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Preface

We would like to present, with great pleasure, the volume-11, Issue-12, December 2025, of a scholarly journal, *International Multispeciality Journal of Health*. This journal is part of the AD Publications series *in the field of Medical, Health and Pharmaceutical Research Development*, and is devoted to the gamut of Medical, Health and Pharmaceutical issues, from theoretical aspects to application-dependent studies and the validation of emerging technologies.

This journal was envisioned and founded to represent the growing needs of Medical, Health and Pharmaceutical as an emerging and increasingly vital field, now widely recognized as an integral part of scientific and technical statistics investigations. Its mission is to become a voice of the Medical, Health and Pharmaceutical community, addressing researchers and practitioners in below areas

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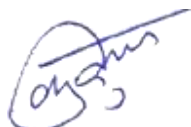
It includes articles related to Anatomy, Physiology and Biochemistry.

Spiritual Health Science:

It includes articles related to Yoga, Meditation, Pranayam and Chakra-healing.

Each article in this issue provides an example of a concrete industrial application or a case study of the presented methodology to amplify the impact of the contribution. We are very thankful to everybody within that community who supported the idea of creating a new Research with *IMJ Health*. We are certain

that this issue will be followed by many others, reporting new developments in the Medical, Health and Pharmaceutical Research Science field. This issue would not have been possible without the great support of the Reviewer, Editorial Board members and also with our Advisory Board Members, and we would like to express our sincere thanks to all of them. We would also like to express our gratitude to the editorial staff of AD Publications, who supported us at every stage of the project. It is our hope that this fine collection of articles will be a valuable resource for *IMJ Health* readers and will stimulate further research into the vibrant area of Medical, Health and Pharmaceutical Research.



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Digital Harm Reduction: A Review of Current Uses of Social Media, Mass Media, and Mobile Health Applications for Safer Use and Substance Use Prevention

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Abstract

Introduction - Digital harm reduction has emerged as a critical public health strategy as substance use patterns and communication landscapes shift. Social media, mass media, and mobile health (mHealth) applications now play an increasingly central role in delivering accessible, rapid, and user-centered harm reduction information.

Method - A comprehensive literature search was conducted across PubMed, Google Scholar, PsycINFO, ProQuest, and ScienceDirect for publications between 2015 and 2025. Search terms related to social media, mass media, mHealth, digital harm reduction, safer use, and substance use prevention were used. A supplementary targeted web search was used to identify additional commentary and practice-based resources.

Results - Social media platforms such as TikTok, Instagram, Facebook, and YouTube support harm reduction by sharing accurate information, countering misinformation, and normalizing naloxone use through hashtags, storytelling, and influencer-led campaigns. Mass media campaigns deliver wide-reaching public health messages but vary in effectiveness based on message design and cultural relevance. mHealth applications such as the Digital Overdose Response System (DORS), ikepr, and Unity Philly provide supervised use monitoring, life-skills training, mental health screening, and coordinated care, offering scalable and personalized digital support.

Discussion - Findings demonstrate that digital platforms enhance reach, reduce stigma-related barriers, and complement traditional harm-reduction services. However, challenges persist, including algorithmic suppression, unequal digital access, misinformation risks, and ethical concerns related to privacy and data governance. Evidence for long-term effectiveness remains limited, with most tools showing stronger impact in short-term engagement and education.

Conclusion - Digital harm reduction provides flexible, accessible, and scalable pathways for safer use education and early intervention, but should complement, not replace, traditional in-person services.

Keywords — Digital Harm Reduction, Mass Media, Mobile Health Applications, Safer Use, Social Media.

I. INTRODUCTION

The global overdose crisis, accelerated by the proliferation of potent synthetic opioids like fentanyl, demands innovative and scalable public health responses. In parallel, the digital landscape has fundamentally transformed how people access information, form communities, and manage their health. This convergence of public health urgency and digital connectivity has catalyzed the emergence of digital harm reduction, a paradigm that leverages modern technology to meet people where they are with life-saving information and support. This review explores how three key digital domains (social media, mass media, and mobile health applications) are being utilized to promote safer use and prevent substance use and related harms.

1.1 Harm Reduction

According to the National Harm Reduction Coalition (2025), harm reduction refers to evidence-based strategies designed to minimize the adverse health and social consequences of substance use. Although harm reduction is often viewed solely through the lens of substance use, its principles are already embedded in everyday life, for example, getting a flu shot, applying sunscreen, or wearing a seatbelt (Oregon Health Authority, 2024), reflecting the core idea of reducing risk and promoting safety.

Harm reduction is designed to equip people with practical strategies that lower the risks associated with substance use, prevent overdose, enhance overall health, and ultimately save lives (Drug Policy Alliance, 2025). It represents a broader social justice movement grounded in the belief that people who use substances deserve dignity, autonomy, and respect for their fundamental rights (National Harm Reduction Coalition, 2025). It encompasses a wide array of intervention strategies, including naloxone distribution and overdose response training, the use of test strips, supervised injection facilities (SIFs), syringe exchange programs (SEPs), infection prevention measures, pharmacy-led initiatives, and network-based interventions (Noyes et al., 2025).

Currently, 108 countries include harm reduction in their national policies, and 93 countries now provide at least one needle and syringe program (NSP), up from 92 in 2022 (Harm Reduction International, 2024).

1.2 Digital Harm Reduction

Information and Communication Technology (ICT) is a promising area for action on harm reduction among young adults (Patnode et al., 2014). Given the technological shift affecting both substance markets and their user population, it appears useful and relevant to adapt prevention and harm reduction initiatives to new digital realities, making them complementary to existing tools and resources (Guichard et al., 2019). Digital harm reduction technologies provide instant access to multiple services, unlike traditional approaches that require navigating social anxieties around in-person contact; digital tools ease these barriers and are generally well-received (Strachan et al., 2024).

Digital interventions focused on enhancing health behaviors, such as harm reduction practices or substance use cessation, highlight that user involvement plays a key role in achieving the intervention's objectives (Linke et al., 2008). There are several virtual harm reduction services currently available around the world, including the National Overdose Response Service (Canada), the Lifeguard application (Canada), the Digital Overdose Response Service application (Canada), Never Use Alone Hotline (United States), HaRePo - Harm Reduction By Post (France), Next Distro (United States), Unity Philly (United States), and How To Save A Life (Scotland) (Guichard et al., 2019).

Many public health agencies and organizations have been and continue to explore the use of virtual platforms, such as social media and mobile health (mHealth) applications, to provide harm reduction services to diverse populations (Shelby et al., 2021) and to increase health literacy and communication.

II. METHODS

This review synthesizes evidence on the use of digital platforms for harm reduction. A comprehensive search strategy was employed to identify relevant literature and practice-based resources.

A literature search was conducted across five databases (PubMed, Google Scholar, PsycINFO, ProQuest, and ScienceDirect), for publications between 2015 and 2025. Search terms included combinations and variations of: “social media”, “mass media”, “mobile health applications”, “digital intervention”, “digital harm reduction”, “safer use”, and “substance use prevention”. To capture real-world implementation and evolving practices not yet in the academic literature, a supplementary targeted web search was conducted using the phrase “current uses of social media, mass media, and mobile health applications for safer use and substance use prevention”. This search yielded organizational reports, campaign materials, commentary pieces, and press releases.

Included sources were those describing the application, design, or evaluation of social media campaigns, mass media initiatives, or mHealth tools specifically for harm reduction or substance use prevention. A thematic analysis approach was employed to organize the findings into three core digital domains: social media, mass media, and mHealth applications.

III. RESULTS

The search yielded a wide array of digital harm reduction initiatives. Findings are organized below by platform type.

Table 1 provides a summary of key examples.

TABLE 1
SUMMARY OF DIGITAL HARM REDUCTION PLATFORMS AND TOOLS

Platform Type	Example(s)	Primary Function/Strategy	Key Outcome / Note
Social Media	#SupportHarmReduction (Vital Strategies)	Hashtag campaigns, video ads	Broaden public awareness via social media.
	Appalachian Influence	Influencer-led campaign	Increased support for harm reduction programs in Appalachia.
	End Overdose (TikTok/Instagram)	Viral "how-to" videos	Reaches youth with naloxone education via trending formats.
	Fentanyl Aware (Oregon)	Statewide social media campaign	Provides information on risks, naloxone, and the Good Samaritan law.
Mass Media	#OverdoseMemorial (NY Times feature)	Print/digital advertising	Highlighted frontline workers; 37 million impressions.
	Radio Health Journal	Radio programming archive	Dedicated harm reduction episode archive for public education.
mHealth Apps	Digital Overdose Response Sys (DORS)	Virtual supervised consumption	User connects via phone during use and creates an emergency plan.
	Unity Philly, iKeepr, Lifeguard	Overdose monitoring & response	Provides remote supervision and alert services.
	Ready4Life	Mobile life-skills training	Aims to prevent substance use among youths.
	WE-CARE, SAFE4BOTH	Screening & coordinated care	Links at-risk individuals (women, mothers) to resources & support.

3.1 Social Media

3.1.1 Social Media Networks and Hashtags

Social network sites are increasingly being used as an information source, including information related to risks (Westerman et al., 2014). Through infographics, videos, slideshows, hashtags, and interactive questions, platforms such as Facebook, Twitter (X), Instagram, TikTok, and YouTube are used to increase community understanding, support knowledge translation between researchers and the public, and reach underrepresented groups with timely public health messages (Koomson et al., 2025). These widely used platforms enhance community preparedness by disseminating lifesaving information to individuals who may otherwise lack access to formal training.

Social media is used for harm reduction by sharing clear, accessible overdose-response education, especially public-facing videos that teach people how to recognize an opioid overdose and administer naloxone effectively (Goyal et al., 2025). Popular harm reduction content often appears in short-form videos, such as the #SupportHarmReduction campaign produced by Vital Strategies in 2024. The Substance Abuse and Mental Health Services Administration (SAMHSA) has funded several statewide media campaigns for prevention, some of which have used social media activities, including “*Speak Now Colorado!*”, “*Talk, They Hear You*”, a campaign focused on teen drinking prevention (SAMHSA 2024).

With the rise of TikTok usage, with approximately 1.8 to 2.05 billion monthly active users (Statista, 2025), TikTok has become a key platform for grassroots harm reduction in the United States, where people who use substances, those in recovery, and professionals share accurate information, counter stigma, and build supportive communities. Using hashtags such as #NaloxoneSavesLives, storytelling, and interactive features, creators widely disseminate guidance on naloxone, overdose response, and safer use (Schlosser et al., 2024).

End Overdose, founded by Theo Krzywicki, uses TikTok, Instagram, and other social-media platforms to turn harm-reduction and overdose-prevention content into viral, easily shareable messages (End Overdose, 2025). They post simple, relatable “how-

to” videos about naloxone use, overdose response, and safety practices, often riding on trending formats to reach youth and high-risk populations who might not get this information elsewhere. By meeting audiences where they are online, End Overdose helps make overdose prevention visible, destigmatized, and accessible (Today, 2022). Also, the use of hashtags such as #narcansaveslives or #naloxonesaveslives, harm reduction advocates are using TikTok to share personal experiences and to educate others about the prevalence of opioid use, availability of naloxone, and how to access and administer the opioid overdose reversal medication (Recovery Answers, 2025).

In 2022, a team of researchers created Appalachian Influence, an influencer-driven initiative designed to boost public support and awareness for harm reduction programs in Appalachia (Leibensperger et al, 2022), which proved to be a promising way to impact knowledge and generate support for harm reduction programs in West Virginia (Leibensperger et al, 2022). This aligns with the outcome of another study (Bonnievie et al, 2023), indicating great potential for implementing influencer-led social media interventions to reach people with authentic and compassionate messaging about harm reduction and syringe services programs.

3.1.2 Social Media Campaigns

In 2024, the Oregon Health Authority (OHA) launched *Fentanyl Aware*, a statewide initiative that has expanded into a comprehensive social media campaign addressing the escalating public health risks associated with fentanyl. The five-week campaign, delivered in both English and Spanish, educated communities on fentanyl risks, harm reduction practices, overdose recognition and response, naloxone administration, and Oregon’s Good Samaritan law (Oregon Health Authority, 2024). Its content progresses from foundational fentanyl information to detailed naloxone guidance, legal protections, and warnings about polysubstance use and using substances alone. The effort is built on a 2023 Lane County project that was later adapted into the Fentanyl Aware Northwest campaign (Clatsop County, Oregon, 2023). Concurrently, Multnomah County launched *Expect Fentanyl*, a youth-focused initiative targeting individuals ages 13–20 (Oregon Health Authority, 2024).

Similar efforts include New York State’s 2023 *Safer Choices* campaign (New York State Press, 2023) and the Erie County Department of Health’s *Detect to Protect* media campaign, running through 2025 (Erie County Dept. of Health, 2025). Most recently, in summer 2025, the CDC introduced *Free Mind*, a social media campaign aimed at youth aged 12–17 to increase awareness of the link between substance use and mental health (CDC, 2025).

At the time of writing, numerous health agencies, including the First Nations Health Authority (FNHA, 2023), are utilizing social media platforms to implement diverse health campaigns, often featuring short videos and infographic-style content.

3.1.3 Social Media Kits

A social media kit typically includes pre-designed content such as graphics, videos, captions, and shareable messages that organizations can use to disseminate information widely and consistently across platforms (SocialBee, 2023). The Centers for Disease Control and Prevention (CDC, 2025) has developed a range of digital media kits to enhance education on safer substance use and prevention through social media. Similarly, Prevent Overdose Rhode Island created a social media kit containing critical substance use information that can be shared across multiple social media channels (Rhode Island Gov, 2025). Other organizations engaging in comparable efforts include The Partnership @drugfreeNH, which provides shareable content to support substance use prevention and community education (The Partnership, 2025).

3.2 Mass Media

Mass media campaigns are a powerful tool for disseminating health promotion messages to wide and diverse audiences. Over the past decades, these campaigns have targeted a range of health behaviors, including tobacco and alcohol use, heart disease prevention, cancer screening, sexual health, and illicit substance use (Wakefield et al., 2010; Ferri et al., 2011). Messages are typically delivered through television, radio, print media (newspapers and magazines), the internet, mobile phones, and outdoor advertising such as billboards.

3.2.1 Television and Radio

Television and radio remain key channels for reaching large populations. In substance addiction and dependence, TV and radio campaigns can shape substance use patterns, influence intentions to use substances, and modify mediators such as awareness, knowledge, and attitudes toward substances (Allara et al., 2015).

Radio Health Journal, for instance, uses its platform to share information on health, science, technology, and the intersection of medicine and public policy. It currently hosts a harm reduction archive with over five sessions, demonstrating the utility of

radio for harm reduction education (Radio Health Journal, 2023). Similarly, a study by Gierzynski et al. (2024) indicates that viewers of the popular TV show *Euphoria* may adopt more harm reduction friendly attitudes, including reduced stigma and greater support for treatment and diversion policies.

3.2.2 Digital and Print Media

A notable example is the #SupportHarmReduction and #OverdoseMemorial campaign, created by Vital Strategies in partnership with Bloomberg Philanthropies, launched with a full-page New York Times feature that highlighted 200 frontline harm reduction workers (Vital Strategies, 2022). The initiative included three video ads featuring overdose prevention advocates whose lives had been saved through harm reduction. These ads ran approximately 6,000 times across major broadcast and digital platforms such as CNN, BET, ESPN, YouTube, Hulu, and several podcasts (Vital Strategies, 2022). Overall, the campaign generated an estimated 37 million impressions in the Washington, D.C. media market (Vital Strategies, 2022).

3.3 Mobile Health Applications

Mobile health (mHealth) applications have emerged as innovative tools for harm reduction, substance use prevention, and mental health support, particularly for populations with limited access to traditional services (Kazemi et al., 2017). Excluding development costs, mHealth interventions have an extensive reach at low cost and offer the ability to deliver uniquely personalized content automatically, which can be accessed at anytime and anywhere (Kazemi et al., 2017).

Virtual overdose monitoring services, such as Here4UScotland in Aberdeen, Scotland, introduced remote supervision for local drug users, allowing them to contact a supporter via smartphone during substance use and activating emergency plans to prevent overdose (Daneshvar et al., 2024; Welwean et al., 2023). Globally, more mobile applications such as Unity Philly, Naxos Neighbors, Digital Overdose Response Service, Lifeguard, iKeepr, Naloxone Opioid Response App (NORA), and Canary Prevent Overdose, provide similar support (Rioux et al., 2023).

Other mobile applications increasingly support prevention and early intervention in substance use by combining accessible digital tools with evidence-based strategies. Ready4Life, evaluated in Switzerland, delivers mobile life-skills training to reduce substance use among young people (Haug et al., 2017). Senyo Health integrates screening, brief interventions, real-time counselor messaging, cognitive-behavioral therapy modules, and contingency management to promote safer behaviors and reduce substance-related risks (Oesterle et al., 2025). WE-CARE enables at-risk women to complete mental health screeners and access treatment resources anonymously through a cross-platform app (Isaacs et al., 2024). SAFE4BOTH further expands digital harm reduction by providing coordinated care for mothers with substance use disorder, linking families, providers, and agencies within a secure platform to enhance engagement and support (Isaacs et al., 2023).

Peer support and mental health literacy are central features of digital harm reduction. Mind Your Mate facilitates peer discussions on mental health and substance use, offering educational modules, communication tools, mood tracking, and gamified activities to maintain engagement (Birrell et al., 2021). Similarly, Minder was co-developed with university students to address mental health, substance use, and general student life challenges through a self-directed interface (Wang et al., 2023). Trauma-Informed Prevention for Substance Use and Risky Sexual Behavior (TIPS), designed for adolescent trauma-focused treatment, enhances engagement for adolescents, caregivers, and clinicians and supports integration into telehealth mental health care (Danielson et al., 2023). OASIS in Baltimore tracks opioid use locations and overdose prevention behaviors among people who use opioids (Dayton et al., 2025).

Collectively, these digital interventions demonstrate the versatility of mHealth tools in harm reduction, substance use prevention, and mental health support, ranging from supervised use and overdose prevention to peer support, skill-building, and coordinated care. While promising, ongoing evaluation is needed to determine their effectiveness across diverse populations and settings (O'Logbon, 2023).

IV. DISCUSSION

Digital interventions to support harm reduction have been fully embraced, particularly on social media, aiming to reach a larger population. It is useful and relevant to adapt prevention and harm reduction initiatives to new digital realities, making them complementary to existing tools and resources (Guichard et al., 2019). As global harm reduction efforts expand, with more than 100 countries integrating harm reduction into national policies (Harm Reduction International, 2024), this review illustrates that digital harm reduction has rapidly evolved into a multidimensional public health tool capable of extending reach, enhancing accessibility, and promoting safer behaviors among diverse populations.

4.1 Synthesis of Findings and Effectiveness

Social media is a powerful harm-reduction tool for rapidly sharing accurate information, countering misinformation, and fostering supportive communities. Platforms like TikTok, Instagram, and YouTube help normalize naloxone use and promote overdose-response behaviors through content from lived-experience creators, professionals, and influencers (Today, 2024). While influencer-driven messaging shows strong potential to shape public attitudes and engagement, challenges such as stigma, unequal reach, and algorithmic suppression highlight the need for more strategic and equity-focused digital approaches (Bonnievie et al, 2023). Evaluations of harm-reduction campaigns related to substance use demonstrate that digital interventions can be rigorously assessed and yield meaningful insights for both research and practice (Ferri et al., 2011). While digital health tools hold significant promise, current evidence for their effectiveness in reducing substance use remains modest (Guta et al, 2025). Notably, digital harm-reduction tools have shown high levels of acceptability among users and offer potential to overcome persistent barriers to accessing substance-use services, including stigma, transportation, and limited clinic availability (Shelby et al, 2021).

Mass media campaigns continue to play an essential role, especially in reaching wide and demographically varied audiences. Yet evidence suggests that the success of mass media depends heavily on message design: poorly crafted or fear-based campaigns may inadvertently reinforce stigma or fail to engage high-risk groups (Allara et al., 2015). Thus, mass-media interventions must remain evidence-based, culturally responsive, and rigorously evaluated before implementation (Wakefield et al, 2010).

Mobile health (mHealth) applications represent a rapidly expanding frontier of digital harm reduction, which can enhance mental health literacy, facilitate screening and early intervention, and improve care coordination for complex populations (Dayton et al, 2025). Although these applications offer scalability and personalization at low cost, high attrition rates across many digital programs raise concerns about long-term engagement and sustained impact (Kazemi et al 2017).

4.2 Ethical and Practical Considerations

The integration of social media and mobile technologies into harm reduction efforts presents important ethical considerations. A primary concern is the protection of patient privacy and confidentiality, particularly given the absence of universal guidelines governing digital engagement in healthcare and research settings (Bamidis et al., 2015). Ethical challenges also arise from the rapid spread of information online, where the accuracy and reliability of harm reduction content cannot always be guaranteed, because anyone can create and disseminate material. Misinformation, or unsafe advice, can be amplified through algorithms, shares, and comments. Mass-media campaigns, unlike other health interventions, reach audiences without prior consent (Sumnall & Bellis, 2007). When poorly developed or lacking evidence-based grounding, such campaigns may inadvertently cause harm, underscoring the need for rigorous ethical design and evaluation (Allara et al., 2015). While mass media and social platforms have a broad reach, they may fail to engage marginalized populations who have limited access, experience digital mistrust, or encounter content differently (O'Logbon et al., 2023), which raises concerns related to justice, inclusivity, and social responsibility in public health communication.

V. CONCLUSION

Digital harm reduction provides flexible, accessible, and scalable pathways for safer use education and early intervention. Social media platforms expand the reach of lifesaving information, reduce barriers associated with stigma, and foster communities of support. Mass media campaigns retain the power to shape public discourse and norms on a large scale. Mobile health applications offer personalized, real-time support that complements traditional services. However, these tools are best conceptualized as complementary supports within a broader harm reduction ecosystem. Challenges related to digital equity, misinformation, data privacy, and evidence of long-term effectiveness must be proactively addressed. As substance markets and communication patterns continue to evolve, digital interventions will remain a critical, user-centered avenue for engaging diverse populations in health promotion and safety.

RECOMMENDATIONS

Future work should broaden digital harm reduction research beyond substance use to include intersecting areas like HIV/Hepatitis C prevention, safer-sex education, and digital treatment or recovery support. These areas align with harm-reduction principles, yet digital tools, such as PrEP (Pre-Exposure Prophylaxis) and PEP (Post-Exposure Prophylaxis) navigation applications, sexual health platforms, and tele-recovery programs, remain understudied. Further analysis should compare the effectiveness of these interventions and identify which populations are most likely to use them, ensuring that

marginalized groups are not left behind. Additionally, research should focus on developing best practices for ethical design, equitable access, and sustained engagement to maximize the positive impact of digital harm reduction tools.

CONFLICT OF INTEREST

The author declares no conflict of interest.

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