BJPsych Open (2026)
12, e167, 1–3. doi: 10.1192/bjo.2026.12025

Editorial

Psychedelics, the media portrayal and large-language model evaluations



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Summary

Psychedelics were used for centuries in healing and spiritual rituals, long before the mid-20th century when they became subjects of biomedical research. Although initial trials generated optimism, these were quickly overshadowed by sensationalist media coverage and political backlash. Following decades of inactivity, research on compounds including 3,4-methylenedioxymethamphetamine (MDMA) has resurged, along with the media attention. Investigating this growing interest, Bender et al employed a large-language model, validated against human raters, to analyse 25 years of media articles (2000–2025), quantifying trends in sentiment towards psychedelic therapies. Findings showed a dramatic increase in coverage, with positive sentiment peaking in 2020 followed by a significant decline from 2024, coinciding with the U.S. Food and Drug Administration's decision not to approve MDMA-assisted therapy for post-traumatic stress disorder, and echoing the dynamics of the 1960s. The authors emphasise that sustained progress in the field will require reliance on scientific evidence to advance therapeutic applications.

Keywords

History of psychiatry; psychopharmacology; psychiatry and law; psychedelics; policy.

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Psychedelic substances have been used for centuries in ancient healing, religious rituals and spiritual traditions, long before the mid-20th century, when they became subjects of modern biomedical research. Serotonergic psychedelics such as lysergic acid diethylamide (LSD) entered the field of psychiatry accompanied by considerable optimism, becoming a promising avenue of psychiatric research for chronic alcoholism, alongside emerging antidepressants and antipsychotics for other severe psychiatric disorders. However, LSD trials were soon engulfed by sensationalist media coverage: both mainstream news media stories of the dangers fuelled by psychedelics,[2] as well as influential media advocacy by figures such as Timothy Leary, a clinical psychologist at Harvard University.[3] The LSD chromosome scare of 1967 (see Brecher and colleagues[3]), combined with associations between LSD and radicalised youth on the backdrop of the Vietnam war, ultimately provoked political backlash and culminated in regulatory prohibition.[2] The collapse of psychedelic research in the late 1960s remains a clear example of how media narratives can influence public opinion alongside broader social and regulatory contexts that together contributed to changes in government policy which ultimately directed the trajectory of psychedelic scientific investigation.

Following decades of relative inactivity, clinical research on psychedelics resumed in the 1990s. Beginning with, for example, dose–response studies of N,N-dimethyltryptamine in healthy volunteers,[4] subsequent trials explored the therapeutic potential of longer-acting compounds such as psilocybin (reviewed in Uyar et al[5]). Over the past 20 years, research programmes at leading academic institutions have further legitimised the field once again, with randomised controlled trials reporting encouraging results for psilocybin treatment for major depressive disorder[6,7] and treatment-resistant depression.[8]

Dozens of clinical trials are now under way. Psychedelic Alpha[@], an independent media and research platform that tracks developments and investment in psychedelic research, along with policy reform (available from https://psychedelicalpha.com/), reports that 37 psychedelic Phase 2 or 3 trials are currently in progress, several evaluating compounds granted U.S. Food and Drug Administration (FDA) 'breakthrough therapy' designation to expedite development. This scientific resurgence has coincided with renewed media attention, with many opinion pieces in major newspapers portraying psychedelics as transformative or even revolutionary treatments for mental illness (see, for example, Klein[9] and Dobin[10]). However, experts have described this phenomenon as a 'psychedelic hype bubble', warning that this excessive optimism may ultimately undermine both scientific credibility and public trust,[11] with the potential to spectacularly backfire in a manner reminiscent of the 1960s.

Against this backdrop, the FDA's 2024 decision not to approve Lykos Therapeutics' 3,4-methylenedioxymethamphetamine (MDMA)-assisted therapy for post-traumatic stress disorder (see Kupferschmidt[12] for further discussion) may represent a critical inflection point in media tone, raising concerns that psychedelic research may once again be vulnerable to a negative media swing. In their study published in the *British Journal of Psychiatry Open*, Bender et al sought to examine these dynamics directly by systematically analysing 25 years of media coverage related to psychedelics.[1] Using Google News as a sampling frame, the authors employed a large-language model (LLM), ChatGPT-4, to examine more than 3000 media articles published between 2000 and 2025, quantifying both subject matter and sentiment towards the

https://doi.org/10.1192/bjo.2026.12025 Published online by Cambridge University Press

therapeutic potential of psychedelic drugs (range 1–100%, with higher scores indicating a greater positive sentiment). Their findings offer important insights. First, they report that the media coverage of psychedelics has increased dramatically; a 501% increase over the past 2 decades. Moreover, they observed a substantial shift towards articles framing psychedelics in terms of therapeutic use[1]: from 13.3% for the period 2000–2009 to 85.5% for the period 2020–2025. Over the entire period of investigation (2000–2025), sentiment was found to be generally positive, with an average score of 78.5 ± 9.3%. Sentiment scores peaked in 2020 (80.8 ± 7.0%), followed by a notable and statistically significant decline beginning in 2024, which was accompanied by a sharp increase in neutral and negative coverage; temporal changes that align closely with regulatory developments surrounding MDMA-assisted therapy.

Beyond its substantive findings, the study introduces a novel methodology; the article describes the first peer-reviewed research to employ a LLM to evaluate media sentiment at this scale, while explicitly validating its outputs against human raters. The latter is an important point, given that recent studies have underscored that artificial intelligence chatbots can generate fluent but inaccurate reviews of scientific and medical information, including the generation of fabricated or misleading references[13] or exaggerated scientific findings.[14] In their study, Bender and colleagues[1] demonstrated strong correlation and concordance between artificial intelligence-generated sentiment scores and aggregated human judgements (Pearson's $r = 0.88$, concordance correlation coefficient 0.84), along with substantially greater internal consistency across repeated artificial intelligence ratings than among individual human evaluators. Taken together, and as implemented by Bender et al,[1] through direct benchmarking against human raters, assessment of concordance and internal consistency and explicit acknowledgment of known limitations, these results suggest that LLMs, when treated as analytical instruments subject to systematic validation, robustness checks and ongoing critique within established scientific methodology, may serve as powerful tools for large-scale social and media analysis.

Some limitations should also be considered. The use of Google News as a sampling frame may introduce geographic and algorithmic biases, potentially shaping which sources are included and how prominently they are represented. As such, the findings may not fully capture global or non-English media perspectives, and may be biased towards reporting of specific sentiment patterns. Methodologically, the number of articles in the human/artificial intelligence comparisons was a small fraction of the total 'therapeutic potential of psychedelic' URLs (~3%), raising the possibility of small-sample bias. Furthermore, and as acknowledged by Bender et al,[1] the underlying mechanics of how the LLM determines sentiment scores are not transparent, which has the potential for misinterpretation and may not be reproducible across different artificial intelligence platforms.

In summary, the study makes two distinct but complementary contributions. Substantively, it provides the most comprehensive quantitative account to date of how media sentiment towards psychedelics has evolved in the 21st century. Methodologically, it demonstrates how LLMs can be integrated responsibly into scientific research, as instruments subject to validation, limitation and critique.

The history of psychedelics offers a cautionary lesson. Past cycles of enthusiasm and backlash were driven less by conclusive scientific data than by shifting cultural narratives and political pressures. The present manuscript suggests that such dynamics remain active today. As Bender and colleagues note,[1] the recent decline in positive sentiment toward psychedelic therapies may again reflect the pattern in which media narratives, regulatory events and public opinion interact dynamically, underscoring the complex, bidirectional relationship between science, media framing and policy in this field. Within this context, incentives across stakeholders, including researchers, regulators, the drug industry and the media, are not always fully reconcilable, suggesting that progress may depend on managing these tensions transparently and responsibly.

There are, however, clear avenues to sustaining progress despite these challenges. Avoiding repetition of past mistakes will require sustained commitment to rigorous study design, the cautious interpretation of evidence and fully transparent reporting. Challenges related to the informed consent process and the inflated expectations of study participants, heightened by both the traditional news[9–11] and social media,[15] which may amplify both enthusiasm and scepticism at a faster pace and broader scale, must also be appropriately managed. Investigators must also remain mindful of their own potential biases, because enthusiasm for promising findings may inadvertently lead to over-interpretation or overstated conclusions in both scientific and public communications. As emphasised by Bender and colleagues,[1] it is crucial that researchers, clinicians, regulators and policy-makers focus on scientific evidence as their primary information source. Finally, tools such as LLMs may ultimately have a valuable role in systematically monitoring and evaluating research outputs, helping to ensure that scientific progress is guided by data rather than shifting sentiment and ensuring that the future of psychedelic research is determined not by cycles of hype or backlash, but by the steady accumulation of transparent, robust and clinically meaningful evidence.

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First received 25 Feb 2026, final revision 28 Apr 2026, accepted 6 May 2026

Data availability

Data availability is not applicable to this article because no new data were created or analysed.

Acknowledgements

The author made use of AI to assist with minor editing of this article. ChatGPT (GPT-5, OpenAI) was accessed via the ChatGPT web interface (https://chat.openai.com) and used without modification on 21 April 2026.

Funding

This research received no specific grant from any funding agency, commercial or not-for-profit sectors.

Declaration of interest

C.L.C. is a handling editor for *BJPsych Open*.

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