digital interventions. EMIs typically involve the collection, storage, and transmission of sensitive, real-time data regarding clients' emotional lives, behaviors, and situational contexts. As Heron and Smyth (2010) observe, the use of digital technologies introduces new risks, including threats of unauthorized access, data breaches, and inadvertent disclosures. These threats can weaken the integrity of client-practitioner relationships when not adequately contained.

Similarly, Balaskas, Schueller, Cox, and Doherty (2021) caution that EMIs hold significant potential for the individualization of mental health services, but when confidentiality practices receive inadequate attention, they can negate client trust and engagement. In order to keep these risks contained, robust arrangements need to be implemented at inception, including applying secure encryption practice, anonymizing personal data, and imposing access controls. Transparency in communicating with clients about the nature of data collection, who access will belong to, the specific conditions on which data would be made known, and how long data would be stored is not just a legal requirement but an ethical one. Transparency is necessary in order to maintain therapeutic relationships within digitally mediated treatment.

Inextricably connected to confidentiality is the broader subject of data protection. With the volume and detail of data collected by EMIs—timestamps, geospatial information, and comprehensive emotional assessments—the client data risk is particularly high. As Loo Gee, Griffiths, and Gulliver (2016) suggest, effective EMI systems will need to incorporate advanced security measures, including end-to-end encryption, secure cloud-based storage services, and rigorous compliance with global guidelines like Europe's General Data Protection Regulation (GDPR). Without strong protection of data, the harms associated with data abuse—identity theft, stigmatization, or illegal surveillance—can potentially overbalance the benefits that EMIs have to offer.

Balaskas et al. (2021) also contend that data stewardship, being ethical in nature, should be a core aspect of designing EMIs in the first place, and not an afterthought. Interdisciplinary collaboration between social workers, mental health professionals, and technology engineers is needed to ensure that ethical standards are reflected in technological systems. Besides technical controls, ethical data protection policies must also incorporate data minimization principles—collecting only information that is absolutely essential—and limiting data duration to the shortest time, thus reducing long-term exposure to privacy risk.

Equally essential is safeguarding and supporting client autonomy. Respecting autonomy is a central ethical imperative in psychology and social work, and EMIs must be designed and provided in such a manner that sustains, rather than destroys, clients' autonomy. While EMIs hold promise for empowering clients through timely, supportive intervention, ill-conceived systems may become intrusive, directive, or coercive and so destroy clients' feelings of control over their therapy.

Schueller, Aguilera, and Mohr (2017) note that client autonomy should be sustained through voluntary, informed, and customized involvement in EMI programs. Clients require the authority of choice regarding the frequency of prompting, type of content of material, and

timing of intervention. Clients should be able to modify or withdraw consent voluntarily without adverse consequences on their ongoing treatment. Heron and Smyth (2010) also highlight the importance of personalization options within EMI systems, citing that notification settings and intervention types facilitated by clients enhance therapeutic benefits with an additional encouragement of their autonomy.

In general, while EMIs hold promise as exciting new tools for real-time support of clients, such interventions must be applied with thoughtful intention and attention to the ethical elements of confidentiality, data protection, and client autonomy. These principles are essential to maintaining trust, creating effective engagement, and making sure that EMIs are empowering instruments and not invasive technologies.

4. Evidence and recent research

The EMIs' growing literature says much about their immense potential in complementing mental health treatment in both social work and psychological practice. EMIs have evolved increasingly with their promise to provide timely, tailored interventions that directly respond to the changing needs of clients. Recent studies not only show the clinical efficacy of EMIs but also their promise in increasing client satisfaction and engagement, despite some limitations that should be overcome.

Schueller, Aguilera, and Mohr (2017) demonstrated through their study that EMIs can be used to successfully reduce symptoms of depression and anxiety, particularly when interventions are personalized and delivered in the moment. The findings back up the argument that even very small and low-intensity momentary interventions can have a considerable positive effect on emotional regulation and mental health outcomes. Similarly, Tappenden, Cole, Valentine, and Lilly (2023) piloted the psychometric properties of the Expressions of Moral Injury Scale with first responders, emphasizing the value of momentary assessment in capturing intricate emotional processes such as moral injury—a subject of the utmost relevance to social workers dealing with trauma among high-risk groups.

At the same time, Currier et al. (2018) developed and tested the Expressions of Moral Injury Scale—Military Version, further evidence that ecological procedures can provide insight into clients' lived experience, particularly with populations exposed to trauma. These findings are crucial to social work practice focused on trauma-informed care and the sensitive understanding of clients' internal lives. In educational institutions, Manimaran, Jayakumar, and Lakshmi (2016) proposed an education management information system with real-time tracking of stress stimulators for students, showing that EMI principles can be extended to preventive mental health management, which would be particularly applicable to school-based social work interventions.

Berg, Ross, Weatherburn, and Schmidt (2013) also employed ecological survey methods to examine the impact of environmental and structural factors on internalized homonegativity among men who have sex with men in 38 countries. Their findings offer testament to the power of ecological strategies in examining how real-world environments intersect with psychological distress, offering further affirmation for the integration of EMI strategies into social work interventions with marginalized populations.

Across these studies, three broad themes consistently appear. First, the effectiveness of EMIs is evident across diverse settings, with interventions producing notable reductions in psychological distress, including anxiety, depression, and trauma-related disturbance symptoms. Second, client satisfaction with EMIs is typically high, largely due to the flexibility, immediacy, and personalization of the support provided. First, clients prefer interventions that

are readily integrated into their lives, enhancing engagement without the need for disruptive clinical sessions. Second, client engagement remains one of EMIs' strongest suits, with real-time feedback and personalized content maintaining user interest and promoting continued therapeutic engagement.

However, despite these positive findings, several limitations in the current literature must be acknowledged. One specific concern is the short-term focus of much research; few have asked whether EMI-induced changes in behavior or affect are maintained over the longer term (Schueller et al., 2017). Additionally, much of the evidence that does exist is based on samples that are relatively technologically adept and motivated, calling into question issues of selection bias and whether results are likely to generalize to more vulnerable or digitally excluded populations (Manimaran et al., 2016). Data privacy, confidentiality, and client autonomy issues are also in need of further empirical and theoretical development. In addition, the very diversity of EMI design, target behaviors, and technological platforms makes the establishment of standardized best practices across client groups and intervention goals challenging.

In summary, the evidence base for EMIs in social work and psychology is solid and growing, demonstrating their potential as viable, client-centered tools for mental healthcare. Yet, studies going forward must transcend current limitations by embarking on more long-term research, more expansive and representative sampling, and additional attention to ethical and methodological concerns.

5. Future directions

As the evolution of Ecological Momentary Interventions (EMIs) continues, some promising avenues are unfolding that may contribute to making them have a greater impact on psychology and social work. Innovations in the future will be able to alleviate the current limitations while expanding the use and effectiveness of EMIs with a range of different client groups.

One of the primary areas of innovation is the fusion of artificial intelligence (AI) and machine learning technology to fashion more personalized EMIs. Current EMI systems are occasionally pre-programmed interventions and prompts, which, as helpful as they are, fail to necessarily touch base with the attuned, dynamic needs of a particular client. Machine learning-based algorithms can potentially analyze live streams of emotional, behavioral and contextual data to tailor interventions more accurately to the client's unique patterns and vulnerabilities. For example, predictive analytics could identify periods of heightened risk of relapse in clients recovering from drug or trauma to allow EMIs to support at exactly the right moment. Furthermore, natural language processing technology could potentially calibrate the emotional content and tone of intervention messages to make them more salient and therapeutically effective. However, these developments will require balancing with robust ethical regulation, such as transparency, data privacy, and blocking algorithmic bias that can hurt vulnerable groups by mistake.

Another significant future is expanding the reach of EMIs to under-resourced groups, bridging the digital divide currently limiting access to many customers. Rural communities, economically marginalized communities, low digitally literate citizens, and socially marginalized ethnic minorities are more likely to experience debilitating access barriers for both traditional mental health services and technological interventions. Closing these disparities requires the development of low-cost, simple, and culturally resonant EMI platforms. Offline-capable applications, user-friendly interfaces, and interventions that are delivered through

standard mobile phones, rather than smartphones only, would significantly enhance access. Also, participatory design approaches involving the clients from the target underserved groups in developing EMIs would make interventions relevant to their respective cultural, linguistic, and socio-economic contexts. Expansion of the base of EMI studies to these groups is both socially just and a necessary step toward maximizing real-time interventions' potential for public health.

In addition to technological and inclusion goals, various practical recommendations to practitioners are required to guide ethical and effective utilization of EMIs in social work and psychological practice. Practitioners need to be first given specialized training for applying EMI tools, both their technical usage and their integration into overall intervention strategies. Understanding when and how to use EMIs — and when other methods might be preferable — is critical to maximizing the potential of EMIs. Second, professionals need to engage clients in intentional consent procedures that are explicit about how EMIs function, what information they collect, and how clients can control their participation. This allows clients autonomy and trust, fundamental values both in social work and clinical psychology. Third, ongoing supervision and reflective practice are recommended to monitor the impact of EMI use on clients and practitioners to ensure interventions remain client-centered and adapt to changing needs. Finally, practitioners must encourage organizational policies that guarantee ethical EMI use, including robust data security protocols, open accountability systems, and outcome measurement mechanisms to assess outcomes in a systematic way.

The prospects of EMIs in social work and psychology are rich with promise. With the intentional bringing together of state-of-the-art technologies, conscious contact with disadvantaged groups, and practitioner-based ethical frameworks, EMIs have the potential to become a solid bulwark of real-time, equal, and efficacious psychosocial support. To ride these horizons will be instrumental to leveraging the transfiguring worth of ecological momentary interventions across diverse practice domains.

6. Conclusions

The growing evidence and practice concerning Ecological Momentary Interventions (EMIs) call attention to their ability to transform both psychology and social work. As context-contingent, in-the-moment tools, EMIs have advantages that more conventional models of intervention are not necessarily in a position to offer. Their ability to offer moment-by-moment, individually adjusted support in ecologically valid environments supports not just symptom reduction but also client empowerment, continued participation, and enhanced self-regulation skills. Clients are benefited by flexible, accessible, and individually tailored interventions that address their short-term emotional and behavioral demands, and workers are rewarded by more rich and ecologically sensitive knowledge of the day-to-day lives of those they work with.

Although these advantages are to be cherished, serious issues remain to be addressed if EMIs are to achieve their maximum potential. Issues of confidentiality, data protection, client autonomy, and digital access require continuing ethical focus and ingenuity. Moreover, diversity in EMI approaches and relative shortage of long-term outcome data call for continued empirical focus. If these issues are not addressed with sensitivity, there is a risk that EMIs could inadvertently worsen current inequalities or erode the therapeutic relationship at the heart of effective social work and psychological practice.

Yet the ultimate argument in favor of expanding the use of EMIs within social work practice is compelling. With the complexity of clients' needs escalating and traditional models of service delivery stretched thin, EMIs offer a fluid, expandable, and adaptive solution that

aligns with the profession's original values of empowerment, social justice, and integrative treatment. By bringing real-time support into the daily lives of clients, social workers and psychologists can intervene earlier, prevent crisis escalation, and support continuous behavioral and emotional growth in ways that are highly client-centered.

Psychologically, the power of real-time intervention approaches lies in their capacity to leverage opportune moments of vulnerability or opportunity. Behavioral science consistently shows that change is maximized when interventions happen immediately and in context. EMIs translate this principle into action by bridging gaps between intention and behavior, awareness and behavior, and distress and coping. By so doing, they not only enhance therapeutic effectiveness but also embody a more dynamic, responsive model of human change processes.

Overall, the use of EMIs by social work and psychological practice is not merely adaptation to technological waves, but an inner shift toward more direct, personalized, and ethically rooted care. The future efforts have to further establish, expand, and ethically implement these interventions so that all clients are helped equally and effectively, upholding the fundamental purpose of both the disciplines to facilitate human well-being, dignity, and resilience.

References

- [1] Bahnaru, A., Runcan, R., & Runcan, P. (2019). Religiosity and marital satisfaction. *Revista de Asistentă Socială*, 3, 107-114.
- [2] Balaskas, A., Schueller, S. M., Cox, A. L., & Doherty, G. (2021). Ecological momentary interventions for mental health: A scoping review. *PloS one*, 16(3), e0248152.
- [3] Bastiaansen, J. A., Ornée, D. A., Meurs, M., & Oldehinkel, A. J. (2022). An evaluation of the efficacy of two add-on ecological momentary intervention modules for depression in a pragmatic randomized controlled trial (ZELF-i). *Psychological Medicine*, 52(13), 2731-2740.
- [4] Bell, I. H., Lim, M. H., Rossell, S. L., & Thomas, N. (2017). Ecological momentary assessment and intervention in the treatment of psychotic disorders: a systematic review. *Psychiatric Services*, 68(11), 1172-1181.
- [5] Berg, R. C., Ross, M. W., Weatherburn, P., & Schmidt, A. J. (2013). Structural and environmental factors are associated with internalised homonegativity in men who have sex with men: Findings from the European MSM Internet Survey (EMIS) in 38 countries. *Social science & medicine*, 78, 61-69.
- [6] Brookie, K. L., Mainvil, L. A., Carr, A. C., Vissers, M. C., & Conner, T. S. (2017). The development and effectiveness of an ecological momentary intervention to increase daily fruit and vegetable consumption in low-consuming young adults. *Appetite*, 108, 32-41.
- [7] Businelle, M. S., Ma, P., Kendzor, D. E., Frank, S. G., Vidrine, D. J., & Wetter, D. W. (2016). An ecological momentary intervention for smoking cessation: evaluation of feasibility and effectiveness. *Journal of medical Internet research*, 18(12), e321.
- [8] Colombo, D., Fernández-Álvarez, J., Patané, A., Semonella, M., Kwiatkowska, M., García-Palacios, A., ... & Botella, C. (2019). Current state and future directions of technology-based ecological momentary assessment and intervention for major depressive disorder: a systematic review. *Journal of clinical medicine*, 8(4), 465.

- [9] Currier, J. M., Farnsworth, J. K., Drescher, K. D., McDermott, R. C., Sims, B. M., & Albright, D. L. (2018). Development and evaluation of the Expressions of Moral Injury Scale—Military Version. *Clinical psychology & psychotherapy*, 25(3), 474-488.
- [10] Dao, K. P., De Cocker, K., Tong, H. L., Kocaballi, A. B., Chow, C., & Laranjo, L. (2021). Smartphone-delivered ecological momentary interventions based on ecological momentary assessments to promote health behaviors: systematic review and adapted checklist for reporting ecological momentary assessment and intervention studies. *JMIR mHealth and uHealth*, 9(11), e22890.
- [11] Delcea, C., Rad, D., Gyorgy, M., Runcan, R., Breaz, A., Gavrilă-Ardelean, M., & Bululoi, A. S. (2023). A network analysis approach to romanian resilience-coping mechanisms in the Covid-19 era. *Pharmacophore*, 14(4-2023), 57-63.
- [12] Fechtelpeter, J., Rauschenberg, C., Jalalabadi, H., Boecking, B., van Amelsvoort, T., Reininghaus, U., ... & Koppe, G. (2024). A control theoretic approach to evaluate and inform ecological momentary interventions. *International Journal of Methods in Psychiatric Research*, 33(4), e70001.
- [13] Folkersma, W., Veerman, V., Ornée, D. A., Oldehinkel, A. J., Alma, M. A., & Bastiaansen, J. A. (2021). Patients' experience of an ecological momentary intervention involving self-monitoring and personalized feedback for depression. *Internet Interventions*, 26, 100436.
- [14] Gavrilă-Ardelean, M. (2014). Developing The Rural Community. Valuing Local Traditions. Romanian Traditional Village. The Villages in Banat-Crișana Area. *Educația Plus*, 11(2), 157-163.
- [15] Gavrilă-Ardelean, M., & Gavrilă-Ardelean, L. (2017). The Amelioration Of Socialization Through Communication, For Children In Family Homes. In E. Soare, & C. Langa (Eds.), *Education Facing Contemporary World Issues*, vol 23. European Proceedings of Social and Behavioural Sciences (pp. 1215-1222). Future Academy. <https://doi.org/10.15405/epsbs.2017.05.02.149>
- [16] Gründahl, M., Deckert, J., & Hein, G. (2020). Three questions to consider before applying ecological momentary interventions (EMI) in psychiatry. *Frontiers in psychiatry*, 11, 333.
- [17] Hébert, E. T., Stevens, E. M., Frank, S. G., Kendzor, D. E., Wetter, D. W., Zvolensky, M. J., ... & Businelle, M. S. (2018). An ecological momentary intervention for smoking cessation: the associations of just-in-time, tailored messages with lapse risk factors. *Addictive behaviors*, 78, 30-35.
- [18] Heron, K. E., & Smyth, J. M. (2010). Ecological momentary interventions: incorporating mobile technology into psychosocial and health behaviour treatments. *British journal of health psychology*, 15(1), 1-39.
- [19] LaFreniere, L. S., & Newman, M. G. (2016). A brief ecological momentary intervention for generalized anxiety disorder: A randomized controlled trial of the worry outcome journal. *Depression and Anxiety*, 33(9), 829-839.
- [20] Loo Gee, B., Griffiths, K. M., & Gulliver, A. (2016). Effectiveness of mobile technologies delivering Ecological Momentary Interventions for stress and anxiety: a systematic review. *Journal of the American Medical Informatics Association*, 23(1), 221-229.
- [21] Manimaran, S., Jayakumar, S., & Lakshmi, K. B. (2016). An education management information system with simultaneous monitoring of stress stimulators for students Mental Health management. *Technology and Health Care*, 24(6), 889-897.

- [22] Marciniak, M. A., Shanahan, L., Rohde, J., Schulz, A., Wackerhagen, C., Kobylińska, D., ... & Kleim, B. (2020). Standalone smartphone cognitive behavioral therapy-based ecological momentary interventions to increase mental health: narrative review. *JMIR mHealth and uHealth*, 8(11), e19836.
- [23] McDevitt-Murphy, M. E., Luciano, M. T., & Zakarian, R. J. (2018). Use of ecological momentary assessment and intervention in treatment with adults. *Focus*, 16(4), 370-375.
- [24] Myin-Germeys, I., Klippel, A., Steinhart, H., & Reininghaus, U. (2016). Ecological momentary interventions in psychiatry. *Current opinion in psychiatry*, 29(4), 258-263.
- [25] Nadolu, D., Runcan, R., & Bahnaru, A. (2020). Sociological dimensions of marital satisfaction in Romania. *PloS one*, 15(8), e0237923.
- [26] Newman, M. G., Przeworski, A., Consoli, A. J., & Taylor, C. B. (2014). A randomized controlled trial of ecological momentary intervention plus brief group therapy for generalized anxiety disorder. *Psychotherapy*, 51(2), 198.
- [27] Pavlacic, J. M., Schulenberg, S. E., Witcraft, S. M., & Buchanan, E. M. (2022). Assessing the effectiveness and utility of a mindfulness-based ecological momentary intervention in college students. *Journal of Technology in Behavioral Science*, 7(4), 554-566.
- [28] Pramana, G., Parmanto, B., Kendall, P. C., & Silk, J. S. (2014). The SmartCAT: an m-health platform for ecological momentary intervention in child anxiety treatment. *Telemedicine and e-Health*, 20(5), 419-427.
- [29] Riordan, B. C., Conner, T. S., Flett, J. A., & Scarf, D. (2015). A brief orientation week ecological momentary intervention to reduce university student alcohol consumption. *Journal of studies on alcohol and drugs*, 76(4), 525-529.
- [30] Runcan, R. (2020). Conflict solution in cyberbullying. *Revista de Asistență Socială*, 19(2), 45-57.
- [31] Runcan, R., & Lupșa, R. (2020). Analysis of the Effectiveness of the Teen Challenge Programme after 13 Years of Social Work in Recovering Romanian Addicts. *Social Work Review/Revista de Asistentă Socială*, 19(1), 53-67.
- [32] Runcan, R., Marici, M., & Rad, D. (2024). Descriptive Overview and Social Work Perspectives on NEET People. *Social Work Review/Revista de Asistentă Socială*, (1), 37-49.
- [33] Runcan, R., Rad, D., Runcan, P., & Măduța, C. (2023). A Network Analysis Approach toward Adaptive Overt Narcissism Network. *Behavioral Sciences*, 13(6), 468.
- [34] Runyan, J. D., & Steinke, E. G. (2015). Virtues, ecological momentary assessment/intervention and smartphone technology. *Frontiers in Psychology*, 6, 481.
- [35] Schueller, S. M., Aguilera, A., & Mohr, D. C. (2017). Ecological momentary interventions for depression and anxiety. *Depression and anxiety*, 34(6), 540-545.
- [36] Schulte-Strathaus, J. C., Rauschenberg, C., Baumeister, H., & Reininghaus, U. (2022). Ecological momentary interventions in public mental health provision. In *Digital phenotyping and mobile sensing: New developments in psychoinformatics* (pp. 427-439). Cham: Springer International Publishing.
- [37] Shrier, L. A., Burke, P. J., Kells, M., Scherer, E. A., Sarda, V., Jonestrask, C., ... & Harris, S. K. (2018). Pilot randomized trial of MOMENT, a motivational counseling-plus-ecological momentary intervention to reduce marijuana use in youth. *Mhealth*, 4, 29.

- [38] Smith, K. E., & Juarascio, A. (2019). From ecological momentary assessment (EMA) to ecological momentary intervention (EMI): past and future directions for ambulatory assessment and interventions in eating disorders. *Current psychiatry reports, 21*, 1-8.
- [39] Stieger, S., & Lewetz, D. (2018). A week without using social media: Results from an ecological momentary intervention study using smartphones. *Cyberpsychology, Behavior, and Social Networking, 21*(10), 618-624.
- [40] Stieger, S., & Lewetz, D. (2018). A week without using social media: Results from an ecological momentary intervention study using smartphones. *Cyberpsychology, Behavior, and Social Networking, 21*(10), 618-624.
- [41] Tappenden, P. C., Cole, T. A., Valentine, J. N., & Lilly, M. M. (2023). Examining the psychometric properties of the expressions of moral injury scale in a sample of first responders. *Psychological trauma: theory, research, practice, and policy*.
- [42] Vaessen, T., Steinhart, H., Batink, T., Klippel, A., Van Nierop, M., Reininghaus, U., & Myin-Germeys, I. (2019). ACT in daily life in early psychosis: an ecological momentary intervention approach. *Psychosis, 11*(2), 93-104.
- [43] Versluis, A., Verkuil, B., Spinhoven, P., van der Ploeg, M. M., & Brosschot, J. F. (2016). Changing mental health and positive psychological well-being using ecological momentary interventions: a systematic review and meta-analysis. *Journal of medical Internet research, 18*(6), e5642.
- [44] Viscu, L. I., & Rad, D. (2025). An overview of the social worker's responsibilities. *Technium Soc. Sci. J., 67*, 382.
- [45] Viscu, L. I., Rad, D., Cadariu, I. E., & Pinte, F. A. (2025). Learning Organization in Social Work Institutions. *Technium Soc. Sci. J., 67*, 370.
- [46] Vișcu, L., & Rad, D. (2024). Reflective supervision and the strategic integrative model in social work supervision. *Technium Social Sciences Journal, 66*, 365-380.
- [47] Viscu, L., & Rad, D. (2024). The impact of abusive supervision on the functions of supervision in social work. *Technium Soc. Sci. J., 66*, 354.
- [48] Wright, C., Dietze, P. M., Agius, P. A., Kuntsche, E., Livingston, M., Black, O. C., ... & Lim, M. S. (2018). Mobile phone-based ecological momentary intervention to reduce young adults' alcohol use in the event: A three-armed randomized controlled trial. *JMIR mHealth and uHealth, 6*(7), e9324.