

Digital technologies and mental health in young people in higher education

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Abstract: Scientific literature has shown an association between the use of digital technologies and the mental health of higher education students. However, gaps remain regarding the digital practices used to promote mental health literacy. In this context, a qualitative study was conducted using six focus groups, involving 43 students from 32 courses at 18 Portuguese higher education institutions. Thematic analysis of the data identified five themes: Digital habits; Digital technologies in mental health literacy; Impact of digital technologies on well-being and mental health; Evaluation of digital technologies in mental health; Good practices in promoting well-being and mental health. The results show that the focus groups provided spaces for critical reflection and collective construction of knowledge concerning the benefits, risks and limitations of digital technologies in mental health. However, a discrepancy was identified between the participants' critical discourse and their actual practices. Despite reservations about the use of non-specialist digital tools, there is widespread reliance on social media content and artificial intelligence. This finding highlights a focus on immediacy, anonymity and accessibility, underscoring the need to gain a better understanding of these mechanisms and to improve access to specialist services.

Keywords: Digital technologies, Mental health, Students, Higher education.

Introduction

The mental health of young people in higher education has become an increasingly important area of concern and research in recent years, especially since the pandemic (e.g., Denadai & Garcia, 2024; Martins et al., 2024). Besides managing the developmental tasks of late adolescence and early adulthood, starting higher education presents new challenges for young people (e.g., adapting to a new teaching and learning environment) and takes place during a period of higher risk for the development of mental disorders (e.g., anxiety, depression) and addictions (e.g., substance and digital addictions) (e.g., Duffy, 2023). If these issues are not recognised and treated, they can lead to persistent difficulties and suffering, affecting students' academic progress, overall development, and general life satisfaction. Consequently, it is understandable that specialised services (e.g., psychological support), programmes (e.g., mentorship), and various initiatives, both

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in-person and online, have been established or strengthened to promote subjective well-being and mental health, as well as to prevent mental illnesses within the student community (e.g., Duffy, 2023; Veiga & Lopes, 2020).

The widespread use of digital devices (e.g., smartphones, computers and tablets), digital tools (e.g., applications, platforms and software) and digital resources (e.g., educational, informational or interactive content made available in a digital environment) appears to be contributing to the emergence of a new form of self, referred to as the “Digitalized Self” (e.g., Chan, 2022), and may present advantages, risks and disadvantages in the context of mental health (e.g., Duprat, 2024; Granic et al., 2020; Oliveira et al., 2024; Tinoco et al., 2026; Veiga et al., 2025). However, if used appropriately, digital technologies can enhance: the acquisition of knowledge for obtaining and maintaining good mental health; the understanding of mental illnesses and possible treatments; the reduction of stigma related to mental illness; and the increase in attitudes or behaviours related to help-seeking. Nevertheless, while digital technologies can increase youth mental health literacy (Jorm, 2000; Yeo et al., 2024), empowering them to care for their own well-being and mental health, it is essential to ensure their quality and balanced use. Unreliable sources of information can spread misinformation, and excessive use can lead to digital addiction, with detrimental consequences for health (e.g., Betancur & Arias, 2023; Nguyen et al., 2025).

Given the limited research on higher education students' perceptions of their use of digital technologies in the context of mental health, this study addresses an important gap in the literature. More specifically, (1) What digital technologies are used by young people to promote their mental health literacy? (2) How are the quality and impact of digital technologies on their mental health assessed? (3) How can their literacy in mental health be improved?

Method

Given the aim of grounding the study in the realities, stories, and sensibilities of higher education students, a qualitative study was conducted using focus groups. This choice was based on the idea that this methodological approach allows the emergence of a range of descriptive data and enables access to the participants' way of thinking in all its richness (Coutinho, 2023).

Procedures

The invitation to students was facilitated by student associations, university cultural groups, professors, and healthcare professionals at the higher education institutions. Students aged 18 to 25, from various public or private polytechnic or university higher education institutions in the Porto region of Portugal, were invited to participate in the study. Students who agreed to participate were primarily those who responded to personal invitations. Students also had the opportunity to invite other colleagues to contact the researcher to participate in the research. Thus, participants were identified through a combination of convenience sampling and snowball sampling (e.g., Coutinho, 2023). One group met in person, and the other five met online via the Zoom platform, depending on participant availability. Note that, according to several studies, although the format of the data generated from each type of focus group may differ, the content of the generated data is remarkably similar online and offline (e.g., Woodyatt et al., 2016). The focus groups were conducted between March and April 2025 and were led by the researcher. The discussions had an average duration of approximately 1 hour and 45 minutes and were recorded and subsequently transcribed using the recording and transcription functionalities of the Zoom platform in the online

groups. All transcripts were reviewed by the researcher, which, in addition to ensuring their accuracy, allowed for a first (more attentive and careful) look at the data obtained. Participation required prior completion of the Informed Consent Form. Nevertheless, at the beginning of each focus group, the project aims were outlined, procedures explained, and participants were reminded of the voluntary nature of their participation and their right to withdraw. Complete confidentiality and anonymisation of responses during transcription were ensured, as well as transparency in the methods used to disseminate results. To strengthening the qualitative analysis and enhancing the transparency and credibility of the findings, direct quotations from participants were included. Each quotation was assigned an alphanumeric code composed of the letters 'P' (person) and 'FG' (focus group), followed by the corresponding numbering, allowing its identification.

This project received ethical approval from the Ethics Committee of the Faculty of Psychology and Educational Sciences, University of Porto (Ref. 2025-04-02).

Instruments

The interview guide was developed collaboratively with students during an initial exploratory focus group specifically conducted for this purpose. This preliminary session informed the refinement of the semi-structured guide, ensuring that the questions were relevant to participants' experiences and facilitated spontaneous and meaningful discussions. The interactive and participatory nature of the process was maintained throughout the study, as the flexible structure of the guide enabled the progressive adaptation and deeper exploration of emerging topics across subsequent focus groups, based on participants' contributions.

A questionnaire was also designed with the aim of collecting sociodemographic information and gathering data on technology use, allowing for the characterisation of participants and groups.

Data analysis

The documents were imported into the NVivo 15 program (Lumivvero, 2024), which allowed for searching, coding, and structuring the information obtained into categories or units of meaning, enabling an in-depth interpretive analysis (e.g., Woolf & Silver, 2018). The subsequent data analysis employed Braun and Clarke's (2006) Reflective Thematic Analysis method to identify, analyse, and interpret patterns (themes), with an emphasis on the experiences and meanings attributed by the participants. The analysis included the quantification of references within each category to provide an overview of their distribution and relative frequency across the dataset.

The primary analysis of the categories was conducted by one researcher, while the remaining co-authors of the study acted as peer debriefers (Creswell, 2009), contributing to the critical review and refinement of the analysis process.

Participants

Six focus groups ($n = 43$) were conducted, with a composition ranging from 6 to 8 students. The majority were female (58.1%), with an average age of 21 years, and all were single. 90.7% were enrolled as full-time students, 20.9% were living away from their family residence during the academic period, and 25.6% reported active involvement in one or more student groups or academic associations. Of the total sample, 25 students (58.1%) had already benefited from psychological support at some point in their lives, with this support varying in duration depending on the participants, ranging from short-term to long-term interventions.

Of the 18 higher education institutions represented in this study, 90.7% were from the public institutions – University of Porto (51.2%) and Polytechnic Institute of Porto (37.2%) – and 9.3% were from the private institutions. Participants were enrolled in thirty-two programmes across diverse academic fields and levels of higher education, including bachelor's (55.81%; $n = 24$), master's (30.23%; $n = 13$), and integrated master's degree programmes (13.95%; $n = 6$). The represented disciplines encompassed Social Sciences and Humanities, Education and Teacher Training, Business and Marketing, Arts and Design, Law, Engineering and Technology, Health Sciences, Architecture, Sport Sciences, Languages and Translation, Mathematics, Environmental Sciences, Innovation and Entrepreneurship, and Medicine.

Finally, the majority (55.81%) had started accessing the internet and digital technologies at age 10 or earlier, spending several hours daily in front of screens – 25.58%, 1–3 hours/day; 51.16%, 4–6 hours/day; and 20.93%, more than 6 hours/day.

Results

From the thematic analysis of the discussions generated by the focus groups, five themes emerged: one generic, related to *Digital habits* and four more focused on mental health: *Digital technologies in mental health literacy*; *Impact of digital technologies on well-being and mental health*; *Evaluation of digital technologies in mental health*; *Good practices in promoting well-being and mental health*.

Digital habits

All participants used a variety of digital devices, tools, and resources daily for various purposes: personal use, obtaining information, and, above all, academic work. In this domain, participants showed greater rigour and moderation in their use of certain digital tools and resources, largely in line with institutional policies and pedagogical practices adopted by lecturers and higher education institutions. “In my course, the use of artificial intelligence is strongly discouraged.” (P3. FG2)

Many reported that their digital habits were excessive, particularly at certain times (e.g., periods of more intense study or academic work) and with some tools (especially TikTok and Instagram, the social media platforms perceived as the most addictive). Consequently, they considered these patterns of use detrimental to their well-being and functioning, a situation perceived as quite common in their generation, and which requires change. Even so, they considered their generation to be the best prepared to face emerging challenges with discernment and critical reflection, as well as to take advantage of an increasingly global and digital world.

Digital technologies in mental health literacy

This theme encompassed two categories – Tools and resources in mental health and Purpose – and two subcategories of meaning – Research and Management.

In their testimonies, most participants mentioned using a variety of digital technologies in mental health, highlighting social media and artificial intelligence tools (particularly, Instagram, TikTok, ChatGPT), which they also use in their daily lives (103 references). In information-seeking practices (68 references), digital technologies allowed them to access various information about mental health and mental illness (e.g., risk/protective factors, specific disorders). Intentional

research was motivated by personal interest resulting from a personal problem or their interest in the subject, the influence of others or algorithm suggestion, and academic requirements.

[...] on Instagram, I started following some psychologists, some of whom even talk more specifically about the problems I have [...] I started to realise that I had some problems, precisely because of the internet. [...] (P1. FG2)

Unintentional research occurred indirectly when they viewed other content or followed *influencers* who addressed this topic. Regardless of the underlying intention, participants recognised that the tools and content they accessed allowed them to develop their mental health literacy. However, because they perceived risks involved, particularly regarding the urgency and validity of the information accessed and what to do with what is learnt, they exercised a certain restraint in their research.

Personally, I don't usually research much about mental health. But, for example, I follow some *influencers* on TikTok who talk about these topics and try to help. If I had a specific problem, I would easily go to ChatGPT to ask something more specific. Because it's the easiest thing to do, in my perspective. (P2. FG2)

Although the *management* dimension was not a particularly discussed topic (25 references), some participants mentioned the need to manage symptoms of psychological distress or psychopathology led them to seek various digital resources (e.g., self-help/psychotherapeutic). "[...] when someone has something on their mind, they go to YouTube, for example, and try to find 'how to deal with this'. This helped me, by chance." (P1. FG1). They considered that the worsening of mental health issues in the student community since the pandemic is due not only to the normative tasks and challenges of their age and a demanding academic experience, but also to an immersive and constantly changing digital experience: "[...] as someone who has used digital tools since a very young age [...] I feel that reality has been transforming. I feel almost invaded in a way." (P3. FG4). Some mentioned that they used digital technologies to develop behaviours and lifestyles that promote well-being and mental health.

Impact of digital technologies on well-being and mental health

Most participants argued that the use of digital technologies and social networks in particular has significant impacts on people's lives (162 references), especially "when one is younger and more immature" (P6. FG1). Adverse impacts were predominantly emphasised in participants' accounts, which they attributed to various factors, with particular emphasis on comparison, competitiveness and idealisation.

Whether I like it or not, there's always an almost competitive or comparative logic with other people, whether it's aesthetic or because they can go somewhere I can't [...] I wouldn't say it affects me to the point of making me feel bad, but it makes me think about it. (P6. FG3)

In the *physical well-being* category, respondents considered that the use of certain applications, watching videos, *influencers* or *personal trainers* helps improve their physical fitness, contributes to achieving their desired body image, and helps develop healthier and more efficient habits – dietary, sleep hygiene, and physical training (6 references). More frequently (22 references), they identified losses, discomfort, and concerns, many of which stemmed from their situation as higher education students. Fatigue, vision loss, decreased sleep quality/quantity, and headaches/migraines, among others, were attributed to the demands of many academic tasks that required significant or even continuous screen time.

And I think there is less rest [...] There is a decrease in the quality of sleep. And this has long-term effects on mental health. [...] I confess that I even have classes where I can no longer open the computer screen because I have unbearable headaches [...] (P5. FG5)

There was also a strong concern about body image, amplified by social media. They considered that certain *influencers*, by appealing to perfect bodies, lead many young people, regardless of their particular circumstances, to develop feelings of shame, inferiority, helplessness, and dissatisfaction. One participant even shared that she had been a victim of *cyberbullying* when she was younger, for this reason.

The category “Psychological *well-being, constitution of the self, and mental health*” generated 120 responses. Psychological well-being, constitution of the self, and mental health are defined, respectively, as subjective and objective perception of a person’s quality of life; the capacity and condition to assume self-awareness in relation to oneself and others; and a state of well-being in which one recognises one’s own abilities and can manage challenges, study or work appropriately, and relate to others. Regarding benefits (21 references), participants stated that, with and through digital technologies, they could have fun, relax, interact socially, and/or dream, enhancing feelings of pleasure, joy, gratification, and personal well-being. However, this was only possible if they could use them with a certain balance and moderation, since the advocated added value resulted from the compromise between pleasure and duty. “[...] I even have entire days. I get home [...] and I say to myself, ‘You’ve worked so hard today, you deserve at least an hour to play. You deserve that!’” (P2. FG1). Furthermore, the vast amount of information available online, as well as the numerous opportunities to engage with diverse communities and groups, provides access to a wide range of realities, thereby enhancing learning and enabling the expansion or transformation of perspectives. The online environment can foster empathy and understanding of different personal, group or societal realities. “It was through social networks and these platforms that I learnt about opinions and stories on various structuring issues in society. I was able to position myself with this information.” (P6. FG3)

Furthermore, digital technologies support processes of identity construction and recognition, which is particularly relevant for minority groups.

[...] I think the internet has provided social interaction and a sense of community. [...] We find people with whom we identify more, who form a community. And we see this precisely today, with minorities. These communities manage to unite and defend their values and their characteristics. [...] (P2. FG2)

Among the adverse effects of digital technologies on well-being, self-constitution and mental health (99 references), the following can be highlighted: loss of abilities (attention, concentration, proactivity, patience, tolerance to frustration, critical thinking...); feelings of uncertainty, doubt or loss (in the face of excessive and heterogeneous information), as well as feelings of uselessness, insecurity, dissatisfaction, insufficiency or inadequacy (when confronted with unattainable standards or highly discrepant realities); aggression, humiliation and envy; devaluation, decreased self-esteem and self-confidence.

I think one horrible thing [...] is ‘What I do in a day.’ [...] Like, they do things that I wouldn’t even do in 3 days. A person thinks, ‘How does she manage? I can’t.’ [...] I think it’s extremely dangerous, because it’s very easy for a person to feel inadequate and to feel worse than that person. (P3. FG1)

The reinforcement of individual beliefs, dichotomous thinking, and group polarisation, which may foster risky behaviours, were also frequently mentioned. Nevertheless, participants emphasised that the impact of digital tools and resources depends on how each individuals use them, their capacity for self-regulation, and the critical stance they adopt, thus placing responsibility on users for the more appropriate management of digital environments. “Although

[...] many things on social media can upset us, I feel the problem starts with us [...]. I have to start doing a bit of this mental management and defining the portfolios of what I use.” (P3. FG1)

As protective factors against the development of risky behaviours, they mentioned later exposure (late adolescence) and more limited use of certain tools – particularly TikTok – and specific digital content.

Evaluation of digital technologies in mental health

The largest number of references (345) was associated with this theme, with participants arguing that digital technologies can have both benefits and disadvantages in the field of mental health, depending on the sources and content consulted and, above all, on the reflective and critical stance adopted by users. This enables the assessment of the quality of the information consulted and the nature of the help needed.

Regarding the benefits (84 references), it was pointed out that digital technologies are intuitive, available 24 hours a day, easily accessible, readily available and adaptable. Through them, it is possible to access a variety of information and mental health care, in the comfort of one’s own space and according to one’s needs, thus complementing or, in some cases, replacing traditional face-to-face support and services. Despite the advantages and benefits identified, participants questioned the effectiveness of digital technologies in the context of mental health: “Everyone has access to digital technology. But what about success?”. (P5. FG6)

The subcategory *disadvantages, limitations and risks* was the one that accounted for the most references (141). They particularly highlighted its immediacy, enhanced by the digital world, which may limit individuals’ capacity to investigate, reflect, feel, process, and wait. They also identified inadequate interpretation or assessment (of the severity) of signs of suffering or mental illness, which can lead to their dismissal or romanticization; the performance of self-diagnoses or the obtaining of incorrect diagnoses, often promoted by unqualified sources, gurus or *coaches*; the generalist, rapid and simplified solutions, that temporarily alleviate suffering, and that may obscure underlying problems and hinder the search for specialized intervention.

It is therefore not surprising that several accounts highlighted the preference for human contact and support (95 references), especially in person, whether with friends, family or professionals, for more in-depth exploration of concerns and more personalised support or guidance. The proximity that occurs between the participants enables the development of helping relationships, characterized by empathy, intimacy and reciprocity.

[...] as psychosocial beings that we are, I think there’s nothing better than having a human being to deal with us. And nothing is better than that being a healthcare professional, but it could also be a friend, an acquaintance, or even a stranger. In fact, I think that many times it’s not even advice that we need or finding a name for what we have. [...] Without devaluing that, I think that sometimes it’s also very important to feel that we are being welcomed and heard. [...] (P8. FG3)

Participants placed particular value on the expertise and scientifically grounded guidance provided by healthcare professionals, especially when discussing interventions tailored to each individual and issues or symptoms considered more serious or abnormal or that already constituted psychopathological conditions and which, in the case of higher education students, could jeopardise their academic progress and success.

Consultation was identified as the most appropriate context for carrying out a tailored and in-depth intervention. Students from health-related fields, in particular, spoke about the *setting* and the therapeutic dyad. They highlighted the importance of the regularity of consultations, the protected environment, and the therapeutic relationship. This provides the necessary security for developing tolerance and enhances the mental processing work that is essential for any change process.

In-person contact was preferred by most to online contact, even personalised contact conducted by professionals (e.g., online consultations). This method was considered a viable alternative, but always as a supplementary means when in-person interaction is not possible. Using this method requires digital literacy and resources, which are not always accessible to everyone. Furthermore, they considered it less conducive to establishing a genuine therapeutic relationship and developing effective work. The greater susceptibility to distraction and the difficulty or even impossibility of accessing nonverbal cues were aspects highlighted. “Of course, I can still have psychological support online [...]. But I think in-person is better. [...] human contact is important and [...] the non-verbal body language itself, which the psychologist can access and evaluate.” (P5. FG6)

Based on the above, the participants considered that, in mental health, human intervention should always be prioritised, preferably in person and carried out by professionals. Based on their own experience and observations, participants did not dismiss the usefulness of diagnostic tools as an initial approach and as an auxiliary method in investigation and intervention.

Good practices in promoting well-being and mental health

During group discussions, students proposed several strategies and practices to promote the well-being and mental health of the student community. While some suggestions addressed digital behaviours and technologies, most focused on personal and face-to-face approaches.

The Personal Strategies category (48 references) encompasses the strategies that students reported using to combat unregulated or even abusive use of digital technologies: limiting access to digital devices, installing digital timers and/or uninstalling, temporarily or permanently, certain resources, namely certain games and social networks: “I uninstalled it about a year ago [...] I was consuming a lot of TikTok. And I feel like I was getting addicted [...] And I think I did well [...]”. (P1. FG6)

Several participants reported that in-person involvement in groups or activities such as sports, recreation, associations, community events, or other social activities, in addition to promoting the development of healthier lifestyles and the acquisition of support networks and conviviality, protects them against the abusive and unregulated use of digital technologies.

As good practices in mental health, they also mentioned the importance of using different sources and resources, both online and offline, and of adopting a critical and reflective approach.

Because 18 higher education institutions were represented, there were several responses shared in the *Higher Education Institutions Strategies* category (52 references). The most valued resource was the psychology service, which exists in most higher education institutions, providing free consultations to the student community.

From a preventative perspective, students shared initiatives such as *workshops* and lectures on various topics; sports, artistic and recreational activities; and institutional measures to support students with additional support needs: “In my case, I have a statute at my faculty. [...] do you know if there are statutes [at your faculties] for people with psychological problems?”. (P4. FG2)

Some institutions offer a single type of response primarily, while others have a variety of responses, perhaps due to their vocation and sensitivity to mental health issues, whether those of the students themselves or those of the students as actors in this field within society in general.

Having access to psychological consultations is essential. We also have a support group. [...]. We held a workshop that brought together learning methods, where we could also learn ways to control crises and similar situations [...]. (P1. FG3)

Nevertheless, several individuals acknowledged the existence of multiple constraints, regardless of available resources and initiatives (30 references). In this subcategory, they highlighted the students’ lack of interest, openness, and/or proactivity regarding mental health issues, largely

associated with stigma. “[...] I didn’t seek help, largely because of this taboo of feeling that if I go to a psychologist, it’s because I’m weak [...]” (P3. FG3). Regarding higher education institutions, they highlighted the insufficient dissemination of services or initiatives and the limited and often delayed responses provided.

These constraints gave rise to a set of *suggestions*, some new, others seen as a reinforcement or improvement of measures already in place or existing in other contexts. Being one of the most significant subcategories (80 references), most of the contributions focused on the expansion and improved dissemination of psychological services and diversification of their responses (e.g., online/in-person consultations, support groups and mentoring).

Because they consider that mental health issues do not only concern the student community, the participation and accountability of the entire educational community in this cause, “which touches and concerns everyone”, were emphasised. Finally, the need for structural changes within higher education institutions and policies was highlighted. These changes should include improvements to physical spaces and adjustments to curricula, alongside striking a better balance between tasks requiring digital use and those requiring a more manual approach.

I honestly also reconsidered my university’s teaching method. [...] When the topic of mental health began to emerge, the first thing that occurred to me was to change the study plan. [...] Right now, the number of teaching hours they put on us, along with the amount of studying and things outside of class that we all have to do, is a bit utopian. All of this is not compatible with a healthy life. [...] I also remembered something that isn’t as radical as this. [...] There’s a lack of spaces to be in, spaces with quality time to be in. [...] And I think that also affects things a lot. At least for me. [...] (P7. FG6)

On a broader scale, reference was made to the support lines and the two government measures introduced in the ES – the “psychologist voucher” and the “nutritionist voucher” – which aim to address the lack of readily available responses already identified (13 references).

Discussion

The study sought to assess the perceptions of higher education students regarding their practices of using digital technologies in the field of mental health.

Participants in this study made extensive use of digital technologies in their daily lives; however, their use was more rigorous and grounded in validated sources within the academic context, in contrast to the practices adopted in their personal lives in relation to mental health. Thus, they stated that the use of digital tools and resources in mental health should be approached with caution. They demonstrated a critical stance regarding the quality and validity of these tools and resources, their use, and the interpretative reading of what they accessed and what they did with what they learned, already demonstrating a degree of digital mental health literacy (Yeo et al., 2024).

Those more interested, by curiosity or necessity, conducted more deliberate research, using credible and diverse sources. However, few used scientifically validated digital tools or resources for managing mental health. Among those who did, most were not specialized, often emphasising the disadvantages and risks of such technologies, a result consistent with Veiga et al. (2025). Although many believe their generation is the best informed and prepared to handle digital challenges, most participants reported that digital technologies negatively affected their well-being, a result consistent with the recent WHO-Euro report (World Health Organization Regional Office for Europe, 2025). This report identified social networks and smartphone use as key “digital determinants” of mental health risk, with social comparison at the core. In our study, this dynamic was also evident: participants, despite criticising the constant positivity promoted by influencers,

continued to follow them and compare themselves to their lives. Most acknowledged that such comparisons harmed their well-being, in line with findings from other studies suggesting this mechanism explains social media's negative impact (e.g., Bonfanti et al., 2025). As Souza and Cunha (2019) note, social networks act as a "virtual showcase" of a supposedly perfect life in which appearance overrides reality. This disconnection from the true self, "I exist through the likes I receive", can foster both fragility and grandiosity of the self, and contribute to mental disorders (Quarenta et al., 2022). Participants recognised that digital technologies could promote physical well-being and healthier habits, but excessive use, common among high school students, leads to physical and general well-being losses, as also noted by Almuqrashi et al. (2025). Although they criticise the academic overload of digital demands, most remain highly connected in their personal lives for entertainment, relaxation, or interaction. Despite being aware of the negative psychological and mental health effects of this behaviour, it persists. This raises questions about their ability to disconnect, recognise their level of digital dependence, and develop effective self-regulation. Participants reported that digital technologies can broaden perspectives and promote pleasure and well-being, in line with previous studies (e.g., Asan & Zwiegelhaar, 2025). They viewed the digital environment as a space for identity construction and recognition (Quarenta et al., 2022), particularly valuable for minority groups such as LGBTQIA+ communities. Online groups were described as sources of belonging and support (e.g., Berger et al., 2022). However, these benefits depend on balanced use and the development of self-regulation skills to set limits and monitor behaviour (American Psychological Association [APA], 2023). Participants noted that self-regulation tends to be greater when initial exposure and access to certain tools, especially social networks, are delayed. Conversely, individuals with less self-control appear more vulnerable to problematic or dependent use, with negative consequences for well-being and mental health. Overall, participants' evaluation of digital technologies and social media platforms revealed both benefits and risks, depending on the sources, self-regulation capacity, and the critical stance adopted. Such a stance enables them to assess information quality and recognise when professional help is needed. The advantages (e.g., accessibility and immediacy) and disadvantages (e.g., excess, anonymity, manipulation, and unreliability) they identified align with findings from previous studies (Quarenta et al., 2022; Tinoco et al., 2026; Veiga et al., 2025). Participants viewed digital technologies as useful for initial research, brief relief of mental distress, and fostering well-being habits, but were cautious when actual psychopathology was involved, prioritising human contact and professional support. Those with prior experience in psychotherapy highlighted its added value – empathy, reciprocity, and continuous feedback – essential to effective helping relationships (Zimmerman, 2004). They also acknowledged the benefits of remote support, which can overcome barriers such as distance or social discomfort (Fialho et al., 2023). However, they stressed that this approach requires digital literacy, not always accessible to all, thereby potentially reinforcing existing social inequalities (Costa, 2020). Consequently, when reflecting on best practices for promoting well-being and mental health, participants emphasised the need for more humane and relational responses. When discussing personal strategies, participants mentioned good practices to regulate digital technology use. They reported uninstalling certain apps and changing habits – often aligned with group norms or academic demands – to improve functioning and well-being. Participation in diverse, especially in-person, activities emerged as a protective factor against excessive or dependent use, fostering healthier lifestyles and stronger social support networks, consistent in line with Sun et al. (2025). Such initiatives were viewed as essential to strengthen within higher education institutions.

Among existing higher education institutions' initiatives, psychological support services were seen as the most impactful. Digital tools can extend access to consultations and help disseminate information on mental health, but their communication often lacks efficiency and appeal. Participation remains low due to persistent stigma (Carvalho et al., 2024). Some digital

interventions (e.g., Madrid-Cagigal et al., 2025) could complement these efforts, though not replace human-based support.

Lastly, a clearer link needs to be established between individual experiences of distress and the structural and policy dimensions of higher education. Participants emphasised the importance of institutional transformations capable of promoting healthier and more sustainable academic environments, including improvements to physical spaces, adjustments to curricula, and a more balanced integration of digital and non-digital learning practices. These perspectives are aligned with the literature (e.g., Lister et al., 2022), which advocates a holistic, participatory, and systemic approach to student well-being. This approach recognises that mental health is influenced not only by individual responsibility, but also by organisational cultures, pedagogical models and digitally mediated educational environments.

Limitations and avenues for future research

A limitation of this study is the potential selection bias associated with the recruitment process, including the involvement of teachers and healthcare professionals in participant recruitment. Additionally, the sample may reflect a subgroup of higher education students who are already more sensitive to mental health issues, as suggested by the relatively high proportion of participants with prior psychological support (58.1%). This limitation should be considered when interpreting the findings.

We also acknowledge the possibility of interpretative bias in the processes of observation, analysis, and thematic construction. In particular, it cannot be ruled out that certain analytical frameworks may have been unintentionally influenced by critical perspectives on the extensive use of digital technologies, including AI-based tools. Despite implementing reflexive practices and peer debriefing procedures throughout the analytical process, it is important to recognise that data interpretation is inevitably influenced by researchers' perspectives, theoretical sensitivities, and sociocultural contexts. Consequently, the findings should be interpreted in light of the inherently interpretative and contextual nature of qualitative inquiry.

The final theme was only briefly explored. Future research should examine effective digital practices in mental health to benefit current and future higher education students. Given the emergence of new generations of digital natives, whose identities and processes of self-construction are increasingly shaped by digital environments, it is essential to adapt mental health interventions accordingly. The systematic sharing and critical evaluation of these experiences may inform the development of more effective interventions and evidence-based practices. In parallel, policies should be developed to address the challenges posed by the growing demand for digital mental health tools, including the establishment of robust mechanisms to assess the quality, safety, ethical integrity, and scientific validity of digital resources and artificial intelligence applications, as well as frameworks for their regulation and responsible use.

Declaration of conflicting of interests

The author(s) declares no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical approval

This project received ethical approval from the Ethics Committee of the Faculty of Psychology and Educational Sciences, University of Porto (Ref. 2025-04-02).

Informed consent

All participants in this study were informed of the purpose of the study and how data will be used. They were assured that their identities would remain anonymous across the study.

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Authors contribution

Conceptualization: SV; Data curation: SV; Formal analysis: SV; Investigation: SV; Methodology: SV; Project administration: SV; Resources: SV; Supervision: HC, PMM; Writing – Original draft: SV; Writing – Review and editing: HC, PMM.

All the authors read and approved the final manuscript.

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Tecnologias digitais e saúde mental em jovens do ensino superior

Resumo: A literatura científica tem evidenciado associações entre o uso das tecnologias digitais e a saúde mental dos estudantes do ensino superior. Contudo, persistem lacunas relativamente às práticas digitais mobilizadas para promover a literacia e(m) saúde mental. Neste contexto, desenvolveu-se um estudo qualitativo com recurso a seis grupos focais, envolvendo 43 estudantes de 32 cursos de 18 instituições de ensino superior portuguesas. A análise temática dos dados permitiu identificar cinco temas: Hábitos digitais; Tecnologias digitais na literacia em saúde mental; Impacto das tecnologias digitais no bem-estar e saúde mental; Avaliação das tecnologias digitais em saúde mental; Boas práticas na promoção do bem-estar e da saúde mental. Os resultados evidenciam que os grupos focais constituíram espaços de reflexão crítica e de construção coletiva de conhecimento acerca dos benefícios, riscos e limitações das tecnologias digitais na saúde mental. Contudo, verificou-se uma discrepância entre os discursos críticos dos participantes e as suas práticas. Apesar das reservas quanto ao uso de ferramentas digitais não especializadas, recorrem de forma generalizada a conteúdos de redes sociais e inteligência artificial. Este resultado evidencia lógicas de imediatismo, anonimato e acessibilidade, reforçando a necessidade de compreender melhor estes mecanismos e de melhorar o acesso a serviços especializados.

Palavras-chave: Tecnologias digitais; Saúde mental; Estudantes; Ensino superior.