2018: A watershed year for psychedelic science

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2018: A Watershed Year for Psychedelic Science?

Jacob S. Aday, Christopher C. Davoli, & Emily K. Bloesch

Central Michigan University

Author Note

Jacob S. Aday, Department of Psychology, Central Michigan University, Christopher C. Davoli, Department of Psychology, Central Michigan University, Emily K. Bloesch, Department of Psychology, Central Michigan University.

Correspondence concerning this article should be addressed to Jacob S. Aday, M.S., Doctoral Candidate, Department of Psychology, Central Michigan University, Mount Pleasant, MI 48858. Email: aday1js@cmich.edu

Abstract

While interest in the study of psychedelic drugs has increased over much of the last decade, in this article we argue that 2018 marked the true turning point for the field. Substantive advances in the scientific, public, and regulatory communities in 2018 significantly elevated the status and long-term outlook of psychedelic science, particularly in the United States. Advances in the scientific community can be attributed to impactful research applications of psychedelics as well as acknowledgement in preeminent journals. In the public sphere, Michael Pollan's book *How to Change Your Mind* was a commercial hit and spurred thought-provoking, positive media coverage on psychedelics. Unprecedented psychedelic ballot initiatives in the United States were representative of changes in public interest. Finally, regulatory bodies began to acknowledge psychedelic science in earnest in 2018, as evidenced by the designation of psilocybin-assisted psychotherapy to "breakthrough therapy" status for depression by the FDA. In short, 2018 was a seminal year for psychedelic science.

Keywords: psychedelics, 2018, psychedelic science, history of science

2018: A Watershed Year for Psychedelic Science?

Research into the effects of psychedelic drugs dates to the late-19th century (Briggs, 1887; Prentiss & Morgan, 1895) and underwent a tremendous surge following the discovery of lysergic acid diethylamide (LSD) in the early 1940s (Aday et al., 2019; Hofmann, 1983). This research continued to grow until psychedelics were banned in the United States during the late 1960s, whereupon they vanished from science until relatively recently. Psychedelic research was rekindled in the 1990s (Strassman, Qualls, Uhlenhuth, & Kellner, 1994; Strassman, 1996), and in 2006, researchers published a seminal study in which two-thirds of participants rated their psychedelic session as being among the top five most meaningful experiences of their lives—among events such as the birth of a child or death of a parent (Griffiths et al., 2006). These studies, among others, renewed scientific interest in psychedelics and, accordingly, research into their effects has continued to grow since. While a resurgence of psychedelic research has been slowly growing, in this article we argue that 2018 may be remembered as the true turning point. The swell of progress in psychedelic science over 2018 can be broadly attributed to three confluences: advances within science, increased public interest, and regulatory changes.

1. Advances within Science

The increased acceptance of psychedelic research in mainstream psychological and biomedical science in 2018 can be credited to impactful applications of the drugs as well as acknowledgement in premiere journals. For instance, a study published in the journal *Cell Reports* (5-Year Impact Factor: 8.70) found that psychedelics stimulate neuritogenesis and synaptogenesis both in-vitro and in-vivo using multiple animal models (Ly et al., 2018). These findings may explain many of the neurotherapeutic properties of the drugs and are sure to stir further research. Another study from 2018 found that following MDMA-assisted psychotherapy,

76% of participants with posttraumatic stress disorder (PTSD) no longer met diagnostic criteria (Ot'alora et al., 2018). This finding drew considerable scientific and public interest (e.g., WebMD, 2018; Georgiou, 2018). A review in the prestigious *Neuroscience & Biomedical Reviews* (5-Year Impact Factor: 10.02) concluded that psychedelics induce changes in personality (particularly openness), and these changes may contribute to therapeutic outcomes (Buoso et al., 2018). Additionally, the journal *Neuropharmacology* (5-Year Impact Factor: 4.67) dedicated a special issue in 2018 to the discussion of psychedelic drugs, *Psychedelics: New Doors, Altered Perceptions*. Notably, at the time of writing, articles from this issue occupy the top three spots on the journal's list of most-read articles in the last 90 days.

The year 2018 also saw the genesis of several scientific endeavors which project to be important to the future of the field, such as the start of the clinical phase of the Bristol-Imperial-MDMA-Alcoholism (BIMA) study in the United Kingdom. Whereas to date most MDMA research has been with PTSD, the BIMA study is the world's first scientific project exploring the potential role for MDMA-assisted psychotherapy as a treatment for alcoholism—or any addiction—and therefore marks an important new direction for MDMA science (Sessa, Higbed, & Nutt, 2019; Sessa, Sakal, O'Brien, & Nutt, 2019). There was also a reinvigorated push from the scientific community to begin psychedelic research in Australia in 2018 (Bright & Williams, 2018), and the country's first experimental trials were ultimately funded in early 2019 (Mannix & Booker, 2019). Lastly, in 2018 entrepreneur Tim Ferriss committed to investing in the world's first psychedelic research center, which opened at the Imperial College London in 2019 (Brodwin, 2019). These advancements in the psychedelic research community offer further evidence of the field's growth in 2018.

2. Increased Public Interest

Of the three confluences making 2018 a pivotal year for psychedelic science, the changes in public interest are arguably the most representative. Much of the growth in interest in psychedelics during this year can be traced to Michael Pollan's book *How to Change Your Mind: What the New Science of Psychedelics Teaches Us About Consciousness, Dying, Addiction, Depression, and Transcendence*—which became a #1 New York Times bestseller. The success of Pollan's book resulted in receptive interviews in mainstream media outlets such as *CBS This Morning*, *NPR*, and *The Late Show with Stephen Colbert* as well as commentaries in *Time* (Bissell, 2018) and *The New York Times* (Oaklander, 2018). Importantly, Pollan's discussion with Tim Ferriss about the book is what motivated him to fund the Centre for Psychedelic Research at Imperial College London (Brodwin, 2019). Positive pieces about psychedelics appeared in 2018 in preeminent media outlets across the political spectrum such as *Forbes* (Ferenstein, 2018), *The Wall Street Journal* (Pollan, 2018), *Business Insider* (Brodwin, 2018), *BBC* (Therrien, 2018), *The Washington Post* (Byock, 2018), and *The Los Angeles Times* (Healy, 2018).

Changes in public interest were also illustrated by unprecedented ballot initiatives in the US. While ballot initiatives do not change regulatory laws in states in and of themselves, they are messages to elected representatives of the priorities of the voting constituency. In 2018, the Denver Elections Division accepted an initiative that would decriminalize psilocybin, and it ultimately passed in 2019. According to this initiative, psilocybin should be the lowest law enforcement priority, and county resources should not be used to impose criminal penalties on those caught with psilocybin mushrooms. Similarly, Oregon's attorney general approved language for a ballot measure decriminalizing psilocybin in 2018, and if canvassers attain the necessary signatures, voters will decide on it in 2020. Although ballot initiatives reflect changes

in public perception rather than regulatory, the initiatives bode well for the field given this is the same trajectory that cannabis took in the US, from local decriminalization ballot initiatives to increased medical research.

We also conducted an exploratory analysis of the interest in the term "psychedelics" each year since 2004 using Google Trends. The website yields a measure of relative public interest in search terms, with scores ranging from 0–100 (Google Trends, 2019). A one-way analysis of variance with Year (2004–2018) as a between-subject variable was conducted on Google Trends' Scores (GTS). The effect of Year was significant, $F(14, 165) = 40.91$, $p < 0.001$, and Bonferroni-corrected post-hoc pairwise comparisons revealed one significant year-to-year increase: from 2017 ($M = 67.25$, $S.D. = 5.89$) to 2018 ($M = 84.67$, $S.D. = 10.97$; **Figure 1**). While public interest in the term "psychedelics" has been gradually increasing over most of the last decade, the sole significant year-to-year difference in 2017–2018 supports our thesis that 2018 was a landmark year for psychedelics. Although, it is important to note that these results index public interest and not public perception.

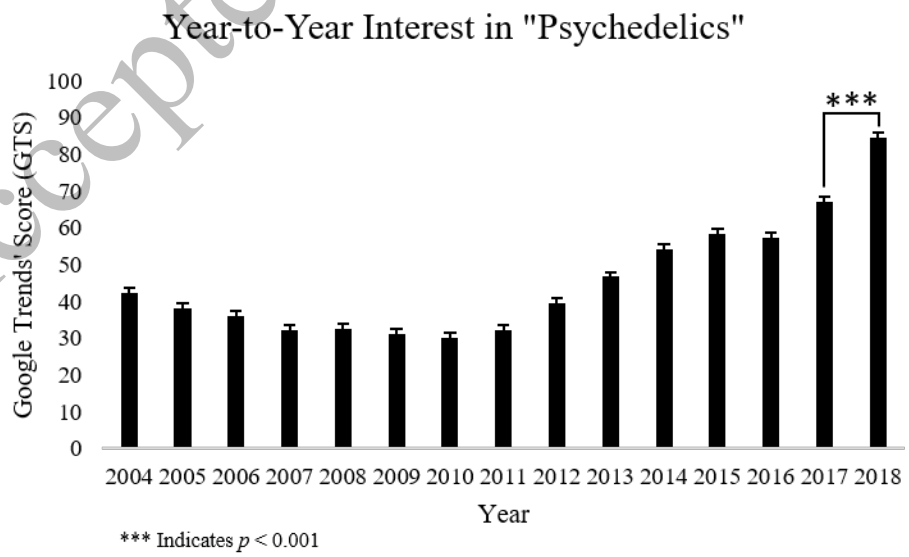

Figure 1. GTS for the search term "psychedelics" as a function of year of search, with each year representing the average GTS across 12 months. Error bars denote one standard error of the mean.

3. Regulatory Changes

In addition to advances in scientific and public interest, 2018 was the year that regulatory communities began to legitimize psychedelics in earnest. In the United States, the FDA took note of the results from preliminary clinical trials (e.g., 80% of depressed patients maintained a reduction in symptoms for at least 6 months; Griffiths et al., 2016) and designated psilocybin-assisted psychotherapy to "breakthrough therapy" status for treatment-resistant depression, which should expedite further research in this area. This change contrasts with the federal government's Schedule 1 classification of psilocybin, which specifies that the drug has no medical potential. Interventions classified as breakthrough therapies have demonstrated potential for significant improvement over current treatments, and are fast-tracked with the FDA to get the treatment to patients as quickly as possible. To this end, the FDA also granted the company Compass Pathways approval for Phase 2 clinical trials assessing psilocybin's effects on treatment-resistant depression in 2018; however, it should be noted that the Drug Enforcement Agency (DEA) has yet to make any changes that parallel the ones adopted by the FDA. Yet, the regulation changes to date were difficult to imagine until quite recently, indicating that opinion within the regulatory community shifted considerably in 2018 about the validity of psychedelic science.

4. Conclusion

While the trajectory of psychedelic research has proven to be unpredictable, we argue that its long-term outlook was noticeably different at the beginning of 2019 than it was at the conclusion of 2017. This is because of striking attitude transformations in the scientific, public, and regulatory communities. From breakthrough findings in world-renowned journals, to widespread positive media coverage, to unexpected advances in the regulatory community, we conclude that 2018 was a defining year for psychedelic science and may come to be remembered as a turning point for the field.

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