How can digital interventions and new models of interventions help address the treatment gap for patients with eating disorders and help with their recovery?

Introduction

In recent years, the prevalence of eating disorders (ED) has risen sharply, particularly among children and young people. Globally, between 1990 and 2021, rates of anorexia nervosa (AN) and bulimia nervosa (BN) among those aged 10–24 increased from 301 to 355 per 100,000 [12]. In the UK, NHS Digital reported a fivefold increase in eating disorder prevalence among 11–16 year olds between 2017 and 2023, contributing to significant strain on specialist services [14]. By the end of 2023, only 41% of children referred to CAMHS eating disorder services had commenced treatment, leaving a 59% treatment gap [19]. In response to these growing challenges, a blended model of care - integrating established, evidence-based treatment approaches with innovative personalised digital interventions - offers a promising way forward. This essay explores how media literacy can aid in the prevention of eating disorders through expansion of the current target demographic, how brief digital therapies can facilitate early intervention and how app-based tools can support sustained recovery; ultimately demonstrating the potential of digital interventions to close the treatment gap.

Current prevention strategies

Key preventative interventions target different stages of ED including universal and selective interventions through cognitive dissonance training (CD) and media literacy

training [10]. Social media is described as a “self-perpetuating cycle of risk” - **Figure 1** - by promoting appearance focused content, often glorifying thinness, restrictive diets, or fitness ideals. Algorithms can exacerbate the problem by repeatedly showing users similar content, creating echo chambers that reinforce negative body image and disordered behaviours [18]. Media literacy education plays a vital role in addressing this risk as shown in **Figure 1** by equipping children with the skills to critically evaluate digital content, recognise manipulated images, and question the motives behind advertising and influencer culture [26]. Cognitive dissonance-based interventions aim to help individuals recognise the conflict between their internal values and the societal pressure to attain unrealistic body ideals. By highlighting this contradiction, children are encouraged to reject unhealthy appearance standards [27].

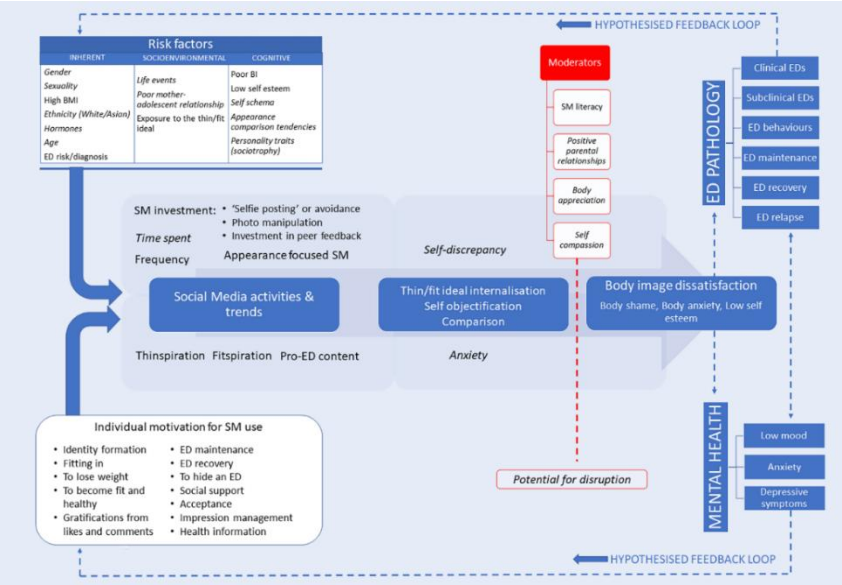

Figure 1 - A self-perpetuating cycle of risk to show the relationship between social media usage, body image and eating disorder pathology [21]

A recent longitudinal study following pro-ED forum members found that users consistently lost weight, on average 0.087 body mass index (BMI) points (0.26 kg) per week, with more active participants including those already underweight showing greater reductions in both actual and desired BMI. Evidence suggests that media literacy interventions are effective in reducing body dissatisfaction and thin-ideal internalisation - two major risk factors associated with participation in pro-ED spaces. In the UK, programmes such as ‘Media Smart Online’ have shown promising outcomes, including a 66% reduction in eating disorder onset within one year among high-risk young adolescent girls, compared to control groups [29]. Similarly, school-based initiatives like ‘Media Smart’ and ‘Me, You & Us’ have been effective in enhancing young people’s ability to critically evaluate digital content, challenge harmful appearance-related messages, and foster a more positive body image [5]. Schools offer an optimal context for delivering such interventions, facilitating early and broad access to preventative education. By fostering critical thinking and emotional awareness, media literacy can help mitigate one of the most modifiable risk factors for eating disorders.

One of the most rigorously evaluated CD based interventions for eating disorder prevention is the *‘*Body Project’*,* which has shown sustained reductions in disordered eating symptoms at one-year follow-up [24]. Initially delivered in face-to-face group settings, the programme has recently been adapted into online peer-led formats to enhance accessibility and scalability [23]. Notably, the virtual delivery produced an effect size nearly 50% greater than the traditional format [25]. In a recent virtual trial involving high-risk adolescent girls aged 15 to 20, the ‘Body Project’ was compared to an expressive writing intervention over a 24-month period. Results indicated a

77% reduction in the risk of developing an eating disorder among participants in the digital intervention group [6].

Improvements for prevention material

While media literacy programmes have demonstrated promising outcomes, Koreshe et al. [10] highlight that their predominant focus on adolescent girls has resulted in the exclusion of several key demographic groups. This narrow scope underscores the urgent need for more inclusive and adaptable interventions aimed at preventing eating disorders across the wider population. There is a strong case for the development of a comprehensive media literacy programme, which builds on existing evidence-based approaches while actively addressing the needs of underrepresented groups. These include children under the age of 10, boys, non-binary youth, individuals from ethnically and culturally diverse backgrounds, and children with disabilities or neurodevelopmental differences. Wisting et al. [23] and other researchers also noted this gap with CD interventions and emphasised the need to adapt and evaluate the intervention for these underrepresented populations.

Bridging the gap in early intervention

Early intervention is most beneficial for individuals who already meet diagnostic criteria for an eating disorder, as they respond best to evidence-based psychological therapies [10]. Consistent with this, the Royal College of Psychiatrists emphasizes earlier detection and a shorter delay to treatment are essential for improving long-term outcomes in children and adolescents with eating disorders. However, several adults reported obstacles (summarised in **Figure 2**) which continue to impede timely help seeking. Digital modalities have the potential to address key

adolescent priorities - heightened self-awareness, social connectedness, and personalised, motivating designs - thereby improve the reach and effectiveness of early intervention for eating disorders [7].

TABLE 2. Barrier themes from quantitative, qualitative, and mixed-method studies ($n = 13$)

#	Barrier Theme	# of Studies
1	Stigma and shame (subthemes: stigma, discrimination, eating disorders are not psychological problems, shame, not wanting others to know)	11
2	Denial/failure to perceive severity of the illness/lack of awareness (subthemes: denial, failure to perceive the severity, lack of awareness)	9
3	Practical barriers (subthemes: cost, transportation, inconvenience, time, childcare)	8
4	Fear of losing control/fear of change/low motivation to change (subthemes: fear of losing control, low motivation to change, positive aspects of the illness)	8
5	Negative attitudes towards treatment/perceived insufficiency of professional help (subthemes: fear and doubt about treatment, personal characteristics of the provider)	7
6	Lack of encouragement/support from others, lack of understanding from others	6
7	Knowledge of resources/not knowing how to ask/access help	4
8	Accessibility to help/support/treatment	4
9	Self-sufficiency	3
10	Inability of others to provide help	3
11	Mental health/eating disorder literacy	2
12	Use of other resources	2
13	Previous negative experience with treatment	2
14	Not wanting to hurt others/concern for others	1
15	Comorbidity (depression/anxiety)	1

Figure 2 - Perceived barriers hindering help-seeking in adults with eating disorders [1]

To counter these barriers, a growing body of digital interventions has emerged. ‘Mindful Courage’ for Binge Eating Disorder (BED) is a single-session, self-guided programme that blends Cognitive Behavioural Therapy (CBT) techniques with mindfulness exercises; participants recorded a 48.6% reduction in binge-eating episodes one month after completion [20]. Similarly, fully automated web and app based platforms have shown promise. ‘AcceptME’, a gamified Acceptance and Commitment Therapy (ACT) application, uses an avatar driven narrative to teach psychological flexibility skills; more than half of its users moved below the clinical risk threshold for weight concerns, with benefits largely maintained at follow-up [15]. ‘ProYouth’ combines psychoeducation, self-screening with personalised feedback,

peer support forums, and anonymous chat counselling, reaching over 3,500 young people through schools and online outreach [15]. Evidence indicates that such focused, self guided tools - even with limited content - can be as effective as more comprehensive programs in the short term [11].

Digital resources may also support carers. Parents awaiting family based treatment who engaged in guided self help reported higher self efficacy in managing their child's eating disorder than those on standard waitlists [28]. Within the NHS, the FREED (First Episode Rapid Early Intervention for Eating Disorders) pathway offers rapid, developmentally informed care for 16- to 25-year-olds, incorporating life-transition support, attention to social-media influences, and optional carer involvement. FREED delivers CBT Enhanced (CBT-E), MANTRA (Maudsley Anorexia Nervosa Treatment for Adults), and other NICE-recommended therapies, underpinned by dedicated care coordination, regular follow-up, and motivational support to prevent symptom escalation [3]. Building on this model, FREED-M - a co-designed, smartphone compatible tool aims to boost symptom recognition and readiness for change in young people and is currently being tested in ongoing trials [13].

Collectively, these innovations illustrate how digital modalities can address adolescent priorities - heightened self-awareness, social connectedness, and personalised, motivating designs - and thus improving the scope and effectiveness of early intervention for eating disorders [7].

Recovery supported by digital apps

In an era where algorithms customise nearly every aspect of individuals' daily lives, the personalisation of treatment to accommodate individual differences has become an essential component of delivering effective healthcare [4]. Within the domain of ED treatment, evidence-based psychotherapies remain the gold standard. Family-Based Therapy (FBT), including the Maudsley model, is the first-line treatment for AN and BN, whereas CBT is commonly employed for BN and BED [8]. The growing use of telemedicine, particularly the remote delivery of FBT and CBT via videoconferencing, has demonstrated high levels of acceptability and feasibility. Moreover, these remote approaches yield symptom reductions comparable to those observed in traditional face-to-face care among adolescents with anorexia [22]. Expanding upon this personalised approach, a number of app-augmented interventions have recently been developed.

The CBT based mobile application 'Recovery Record' enables users to engage in self monitoring activities (e.g., logging meals, thoughts, emotions, and symptoms), access psychoeducational content and coping strategies, and benefit from clinician integration via dashboards that facilitate monitoring and secure messaging. Integrating this digital tool as an adjunct to outpatient treatment has been shown to improve patient engagement and clinical outcomes, including a reduction in emergency department visits among underweight patients [17].
Similarly, 'TCApp', developed in Spain, has been designed for formal use in outpatient and inpatient settings. It allows clinicians to assign personalised CBT based interventions, monitor user data in real time, adapt treatment remotely, and aggregate clinical data to support decision making processes [2].

The ‘BALANCE’ mobile app takes a clinician-integrated approach by offering evidence based tools aimed at enhancing distress tolerance. These tools, ranging from interactive coping strategies and mood tracking to crisis management techniques (e.g., breathing, grounding, and distraction exercises), can be increasingly tailored to the user's needs over time, alongside psychoeducational content that promotes emotional regulation and recovery [16].
Focusing specifically on single urge episodes, ‘Before I Eat’ app provides in the moment, audio guided strategies through brief clips. These incorporate evidence based techniques such as urge surfing, cognitive defusion, distraction, self soothing, mindful eating, and relaxation exercises tailored to specific triggers like night-time snacking [9].

Taken together, these examples illustrate the potential of digital interventions to address the complex and heterogeneous needs of young people with eating disorders. An integrated application that combines the strengths of each existing tool could offer a comprehensive digital toolkit. This might include remote delivery of CBT, FBT, and DBT, psychoeducational modules, self-monitoring features (e.g., meal, mood, and symptom logs), journaling functions, clinician dashboards for real time feedback and messaging, and the capacity to aggregate user data for personalised clinical decision-making. Such an app would move the field away from a “one-size-fits-all” model toward a more nuanced, patient-centred paradigm of digital care.

Conclusion

Bridging the treatment gap for ED calls for a multifaceted approach that spans prevention, early intervention, and long-term treatment and monitoring. A blended model of care - combining traditional, evidence based therapies with accessible and personalised digital interventions - can facilitate earlier engagement, enhance treatment outcomes, and support sustained recovery through ongoing monitoring. The integration of digital tools offers the potential to increase scalability, feasibility, and effectiveness while introducing greater adaptability and personalisation to meet the diverse needs of young people. However, access to digital tools depends on digital literacy and equitable internet access, which remains a challenge. Moving forward, the integration of digital solutions into stepped care pathways, informed by continuous user feedback and clinical oversight, could usher in a more equitable and patient centred model of care for eating disorders. Realising the full potential of digital health in this complex and evolving landscape will require sustained investment in research, co-design with service users, and the development of robust implementation strategies.

Word count: Approx. 1830

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