PSYNAPSE

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A MESSAGE FROM THE EDITORS

Bryan Butler, Ph.D. & Jérémie Richard, Ph.D.

Newsletter Editors

Dear members of the CPA Psychopharmacology Section,

It is our pleasure to present our Spring/Summer 2025 newsletter! Following an exciting CPA Annual Convention in St-John's Newfoundland, we are back with the latest edition of the *PSYNAPSE* Newsletter. For this issue, we have requested that the Chair of the Psychopharmacology Section, Dr. Amir Sepehry, provide a brief message and introduce the included contributions.

As an important update, this Newsletter is the final issue included as part of Volume 5. We are excited to continue our work as Editors as we transition into Volume 6, with some exciting improvements and changes to the structure and scope of the newsletter.

Enjoy!

Kind regards,

Bryan and Jérémie

PSYNAPSE CALL FOR CONTRIBUTIONS

We are always looking for contributions to the newsletter and welcome any ideas you may have.

Here are some examples of what you might submit:

- Brief articles on psychopharmacology-related topics
- Short summaries of recently published research related to psychopharmacology
- Reviews of recently released books related to psychopharmacology
- Experiences of psychologists who have completed an M.Sc. in Clinical Psychopharmacology
- RxP-related podcast episodes and media
- Advertisements for jobs—or anything else that might be of interest to section members!

Submissions will be reviewed by Dr. Bryan Butler and Dr. Jérémie Richard and can be sent to: **drbryanbutler@gmail.com** or **jrichard2@uottawa.ca**.

Previous newsletters can be accessed here: https://cpa.ca/sections/psychopharmacology/newsletters/

A MESSAGE FROM THE SECTION CHAIR

Amir A. Sepehry, MSc, PhD, MACP.
Chair, Psychopharmacology Section

Dear Psychopharmacology section colleagues,

It is a privilege to welcome you to this volume of the psychopharmacology newsletter, *PSYNAPSE*. As Chair, of an official CPA member group, and supported by an executive committee including student and member representatives, I am honored to represent a community whose contributions continue to transform our understanding of the complex interplay between both clinical and experimental neurobiology, behavior, and therapeutic innovation.

Over the past year, we have witnessed important advances across basic, translational, and clinical domains, and particularly so around prescription privilege. From novel antidepressant mechanisms and neuromodulation adjuncts to renewed investigations into psychedelic compounds, and novel approaches to treating substance use disorders, our field is expanding its boundaries with scientific rigor and clinical relevance. At the same time, we are increasingly called upon to engage with issues of access, equity, and the responsible use of emerging psychotropic medication and pharmacological tools. This reflects our observation of emerging interests that were actively discussed at the 2025 CPA Annual Convention, ranging from Ontario's developments in RxP (prescription privileges for psychologists) to psychedelic research and medication-focused psychodynamic frameworks. I am particularly grateful for the contributions by Psychopharmacology Section Executive members at the CPA Convention, including Dr. Velikonja, Dr. Richard, and Dr. Nussbaum.

This volume of the newsletter reflects the diversity and depth of our field, highlighting cutting-edge research, interdisciplinary dialogue, and global perspectives on prescriptive privilege. Precisely, the topics of the included articles range from discussions of sex differences in psychopharmacologic drug response, a call for action related to caffeine use among youth, a personal and historical overview of psychedelic drug policy, and the potential impacts of RxP policy in the United States.

For future volume of the newsletter, we are particularly excited and inviting in either in English or French brief letters, commentaries, and editorials, open forums, brief empirical studies' abstracts, early discoveries, that explore the integration of pharmacology with neuroimaging, neuromodulators (i.e., EEG, ERP, rTMS, VR), digital phenotyping, and personalized medicine—directions that hold great promise for more precise and humane interventions, in line with prescription privilege advocacy.

As always, I encourage all members, especially trainees and early-career scientists, to connect, question, and contribute. The future of psychopharmacology depends on our collective mentorship, collaboration, and ethical foresight.

Thank you for your continued engagement and passion. I look forward to the insights, challenges, and innovations this year's meeting will undoubtedly bring.

Warm regards,

Amir A. Sepehry, MSc, PhD, MACP.

Chair, Psychopharmacology Section

86th Annual Canadian Psychological Association National Convention: Advancing Psychopharmacology and RxP at CPA 2025

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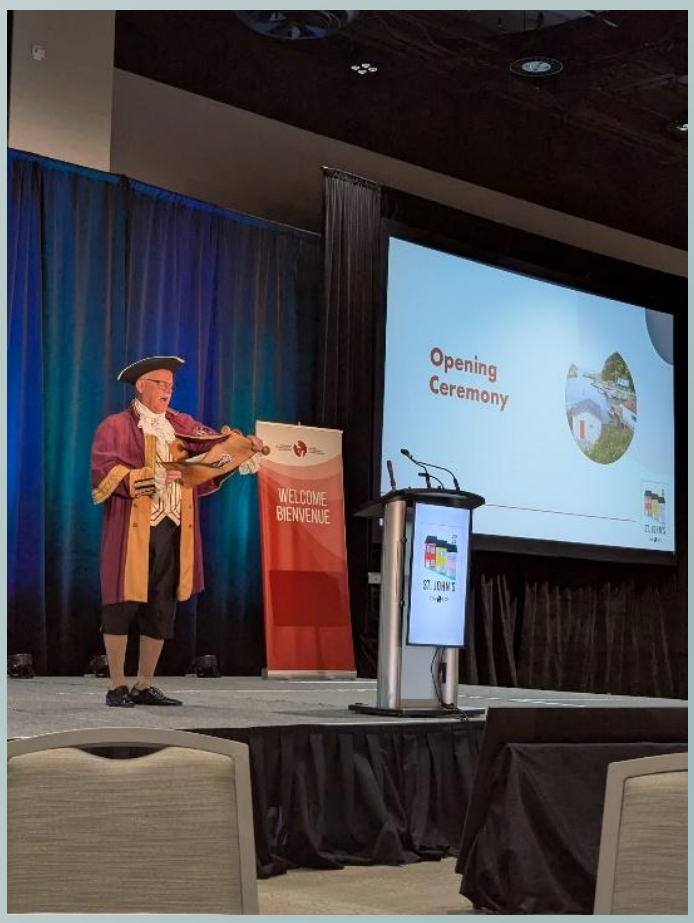
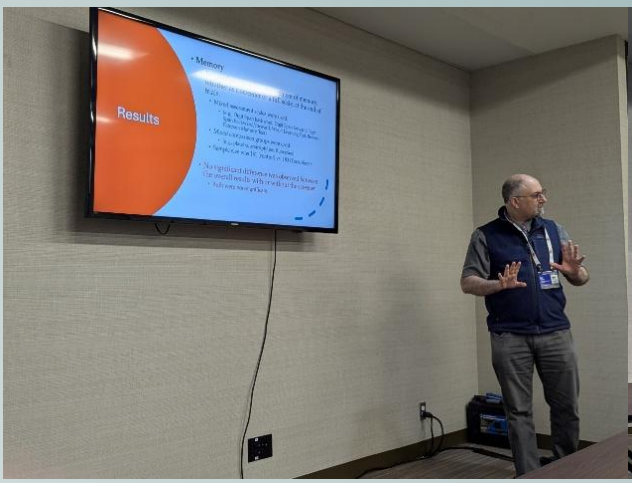


This year's CPA Conference took place in the vibrant and scenic city of St. John's, Newfoundland, from June 12th to 14th. Set against the backdrop of rugged coastline and rich local culture, the event brought together psychologists from across the country for three days of compelling discussions, groundbreaking research, and community building.

Across its many sections, the conference offered a series of inspiring keynotes and career talks centered around themes of growth, compassion, resilience, and innovation in prevention and treatment. One highlight included Dr. Sherry Stewart's work on anxiety sensitivity, shedding light on how shared psychological traits can help explain the comorbidity between disorders like anxiety and depression.

The Psychopharmacology Section had a particularly eventful schedule. Due to logistical challenges, our symposium was presented twice—once at 8:00 AM and again in the afternoon around 2:00 PM on June 14th. While the early morning session was lightly attended (as expected), the second round drew a crowd of about 30 engaged attendees.

In this symposium, Dr. Amir Sepehry shared a meta-analysis on the cognitive effects of trazodone. Dr. Jérémie Richard presented findings from a separate meta-analysis examining the use of ketamine for treating alcohol use disorder. Rounding out the session, Dr. Diana Velikonja offered a timely and practical update on the scope of practice for Canadian psychologists, focusing on the evolving conversation around prescription privileges for psychologists (RxP), and strategies for advocating its relevance to policy makers.



Beyond the symposium, Dr. Jérémie Richard also delivered a 12-minute talk presenting a qualitative analysis of over 1,400 firsthand accounts of psilocybin experiences. His research contributed to the development of a conceptual model capturing the overarching structure and shifting emotional tone of psychedelic journeys.

Adding to the section's impact, Dr. Erinn Bailey-Sawatzky and Dr. Carolyn Ortega hosted a well-attended, CPA-accredited workshop on RxP, drawing more than 40 participants and sparking thoughtful dialogue on the future of RxP in Canada.

In addition to its rich academic content, the conference made space for cultural immersion and community bonding. Attendees enjoyed live performances of traditional East Coast music and, for the adventurous among us, the chance to be "Screeched In"—a uniquely Newfoundland rite of passage. All told, the 2025 CPA Conference was a resounding success, blending cutting-edge science with cultural exchange and collaboration in the best spirit of Canadian psychology.

Sex Differences in Drug Response: Implications for Personalized Psychopharmacology

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The Imperative for Personalized Psychopharmacology

Literature has shown that both women and men experience adverse events when it comes to drug administration (Watson et al., 2019). In saying this, a "one-size-fits-all" approach to pharmacotherapy is repeatedly proving ineffective when it comes to treating individuals with medication. As research on novel treatments, combination strategies, and individualized approaches continues to advance, it is increasingly important to consider how personalized therapy, which is when medicine takes an approach that considers each patient's individual illness, may enhance the effectiveness of pharmacological treatment (Singh et al., 2023). One crucial factor to consider when it comes to individualized pharmacological treatments is sex differences. Whether it be the interplay between hormones (McEwan and Milner et al., 2017), brain chemistry (Cosgrove et al., 2007), body composition (Bredela, 2025), or lifestyle factors (Chang et al., 2019), sexes[1] have some inherent difference, and these differences should be considered when prescribing medication to patients. When it comes to mental health challenges, conditions which are often treated with medication, there are also differences in prevalence between sexes, with females being twice as likely to be diagnosed with depression or anxiety disorders compared to males (Wierenga, 2024).

This commentary will focus on certain differences between males and females that can influence drug response factors and how considering these differences might lead to improvements in the pharmacological treatment of depression.

Biological Factors Contributing to Sex Differences in Depression

Body Composition

Drug pharmacokinetics, the movement of the drug through the body, involves several steps including the absorption of the drug, its distribution throughout the body, and its ability to clear out of the body (Caldwell et al., 1995; Onetto & Sharif, 2025). Among the most important factors influencing pharmacokinetics are individual biological variables, including body fat percentage, lean muscle mass, and liver enzyme activity, all of which differ systematically between sexes.

[1] Based on the Canadian Institutes of Health Research (CIHR), "sex refers to a set of biological attributes in humans and animals. It is primarily associated with physical and physiological features including chromosomes, gene expression, hormone levels and function, and reproductive/sexual anatomy. Sex is usually categorized as female or male but there is variation in the biological attributes that comprise sex and how those attributes are expressed." This should be distinguished from gender which "refers to the socially constructed roles, behaviours, expressions and identities of girls, women, boys, men, and gender diverse people". For more information, visit: https://cihr-irsc.gc.ca/e/50836.html

On average, females tend to have a higher proportion of body fat and lower lean muscle mass compared to males. These differences can alter the volume of distribution for lipophilic (fat-soluble) drugs, leading to slower drug clearance and prolonged half-lives in females for certain medications (Gouju & Legeay, 2023). Additionally, these disparities may contribute to the higher incidence of adverse drug reactions reported by women, especially with psychotropic medications like antidepressants and anxiolytics (Zucker & Prendergast, 2020).

The research on drug pharmacokinetics that has to do with adipose tissue, or body fat, has identified the need to understand drug-dose adjustments regarding changes in adipose tissue between individuals (Gouju & Legeay, 2023). Furthermore, body composition is intricately linked to inflammation, another modulator of drug metabolism. For example, obesity is associated with chronic low-grade inflammation, which can affect the expression and activity of cytochrome P450 enzymes and other drug transporters (Wellen & Hotamisligil, 2025). These inflammatory processes may further differ by sex due to hormonal influences, with estrogen having immunomodulatory effects that shape the inflammatory profile in women.

Recent psychiatric research has shown that inflammation markers such as C-reactive protein (CRP) correlate with changes in psychotropic drug metabolism (Pfuhlmann et al., 2009; Hefner et al., 2016; Ruan et al., 2018). These findings suggest that sex-based differences in body composition and inflammation may contribute not only to variation in drug response, but also to sex-specific vulnerability to side effects or treatment resistance.

Significantly, these physiological differences impact pharmacokinetics and pharmacodynamics—how drugs interact with their targets in the body and elicit biological responses. This reinforces the importance of considering individual body composition and inflammation status when assessing drug metabolism and efficacy between sexes.

Hormonal

Hormonal influences are also a key player in drug pharmacokinetic differences between males and females. For instance, on average, adult females have significantly higher levels of the sex hormone estrogen compared to adult males. Elevated levels of estrogen have been hypothesized as having a role in the development of depression while altering the pharmacokinetic effects of antidepressants (Sramek, 2016). More evidence for the influence of female hormonal factors and their significance to medication is that the incidence of depression is similar to that of men after menopause (Bebbington, 2023).

Mechanistically, many sex hormones, including estrogen, progesterone, and testosterone, interact with the serotonergic system, a key target of several pharmacological agents and the primary target of SSRIs, a commonly prescribed drug for psychiatric conditions, as well as in off-label conditions, including fibromyalgia, autism, dysmorphic disorder, as well as others (Chu & Wadwha, 2025; Coleiro et al. 2001).

Together, these findings illustrate how sex hormones influence both the risk of psychiatric conditions and the pharmacokinetics of their treatments, reinforcing the importance of hormone-aware prescribing practices.

GI Physiology and Drug Absorption

Gastrointestinal physiology (GI) also differs between sexes, both anatomically and physiologically, and can influence key processes in drug pharmacokinetics. Some of the differences in GI physiology include changes in luminal pH, which can affect drug dissolution and reabsorption (Freire et al., 2011). This difference is not fully understood but has been thought to be due to stomach size and hormonal differences (Freire et al., 2011). Fluid volumes are also different between sexes, with studies showing that postprandial changes in gastric volume are higher in males (Freire et al., 2011). Other key GI parameters also differ between males and females, including gastric emptying rate, intestinal motility, and gut transit time (Freire et al., 2011).

These sex-based differences in GI function have important clinical implications. For drugs with a narrow therapeutic window, delayed or reduced absorption in women could result in suboptimal plasma concentrations, impacting treatment outcomes. Conversely, slower clearance could lead to accumulation and increased side effects. These physiological variables may also explain part of the variability seen in drug response and side effect profiles between men and women, reinforcing the need for sex-specific considerations in drug formulation, dosing, and delivery routes.

How These Biological Factors Influence Antidepressant Pharmacology

Building on the pharmacokinetic and pharmacodynamic differences discussed above, this section explores how sex influences antidepressant efficacy and side effect profiles, with particular attention to the role of hormonal regulation.

Selective serotonin reuptake inhibitors (SSRIs) and serotonin-norepinephrine reuptake inhibitors (SNRIs) are two common groups of pharmacological agents prescribed for a variety of conditions, including anxiety and depression (Chu & Wadhaw., 2025). As previously mentioned, women have been found to experience depression at a higher rate than men (Wierenga, 2024). Considering the individual factors described in the previous section that strongly influence drug dynamics, it is important to investigate the literature examining differences in drug response. As has been identified in the literature, not everyone responds well to SSRIs as well as other prescription medications (Maslej et al., 2021), with this response often being different not only between individuals, but also between sexes (Green et al., 2025). It is relevant to note that women also have a higher rate of antidepressant use, with 1 in 5 women reporting antidepressant use compared to 1 in 9 men between 2019 and 2022 in Canada (CAMH. 2025).

SSRIs and SNRIs specifically target the serotonin system (with SNRIs also targeting the norepinephrine system). Interestingly, studies often show mixed findings on antidepressant efficacy between sexes, showing greater efficacy in males, greater efficacy in females, or no difference (Sramek, 2016; Moderie et al., 2022). These mixed findings, rather than complicating the role of biological factors, underscore the critical need to investigate underlying sex-based biological mechanisms, particularly hormonal influences, to explain varied antidepressant efficacy that we are seeing in the literature.

Another factor previously discussed is hormones. Hormones have been shown to play a complex role in individual responses and experiences with antidepressants. For example, fluctuations in estrogen levels can affect serotonin levels and receptor activity, as estrogen has been shown to target the serotonin receptors, which are the primary targets for SSRIs (Hildebrandt et al, 2010; Hudon Thibeault et al., 2019). Considering this, it would be reasonable to think that the same dose given to men and women might affect women differently due to the alterations in serotonin naturally produced by their hormones. Another hormonal

factor in antidepressant efficacy is testosterone in men. Although not as well understood, it is known that androgens can influence the cytochrome P450 enzyme, but the specific influence on antidepressants is not apparent (Pavlidi et al., 2017).

Understanding these hormonal influences is critical for explaining the mixed findings in antidepressant efficacy and the differential side effect profiles observed between sexes. It suggests that a one-size-fits-all approach to antidepressant therapy may not be optimal and underscores the importance of personalized medicine that accounts for biological sex and hormonal status.

Implications for Personalized Psychopharmacology

The accumulated evidence across drug classes underscores the critical need to incorporate sex as a fundamental variable in psychopharmacological treatment. Recognizing and accounting for biological sex differences—whether in pharmacokinetics, pharmacodynamics, hormone fluctuations, or neurobiological targets—can influence the effectiveness and safety of psychiatric medications. Several key strategies should be considered to translate these insights into clinical practice.

First, the routine collection and stratification of clinical trial data by sex is essential. Historically, women have been significantly underrepresented in clinical trials, or comprehensive sex- and gender-based analyses haven't been conducted. It's crucial to differentiate between sex and gender. Sex refers to biological attributes like chromosomes, reproductive organs, and hormones, which influence drug metabolism and response. Gender, on the other hand, is a social construct encompassing identity, roles, behaviors, and societal expectations. While often used interchangeably, these distinct yet interrelated factors both influence health outcomes and drug responses. This oversight means that safety and efficacy data, primarily based on male cohorts, may not accurately reflect the experiences of individuals across the full spectrum of sexes and genders, leaving significant knowledge gaps (CIHR, 2023).

Second, developing sex-specific dosing guidelines or treatment algorithms could significantly optimize therapeutic outcomes. Similar to how pediatric and geriatric populations require tailored approaches, so too may males and females. As previously detailed, estrogen profoundly influences the serotonin system, affecting serotonin synthesis, reuptake transporter activity, and the expression and sensitivity of serotonin receptors. These estrogen-mediated alterations mean that the same antidepressant dose might lead to different effective serotonin concentrations or receptor engagement in women compared to men, or even at various points in a woman's reproductive life. For example, a dose therapeutic for a man might be effectively higher or lower for a woman depending on her hormonal status. While more research is needed, testosterone in men and estrogen in women can also modulate cytochrome P450 (CYP) enzyme activity, critical for drug metabolism. If an antidepressant is primarily metabolized by a CYP enzyme influenced by sex hormones, sex-specific differences in enzyme activity could alter drug plasma concentrations, potentially necessitating dosage adjustments for equivalent therapeutic levels and minimal side effects. Furthermore, the observation that women often experience higher rates of adverse drug reactions (Zuker & Pendergast, 2020) strongly supports the need for sex-specific dosing. Higher sensitivity to certain side effects might mean a lower starting dose or more gradual titration is appropriate for women, even if primary efficacy is similar. Finally, the mixed findings on antidepressant efficacy between sexes (Sramek, 2016; Moderie et al., 2022) underscore the inadequacy of a "one-size-fits-all" approach, suggesting that optimal dosing and drug selection may indeed differ by sex for certain compounds.

Third, clinical education and awareness must be at the forefront. This includes understanding how hormonal states (e.g., menstrual cycle, menopause, testosterone decline) can interact with drug efficacy and side effect profiles, and being prepared to adjust regimens accordingly.

Lastly, future research should uncover the mechanistic underpinnings of sex-based differences in drug response. This could include examining genetic polymorphisms, sex hormone interactions with neurotransmitter systems, and sex-specific inflammatory markers or metabolic pathways. These strategies pave the way for a more nuanced, equitable, and practical approach to psychiatric care.

Moving Towards Sex-Informed Psychopharmacology

Understanding sex differences in drug response is no longer a niche consideration—it is a cornerstone of personalized medicine. As underscored in the present paper, males and females have differential rates of psychiatric diagnoses and differing responses to antidepressant treatments. A complex interplay of hormones, brain chemistry, body composition, and genetic factors could shape these differences. A sex-informed approach to psychopharmacology offers the potential to enhance treatment precision, reduce adverse effects, and improve patient outcomes.

As we move forward, the challenge is not just to generate more data, but to act on what we already know—by updating practice guidelines, reforming medical education, and embedding sex as a key variable in research and clinical care.

Ultimately, embracing sex differences is not about reinforcing binary thinking—it is about recognizing and responding to the biological variability of human health. In doing so, we move closer to truly personalized psychopharmacology, where every patient gets the proper treatment at the correct dose and time.

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“Stopped at Starbucks, But Bottled in Supplements: A Call for Action on Caffeine Access in Youth”

Gurjot Chhina, Psy.D. Candidate & Amir A. Sepehry, M.Sc., Ph.D., MACP

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Many parents across North America caution their children against drinking coffee, a psychoactive compound, citing concerns about age-related development and health effects. Yet, paradoxically, these same youth can walk into gas stations, supermarkets, supplement shops, or browse online retailers and legally purchase energy drinks, caffeine pills, or pre-workout supplements that contain equal or even greater quantities of caffeine-containing products, along with a cocktail of additional stimulants and compounds unregulated by either the Health Products and Food Branch (HPFB) or Food and Drug Administration (FDA). This overlooked inconsistency highlights a significant gap in public health policy and youth consumer protection.

As we train to look beyond marketing labels and into the complex physiological and cognitive impacts of substances through psychopharmacology, we see that the active ingredients in caffeine and caffeine-related supplements (e.g., caffeine, beta-alanine, taurine, and synephrine) are not totally benign. Caffeine, a central nervous system stimulant, primarily functions through adenosine receptor antagonism, which leads to increased dopamine and norepinephrine release, particularly in the striatum and prefrontal cortex (de Bem Alves et al., 2023). This results in heightened alertness, improved attention, and increased reaction time (Harty et al., 2018)—effects that are often celebrated by people around the world, athletes and students alike. However, in developing brains, the consequences are far more nuanced (Harty et al., 2018). With developing brains, caffeine’s interference with adenosine signaling can disrupt neural maturation, sleep, and emotional regulation. For instance, chronic caffeine intake during adolescence has been associated with increased anxiety sensitivity, and sleep disturbances—both of which may interfere with cognitive development and emotional resilience (Harty et al., 2018; Temple et al., 2017).

The pharmacokinetics (what the body does to a drug) of caffeine reveal a rapid and nearly complete gastrointestinal absorption profile, with 99% bioavailability (the proportion of a substance which enters the circulation when introduced into the body and so is able to have an active effect) and peak plasma concentrations typically occurring within 45 minutes (Grzegorzewski et al., 2022). Its half-life ranges from 3 to 7 hours in healthy adults but is extended in children, pregnant individuals, and those with altered CYP1A2 enzyme function (Institute of Medicine, 2001, p.45). This enzyme is responsible for metabolizing caffeine into three primary active metabolites: paraxanthine, theobromine, and theophylline—each with their own stimulant or vasodilatory properties (de Bem Alves et al., 2023). In children and adolescents, the liver enzymes responsible for metabolizing caffeine—particularly CYP1A2—are not yet fully mature, especially in younger children (Abdel-Hady et al., 2015).

Additionally, renal clearance, which is the kidneys' ability to remove substances from the bloodstream and excrete them in urine, is still developing. As a result, caffeine stays in younger consumer's system longer than in adults, leading to prolonged and potentially more intense effects from even small amounts of caffeine (e.g., soda, chocolate, energy drinks) thereby exacerbating both its desired and adverse effects (Abdel-Hady et al., 2015). Even at modest or typical doses, immature liver and kidney function in young children can result in prolonged caffeine exposure, though the risk of severe adverse events becomes more pronounced with sustained or higher levels of intake.

Numerous case reports and incident data underscore serious risks associated with caffeine use in children and adolescents. A particularly striking case involved a 12 year old boy who, after ingesting a sub toxic dose of caffeine (15 mg/L is toxic, a level of 80–100 mg/L is generally considered lethal), developed aggressive behavior, hallucinations, circulatory collapse, metabolic acidosis, and multisystem complications—despite only moderate consumption (Adeleye et al., 2023). Another report detailed a 15-year-old girl who intentionally ingested caffeine-containing analgesic tablets to die by suicide, resulting in toxicity levels exceeding the adult lethal threshold, accompanied by gastrointestinal distress, tachycardia, hypokalemia, and requiring intensive care (Horikawa et al., 2021). Furthermore, recent research from Delhi, India found that 97% of surveyed adolescents consumed caffeine daily, with average intake of 121 mg/day and 6% exceeding 300 mg/day—significantly higher than figures reported in the US and Australia (Gera et al., 2016). These cases emphasize that caffeine, especially in concentrated forms, can precipitate severe neuropsychiatric, cardiovascular, and metabolic crises in developing individuals. While rare, these cases highlight the severity of possible outcomes.

Shifting from mechanisms to meaning, the pharmacodynamic (what a drug does to the body) profile offers deeper insights. More concerning are the pharmacodynamic interactions such as insomnia, tolerance, and eventual dependence in young users (de Bem Alves et al., 2023). In children and adolescents, the prefrontal cortex—the region responsible for executive functioning, impulse control, and decision-making—continues to mature well into the mid-twenties (Salthouse, 2009). Introducing potent stimulants during a sensitive developmental window may dysregulate endogenous neurotransmitter systems, particularly dopaminergic circuits, which can impact mood regulation, reward sensitivity, and even contribute to long-term neural adaptation (de Bem Alves et al., 2023). Chronic exposure to high doses of caffeine and related stimulants may increase the risk for anxiety disorders, sleep disturbances, irritability, and, in vulnerable individuals, substance use disorders (de Bem Alves et al., 2023). For example, severe anxiety that occurs only in the context of heavy coffee consumption would be diagnosed as caffeine-induced anxiety disorder, highlighting how high intake can directly trigger clinically significant psychiatric symptoms (American Psychiatric Association [APA], 2022). Similarly, insomnia occurring only in the context of heavy coffee consumption would be diagnosed as caffeine-induced sleep disorder, insomnia type, with onset during intoxication, illustrating the profound impact of caffeine on youth sleep and mental health.

In addition to caffeine-induced anxiety and sleep disorders, it is important to note that caffeine withdrawal itself is classified as a distinct disorder in the Diagnostic and Statistical Manual of Mental Disorders Fifth Edition, Text Revision (DSM-5-TR). Symptoms of caffeine withdrawal disorder can include headache, marked fatigue, decreased energy, drowsiness, difficulty concentrating, irritability, depressed mood, and flu-like symptoms, which can impair functioning at home, school, or work. This highlights that dependence and withdrawal are clinically significant outcomes of sustained high caffeine intake, especially concerning in adolescents whose developing brains may increase vulnerability to dependence.

Neuropsychologically, we must also consider caffeine's role in modulating limbic system activity (Harty et al., 2018). While moderate caffeine use has been linked to improved memory and potentially enhanced cognitive flexibility, it also heightens amygdala activity, especially when consumed alongside other stimulants or under stress in adult humans (Harty et al., 2018) Youth populations—already navigating identity development, academic stress, and social pressures (Turner et al., 2023)—may be especially susceptible to the emotional dysregulation exacerbated by unregulated stimulant use that affects their sleep (de Bem Alves et al., 2023)

The reality is stark. While school policies and public health messaging caution against energy drinks and sugary sodas, caffeine-related supplements, energy drinks, and pre-workout powders containing 200–400 mg of caffeine per scoop remain available without age restriction or mandatory dosage disclosure, such as Redcon1's Total War Pre-workout. Some products even contain proprietary blends that obscure the exact quantities of each ingredient, undermining informed consent and safe use, including energy drinks such as Rockstar, Monster, and Red Bull. Moreover, combinations with other stimulants (e.g., yohimbine, DMAA analogs) pose synergistic cardiovascular and psychiatric risks.

Clinically, we are beginning to see the consequences. Case studies such as the "Grandma Coffee" incident (Ohta & Sano, 2022) underscore how stimulant overuse—even caffeine alone—can precipitate serotonin syndrome, neuroleptic malignant syndrome, or hypertensive crises (Harty et al., 2018). Although this case involved an older adult with comorbidities, it highlights the fragility of the balance between dose, metabolism, and safety—particularly when medical supervision is absent. Regarding the Geras et al. (2016) study, evidence from the study suggested that while most adolescents knew their beverages contained caffeine, their average consumption still far exceeded international norms, suggesting that awareness alone is insufficient and must be paired with education on safe limits.

Given these risks, we propose the following advocacy strategy:

1. Federal and Provincial Regulation of Supplement Sales to Minors:

While adolescents in Canada can obtain a driver's license as early as age 16, this privilege is typically accompanied by structured training, supervision, and gradual responsibility (e.g., graduated licensing). Correspondingly, just as tobacco, alcohol, and cannabis require age verification, pre-workout supplements containing over 100 mg of caffeine per serving should be restricted to individuals over the age of 18. Regulatory bodies, such as Health Canada and the FDA in the United States, should mandate standardized labelling of all active compounds and eliminate proprietary blends that mask the true dosage.

2. Mandatory Pharmacological Education (i.e., psychoeducation) for Retailers and Consumers:

While basic health and safety information is often printed on supplement packaging, vendors should be required to clearly communicate this information—especially to youth and parents—in ways that are accessible, understandable, and not buried in fine print. Just as pharmacists counsel patients on prescription drugs, fitness supplement sellers should be trained to screen for contraindications, such as psychiatric conditions or medication interactions (e.g., SSRIs + caffeine = serotonin syndrome risk).

3. School-Based Health Curriculum Reframe:

Health education should include modules on how common supplements affect the brain and body, including caffeine metabolism variability, adverse effects, and interactions with mood, cognition, and medication. Students must understand that "natural" does not always mean "safe," especially in the context of polypharmacy and unregulated substances.

4. Balanced Regulation with Harm Reduction Principles:

To avoid pushing caffeine-related products into unregulated or underground markets (which can worsen risks by eliminating oversight and quality control), any new regulations should be paired with harm reduction strategies. This includes ensuring safe, legal access to regulated products with clear labelling, investing in public education to promote informed decision-making, and avoiding punitive approaches that could stigmatize youth or lead to covert use. Policymakers should engage consumers such as youth, parents, educators, stakeholders, healthcare providers, and industry representatives to co-create guidelines that reduce harm without creating unintended markets or driving youth toward riskier behaviours and situations to obtain caffeine-related products.

In sum, the current regulatory blind spot on pre-workout stimulant use in youth is not only a policy failure—it's a public health hazard. From a psychopharmacological and neurodevelopmental standpoint, we know sufficiently to not stay silent. Just as parents have drawn a very thin and malleable line to protect minors, so too must the supplement industry and our legislative bodies. As clinicians, first steps towards learning more about pre-workout stimulant use does not need to be a radical change in how we approach therapy; asking questions as to if a client consumes caffeine and how they consume caffeine (e.g., coffee, energy drinks, pre-workout) could be an effective means to gain information during an intake interview, for instance. Clinicians should also be aware that caffeine can interact with a range of psychotropic medications, including stimulants (e.g., methylphenidate), certain antidepressants (e.g., SSRIs, SNRIs), and antipsychotics, potentially exacerbating side effects such as anxiety, insomnia, hypertension, or, in rare cases, serotonin syndrome (Harty et al., 2018).

To protect youth mental health, we must shift from market permissiveness to science-informed oversight. The idea that a cup of coffee is more dangerous than a Monster Energy drink or a brightly marketed supplement with a name better suited to a toy than in a clinical setting must no longer be treated as harmless. Though coffee in youth presents itself as a somewhat parallel problem, typically with coffee, one does not have to be concerned with concentrated doses, proprietary blends, lack of labeling, and marketing to youth as in pre-workouts. If we care about the cognitive and emotional development of the next generation, then it's time we matched our policies with the science.

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Peyote, Prayers and Populism

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My father ran bootleg gin in Atlantic City during Prohibition. He and millions of other mostly law-abiding Americans thought little of violating the Eighteenth Amendment of the U.S. Constitution, which prohibited the manufacture, transportation, sale, importation into and exportation from the United States of "intoxicating liquor," and had been ratified in 1919. By 1933, when it was repealed, alcohol consumption was estimated to have risen to 60-70 percent of pre-Prohibition levels, later to return virtually to baseline (Miron & Zweibel, 1991).

Fall 1970: Even a clueless college freshman (me, in this instance) quickly realized how readily available pot was at this particular bastion of academia. That distinctively tart scent seemed to waft through every hallway in my dormitory. Small wonder. According to a study by Johnson and Gerstein (1998), 21 percent of the cohort born between 1946 and 1950 had tried marijuana. For those of us in the 1951-1955 range, the comparable figure was nearly double: 40 percent. The Baby Boomers had arrived.

The authors further documented that 13 percent of the 1951-1955 age cohort had experimented with hallucinogens by age 21, even though these substances (as well as marijuana) were illegal at that point. They were classified as Schedule I drugs ("high potential for abuse…no currently accepted medical use") under the *Comprehensive Drug Abuse and Control Act of 1970* (U.S. Public Law 91-513, 84 Stat. 1236), as the so-called "War on Drugs" got underway in the United States. Several hallucinogens remain on the list to this day, including LSD, MDMA, ibogaine, mescaline, peyote, and psilocybin (U.S. Drug Enforcement Administration, 2024).

After decades of legal suppression, hallucinogens, now commonly referred to as "psychedelic drugs," are again under investigation for their potentially therapeutic benefits, marking a return to the clinical research that flourished in the field during the mid-twentieth century. Healthcare practitioners, including psychologists, are paying attention and making plans.

Whose Wellbeing Is It, Anyway?

Consumers in those two distinct eras ignored, subverted or defied unpopular laws to obtain and consume their preferred psychoactive substances, accepting the attendant legal and health risks as they understood them in return for the subjective benefits they anticipated. In retrospect, Prohibition was clearly doomed from the start. As it was with booze, it has proven impossible to eliminate the use of illegal "street" drugs. In the face of the resources required to combat the opioid epidemic, American law enforcement has effectively, if not entirely, conceded the point with respect to the personal use of less lethal substances such as marijuana and hallucinogens.

You might know people who have smoked dope throughout their adult lives. Perhaps they share prescription medications – sleeping pills, Xanax, or painkillers – with friends or family. Maybe others you know micro-dose LSD or enjoy club drugs. Maybe you do.

And perhaps you view these practices as recreational, a benign form of self-medication, peer-to-peer healthcare, and/or paths to spiritual enlightenment and healing, but you likely consider them nobody else's business. For centuries, people have challenged standard-of-care medical practices (some of which were, in fact, harmful: bloodletting performed by George Washington's physicians contributed directly to his death) or sought access by legal or other means when denied treatment they wanted. Sometimes they simply ignored the received medical wisdom and relied on folk remedies or prayer. Opposition to variolation (the precursor of inoculation and vaccination) against smallpox began as soon as the practice spread across Europe and North America during the 1700s (Porter, 1999), foreshadowing the contemporary, internet-amplified, "anti-vax" movement.

Other examples of grassroots healthcare activism, or what I call healthcare populism – a politically unvalenced term as I use it here – come readily to mind. There have been women's reproductive healthcare initiatives in the face of legal restrictions (see especially the "Jane" underground abortion service operated by women in Chicago prior to legalization), street theater HIV-AIDS medication advocacy (the ACT-UP movement during the 1980s), the assisted suicide (now the Medical Assistance in Dying, or MAID) movement (Remember Dr. Jack Kevorkian?), and the medical marijuana coalition, to name a few.

Here in the United States, the "Make America Healthy Again" (or "MAHA") movement is a particularly prominent manifestation. Healthcare populism is fundamentally a reactance phenomenon, often communal, grounded in skepticism of and/or frustration with the healthcare establishment and a desire on the part of adherents to maintain or retake control of their personal health and wellbeing as they understand them. It is inherently system-challenging in any form. When a healthcare populist initiative taps into a pre-existing, broadly shared concern, it may grow into a powerful political movement. Group activities in furtherance of their respective aims may be legal, illegal, or both. It is within this context that interest in psychedelic drugs is resurgent.

American military veterans have been pivotal in shifting attitudes toward several important health-related policies here in the United States. Galvanized by climbing casualty rates and the seeming futility of the American presence in Vietnam, their collective moral authority was critical in turning public opinion against the war. Subsequently, they lobbied successfully for recognition of and treatment for post-traumatic stress disorder (PTSD) as a predictable consequence of combat experience (Friedman, 2025; Shorter, 1997), and similarly for care related to exposure to Agent Orange, a chemical defoliant weaponized by the United States during the conflict (Hansen, 1981). And many are active once more, championing the putative therapeutic benefits of hallucinogenic drugs.

Psychedelics Are Having a Moment -- Again

"I wish I could talk in Technicolor."

- Research subject, VA Hospital LSD research in the 1950s. (n.d.)

Cary Grant dropped acid. Legally. The star of such films as *North by Northwest* took LSD more than 70 times under medical supervision in the late 1950s and early 1960s, publicly proclaiming its therapeutic benefit and helping catalyze a brief era of psychedelic research and treatment (Breen, 2024).

The recent history of psychedelics in Western society, dating from the late nineteenth century, is a syncretic thread of Indigenous spiritual practices, industrial chemistry, field anthropology, hot and cold wars, and demographic trends. For a moment, it seemed like they might be wonder drugs, perhaps sanctioned by the relevant regulatory agencies. The heyday was brief, however. By the late 1970s, the first modern era of scientific investigation into the therapeutic effects of psychedelics had come to an end, suppressed by political calculus, draconian criminal penalties, and Cold War paranoia (Breen, 2024).[2]

Hallucinogens are the focus of renewed research interest, notably in the U.S. Veterans Health Administration (VHA, formerly the Veterans Administration) (Wolfgang et al. 2024; U.S. Department of Veterans Affairs, 2024). Currently, there are eight separate studies being conducted involving psilocybin or MDMA at various VA Medical Centers. Two others have been completed (G. Kunich, U.S. Department of Veterans Affairs; email, 6/25/25).

Most of these drugs remain illegal according to American and Canadian federal law (albeit select psychedelics have been decriminalized for personal use in a few states and provinces), so some people seek them by unsanctioned means. For example, in a survey of Canadians who had used any of 11 psychedelic drugs in the previous year, the majority had obtained them from a friend or acquaintance, while about half reported that they had obtained the drugs online, and the majority ranked the internet as their *preferred* method. Obtaining the drugs from a clinic or healthcare professional ranked third (Lake & Lucas, 2023).

The focus here is on users' experiences with hallucinogens and subjective cost-benefit, that is, *their* frames of reference, not ours. Accordingly, I won't describe them as "patients," either, because users – or seekers of healing and/or enlightenment and/or enjoyment – may not see themselves as patients in any sense. They may even be antagonistic toward the healthcare establishment (as in the "anti-vax" and "anti-psychiatry" movements). Let's call these healthcare populists "experiencers."

Psychedelics: Activism and Access

"It defragged my brain in a way that allowed it to heal," he said of the ayahuasca retreat..."It definitely saved my life."

- Jesse Gould, U.S. military veteran (Jacobs, 2023)

For present purposes, two particular access routes – methods of bypassing legal and regulatory barriers – to hallucinogenic drugs are relevant:

U.S. Military Veterans and Psychedelics

In the twenty-first century, the impact of war on American soldiers again contributed to a shift in U.S. government policy. Involvement in Middle East conflicts during the first two decades of the twenty-first century led to over seven thousand U.S. combat deaths (U.S. Department of Defense, 2025). Many soldiers returned home with chronic behavioral and mental health disorders such as PTSD. Several thousand

[2] There was a dark side to psychedelic research, one focused on mind control, or "brain washing." See "Further Reading" for more information.

veterans (including but not limited to those serving in Iraq and/or Afghanistan) have taken their own lives each year since 2001 with an average of 17.6 suicides a day in 2022 (latest available figures; U.S. Department of Veterans Affairs, Office of Suicide Prevention, 2024). Many of them had utilized VHA healthcare services prior to ending their lives (U.S. Department of Veterans Affairs, Office of Suicide Prevention, 2024). Frustrated at their lack of symptom relief from standard medical and mental health interventions for service-related trauma, some veterans began experimenting with a variety of psychedelic drugs. Approximately one half of veteran respondents in a recent survey (Davis, Bates, Lund et al., 2024) reported having used psychedelics, and some have begun lobbying to legalize psychedelic drugs for therapeutic purposes (Jacobs, 2023): Jose Martinez, a former Army gunner whose right arm and both legs were blown off by a roadside bomb in Afghanistan, has a new calling: He's become one of the most effective lobbyists in a campaign to legalize the therapeutic use of psychedelic drugs across the country.

On a Zoom call this spring with Connie Leyva, a Democratic legislator in California who has long opposed relaxing drug laws, Mr. Martinez told her how psilocybin, the psychoactive ingredient in "magic" mushrooms, had helped to finally quell the physical pain and suicidal thoughts that had tormented him.

Ms. Leyva says she changed her mind even before the call ended, and she later voted yes on the bill, which is expected to become law early next year.
Other veteran experiencers have sought out psychedelic therapy via different routes. One is through a new form of medical tourism: traveling to countries where psychedelics are legal and where programs utilizing these drugs are offered. The Heroic Hearts Project (n.d.), started by a former Army ranger, helps combat veterans access treatment programs based in other countries.[3]

Psychedelic Churches

In the United States and Canada there are a few instances wherein religious groups have gained the right to use entheogens (non-pharmaceutical psychedelics) in their rituals. Paralleling the activism of U.S. military veterans, the Rev. Dr. Jessica Rochester successfully sought recognition of the Céu do Montréal as a legitimate religion and received authorization to use sacramental ayahuasca, which contains the psychoactive compound dimethyltryptamine (DMT) (Rochester et al. 2022).

In the United States, a similar route has involved religious groups asserting their right to use psychedelics under the First Amendment of the U.S. Constitution, which guarantees freedom of religion (Londoño, 2024). As an established religion in the United States, members of the Native American Church are permitted to use peyote in their ceremonies (U.S. Department of Justice, Office of Legal Counsel, 1981).

Another religious group prevailed at the U.S. Supreme Court in *Gonzales v. O Centro Beneficente Spirita Uniao Do Vegetal et al.* (2006), where the justices found that the government had failed to prove that it had a compelling interest in denying the use of ayahuasca in the face of religious freedom laws.

The Céu do Montréal (2025) explicitly avoids any claims with respect to "healing," but worship of various kinds traditionally involves elements conducive to emotional well-being, personal growth or spiritual uplift. To the extent individuals and organized groups attend psychedelic church services specifically for emotional healing, activism on behalf of these institutions reflects a healthcare populist approach to obtaining preferred care through this route.

[3] No endorsement of any psychedelic-related service or organization mentioned here is implied or intended.

Psychedelics and Spirituality

"The gods are what we now call hallucinations."

- Julian Jaynes (1976/1990, p. 74)

Did human consciousness begin as hallucinatory experiences? That's one theory, espoused in Julian Jaynes's book On the Origin of Consciousness in the Breakdown of the Bicameral Mind (1976/1990). And were psychedelic drugs central to humankind's earliest religious practices, a foundational component of the earliest Christian Eucharist? There's evidence that they were used sacramentally by the Greeks, Romans and Egyptians, as well as by Indigenous tribes in parts of the Americas thousands of years ago (Cox, 2024; Tanasi et al., 2024).

Muraresku (2020) even posits psychedelic "drugged wine" as constituting a direct continuity between the cult of Dionysus and the Christian sacrament of the Eucharist: "The immortality potion is what unites the Ancient Greeks of the final centuries BC with the paleo-Christians of the early centuries AD" (p. 221). It's quite a controversial claim, but whether this particular connection proves out with time, it's clear that there are spiritual, if not formally religious, elements involved in many latter-day psychedelic practices. Edward Londoño (2024), a journalist and participant-observer with an acknowledged history of severe depression, reported after an ayahusaca retreat in Brazil, "If this was actually a cult, I definitely wanted in" (p. 35)

As Americans (Pew Research Center, 2022) and Canadians (Pew Research Center, 2013) have drifted away from mainstream religious – mainly Protestant and Catholic -- affiliation over the last several decades, interest has increased in alternative spiritual, e.g., "New Age," beliefs and practices. No discussion of psychedelics and other consciousness-altering substances is complete without reference to the spiritual quality of these "non-ordinary" or "altered" states of consciousness ("NOSC" or "ASC") that appeals to many experiencers, something that has been recognized in Western medicine for over a century. Here's William James in his classic book *The Varieties of Religious Experience* (1902/1958, p. 298):

Nitrous oxide and ether, especially nitrous oxide, when sufficiently diluted with air, stimulate the mystical consciousness to an extraordinary degree. Depth beyond depth of truth seems revealed to the inhaler…Some years ago I myself made some observations on this aspect of nitrous oxide intoxication, and reported them in print. One conclusion was forced upon my mind at that time, and my impression of its truth has ever since remained unshaken. It is that our normal waking consciousness, rational consciousness as we call it, is but one special type of consciousness, whilst all about it, parted from it by the filmiest of screens, there lie potential forms of consciousness entirely different.

Or more recently, Abraham Maslow:

In the last few years it has become quite clear that certain drugs called "psychedelic," especially LSD and psilocybin, give us some possibility of control in this realm of peak-experiences. It looks as if these drugs often produce peak-experiences in the right people under the right circumstances, so that perhaps we needn't wait for them to occur by good fortune. Perhaps we can actually produce a private personal peak-experience under observation and whenever we wish under religious or non-religious circumstances. (1970/1994, p. 27)

For “peak-experience,” we might substitute terms like “satori,” “epiphany” or “cosmic consciousness” (the latter term coined by a Canadian psychiatrist, Richard Maurice Bucke, MD). The historical perspective reflects the conjoining of psychedelics and spirituality in NOSC/ASC, and an abiding, perhaps innate yearning for transcendence, for reaching beyond one’s own consciousness.

It seems to me that, whether or not hallucinogens are the best way to achieve such a state, this desire could reflect a healthy, active, inquiring mind, not necessarily one in need of mental health interventions. Ultimately, it’s for the experiencers to decide and, I would suggest, for psychologists to be wary of preemptive judgments about the potential spiritual and healing value of psychedelics.

For Psychologists: Psychedelics and the Practice Space

“This we prescribe, though no physician.”

- William Shakespeare, Richard II, Act I, Scene I

The regulated healthcare professions are late to the psychedelic-assisted therapy field and those seeking to enter it may find themselves in competition with established non-traditional providers. Even seasoned psychedelic experiencers who frame their interests in terms of healing (rather than spirituality or recreation) may prefer an experienced lay “trip sitter,” perhaps a trusted friend, to a credentialed “intervention facilitator.” How would psychologists access that target population, gain their trust, and convince them of the incremental value of their services?

One advantage is the ethical codes that medicine, psychology, and other healthcare professions have. In the heterodox psychedelic community, there are unscrupulous providers, as Londoño (2024), himself a supporter, acknowledged: “Among the innovative and thoughtful healers in this nascent, unregulated marketplace for alternative mental health care, I found plenty of scammers, predators, and charlatans” (p. 41).

Yet two licensed physicians provided the actor Matthew Perry with ketamine (which may be legally prescribed in the United States) in quantities that led to his death (Stone & Delisi, 2024; Vigdor, 2025). Accordingly, this is a cautionary tale for psychologists who would enter this specialized field – and marketplace. Treading carefully is in order, particularly as most of these drugs remain illegal at the federal level. I suspect psychedelics have an added allure for those prone to thrill-seeking – reason enough for careful reflection regarding one’s motivations for practicing psychedelic-assisted therapy.

There’s certainly no shortage of interest these days. Twenty-three continuing education sessions focused on psychedelics were offered at the American Psychological Association Convention this year (X-CD Technologies, 2025). And there are already specialized professional societies such as the American Society of Ketamine Physicians, Psychotherapists, and Practitioners (ASKP^3, n.d.), and the Psychedelic Medicine Association (2025).

Is psychedelic-assisted therapy part of our evolution as psychologists or just FOMO-trendy? As a business proposition, prospective practitioners of psychedelic-assisted treatments would have to consider the upfront costs in credentialing, training, dealing with the regulatory infrastructure (not to mention federal law) – and the competition. These points may resonate particularly with those involved in the prescriptive authority initiative, psychologists currently attempting to create and occupy a new non-traditional practice

space. It's been a prolonged effort, and is by no means close to finished.

That said, psychedelic-assisted therapy may not be as radical as it initially seems. It shares some similarities with the combined treatment model discussed in Sammons and Schmidt (2001). If prescribing psychologists choose to enter this field, where should they seek to position themselves? Should they be able to prescribe the hallucinogens themselves, or serve in a more adjunctive capacity? Either option entails possible costs and benefits.

Perhaps other models, consultative or collaborative, and other target populations are more feasible over the near term. Might one such arrangement eventually involve referrals to, say, an ayahuasca retreat? Another option would be to focus exclusively on traditional (non-experiencer) patient populations, some of whom might benefit from hallucinogens.

As a public health advocate, I hope that psychologists who become involved in psychedelic-assisted therapy will reach out to experiencers. Many of these individuals, including some of the U.S. veterans who found their way to ayahuasca retreats and similar treatment venues, have genuine mental health needs and were previously failed by the healthcare establishment. In a sense, healthcare providers owe them a debt: they have field-tested these drugs in good faith and have kept the debate about the potential benefits of psychedelics alive for decades. We can learn from their experiences. I also believe that ours will need to be a truly patient-centered approach if we are to be effective healthcare providers with this modality and with experiencers.

In the course of researching this article, it was fascinating to discover how many scientists researching psychedelics had sampled one or more of these substances themselves and then became converts, including Albert Hoffman, Gregory Bateson, and Timothy Leary. These drugs seem to have an appeal that impacts scientific objectivity, which might speak to their utility as therapeutic interventions, but also to the need for carefully designed research studies in order to avoid bias.

American academia is currently under direct assault from the federal government. Billions of dollars in research grants have been canceled under the new administration. Apparently, however, this area has not been impacted as yet. The VA research studies continue. As a retiree with no professional (or personal) interest in psychedelics, I've come to the conclusion that psychedelic-assisted therapy holds considerable promise for the relief of otherwise intractable PTSD sequelae, among other disorders, and merits ongoing research. Whether and how psychologists and other healthcare professionals eventually contribute to the treatment of individuals with this modality – and perhaps access the experiencer community – remains an open question. What will be the intersection of this form of healthcare populism and the healthcare establishment?

Finally, CPA Psychopharmacology Section members have been fortunate to be able to read Dr. Jérémie Richard's excellent multi-part series in *PSYNAPSE.* There he recounts his experiences as a research fellow at the Johns Hopkins University Center for Psychedelic & Consciousness Research and discusses relevant studies. If you haven't read these articles yet, I strongly suggest you do so. They're a highly useful introduction to the academic-empirical side of the psychedelics issue.

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Further reading, selected topics:

<u>Psychedelics (General/Historical)</u>

Breen, B. (2024). *Tripping on Utopia: Margaret Mead, the Cold War, and the troubled birth of psychedelic science*. New York: Grand Central Publishing. *Author's note:* An overview beginning with field investigations into use by Indigenous cultures.

Lewin, L. (1924/1998). *Phantastica: A classic survey on the use and abuse of mind-altering plants.* Rochester, VT: Park Street Press. *Author's note:* Of largely historical interest; the earliest published survey of investigations into NOSC-inducing substances, including "peyotl."

Wolfe, T. (1968). *The electric Kool-Aid acid test*. New York: Picador. *Author's note*: A contemporaneous account of the growth of the LSD sub-culture during the 1960s.

Psychedelics in Canada

Burns, K., Carter, R.M., Gardiner, K.M., & Swanson, R. (2023, May 24). The state of psychedelics in Canada 2023. *Lexpert*. https://www.lexpert.ca/legal-insights/the-state-of-psychedelics-in-canada-in-2023/375545

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Canadian Public Health Association. (2024b, October). *Public health perspectives on the future of psychedelics*. https://www.cpha.ca/sites/default/files/uploads/policy/positionstatements/2024-psychedelics-discussion-document-e.pdf *Author's note*: Overview of psychedelic drugs, current legal and research status in Canada; CPHA advocates public health approach, including harm reduction and education.

De la Salle, S., Gran-Ruaz, S., Davis, D.D., Davis, A.K., & Williams, M.T. (2022). Acute and enduring effects of naturalistic psychedelic use among indigenous peoples in Canada and the United States. *Canadian Psychology, 63*(4), 589-607.

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Justice Laws Website. (2025, June 24). *Controlled Drugs and Substances Act: Schedule III*. https://laws-lois.justice.gc.ca/eng/acts/c-38.8/page-11.html#docCont. *Author's note*: Schedule III lists: includes several psychedelics.

Minister of Justice. (2025, June 9). *Controlled Drugs and Subtances Act*. https://laws-lois.justice.gc.ca/PDF/C-38.8.pdf Canada's drugs statute, as updated. *Author's note*: Contains lists of drugs and substances regulated by the government. Schedule III includes lysergic acid diethylamide, psilocybin, mescaline, and dimethyltryptamine.

Rochester, J., Vallely, A., Grof, P., Williams, M.T., Chang, H., & Caldwell, K. (2022). Entheogens and psychedelics in Canada: Proposal for a new paradigm. *Canadian Psychology, 63*(3), 413-430. *Author's note*: The single best reference I've found for obtaining an understanding of the state of psychedelics in Canada, including cultural issues. Authors propose a code of ethics and discuss training for service provision.

Ropchan, D. (2025, January 25). *New psychedelic-assisted therapy clinic open in Edmonton.* https://edmonton.citynews.ca/2025/01/25/new-psychedelic-assisted-therapy-clinic-open-in-edmonton/

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TimeisNow_Report_e.pdf *Author's note*: The title notwithstanding, the subcommittee's recommendation was for launching and funding a research project on psychedelic-assisted psychotherapy, not for legalizing such treatment.

Spirituality and Psychedelics

Castaneda, C. (1969/2008). *The teachings of Don Juan: A Yaqui way of knowledge*. Berkeley and Los Angeles, CA: University of California Press, Ltd. *Author's note*: A (probably fictional) account of the author's experiences with a shaman who introduced him to peyote and other NOSC organic substances. This and subsequent books by Castaneda were very popular during the 1970s with the Baby Boom generation.

James, W. (1902/1958). *The varieties of religious experience: A study in human nature*. New York: New American Library. *Author's note*: The "Mysticism" chapter (Lectures XVI and XVII) recounts James's own and others' experiences with NOSC-inducing substances such as nitrous oxide and chloroform. The reports are notable for the similarity of these experiences to those attained with psychedelics.

Maslow, A.H. (1970/1994). *Religions, values, and peak experiences.* New York: Penguin Compass. *Author's note*: Acknowledges the potential of psychedelics to induce transcendent "peak experiences." A modern companion to the William James "Mysticism" chapter (above).

American Military Veterans and Psychedelics

A focus in this article has been on American veterans, as so many experienced PTSD, TBI, and other injuries during the wars in Vietnam and then in Iraq and Afghanistan, and also because of their activism in advocating for an end to the Vietnam War and for service-related healthcare. This by no means ignores or discounts the importance of the injuries suffered by Canadian soldiers in combat. See Senate Standing Subcommittee on National Security and Defence (2023), above.

Bedayn, J. (2025, January 1). *Psychedelic therapy begins in Colorado, causing tensions between conservatives and veterans*. https://apnews.com/article/colorado-psilocybin-psychedelic-therapy-legal-ptsd-veterans-99fc5a0703d85daa0903d5a2b2acc9be *Author's note*: A recent article about the ongoing political battles over psychedelic therapy between veteran protagonists and political conservatives in one American state.

Heroic Hearts. (n.d.). *Heroic Hearts: A path to healing for veterans and their families.* https://heroicheartsproject.org. *Author's note*: An organization that helps veterans access psychedelic therapy programs.

Londoño, E. (2024). *Trippy: The peril and promise of medicinal psychedelics*. New York: Celadon Books. *Author's note*: The author's personal experiences with psychedelic therapy in several different programs in North and South America. He discusses the experiences of several veteran-participants.

The Dark Side of Psychedelic Research

These books provide a window into attempts during and after World War II to utilize psychedelic drugs for purposes of mind control: as "truth serum" or for "brain washing," rather than for healing or enlightenment.

Breen, B. (2024). *Tripping on Utopia: Margaret Mead, the Cold War, and the troubled birth of psychedelic science*. New York: Grand Central Publishing. *Author's note*: An overview beginning with field investigations into use by Indigenous cultures.

Ohler, N. (2024). *Tripped: Nazi Germany, the CIA, and the dawn of psychedelic research*. New York: Mariner Books. *Author's note*: An historical survey of psychedelic research focusing on government-supported efforts to utilize these drugs during World War II and later during the Cold War.

Thomas, G. (1989*). Journey into madness: The true story of secret CIA mind control and medical abuse*. New York: Bantam Books. *Author's note*: The M-K Ultra Project: mind control experiments conducted under the auspices of the CIA. Research was performed on human subjects at the Allen Memorial Institute in Montreal and elsewhere, and involved the use of LSD and other hallucinogenic drugs.

Experiences in Scientific Psychedelia – Part 4

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"When your eyes are tired / the world is tired also.

When your vision has gone / no part of the world can find you.

Time to go into the dark / where the night has eyes / to recognize its own.

There you can be sure / you are not beyond love.

The dark will be your home / tonight.

The night will give you a horizon / further than you can see."

David Whyte

Transitions and Transformations

Transitions are difficult. They disrupt routines and tip the delicate scales of life we work so hard to steady. Transitions can also be catalysts for transformation. An opportunity to drastically alter one's view that has become crystalized not through conscious choice but as a result of time's quiet unfolding.

As I am writing this commentary, my time of living in Baltimore, Maryland and working at the Johns Hopkins Center for Psychedelic & Consciousness Research is coming to an end. In my previous contribution as part of *Experiences in Scientific Psychedelia*, I opened with a quote from David Whyte on the topic of horizons and the unknown. In the time since, I've noticed my horizons have continued to broaden. Over the past six months, although I have sustained my regular research activities, I was often distracted by a nagging questions about what I am going to do once my postdoctoral fellowship has come to term. Do I extend my fellowship another six to twelve months? Should I apply for faculty positions? In what ways can I pursue a career path that allows me to continue the meaningful work I'm so passionately engaged in? What do I want for the next five to ten years of my life?

Until now, at every major turning point in my life, I've intentionally reshaped my surroundings or immersed myself in new experiences to redirect my focus toward future possibilities and what feels truly meaningful. I pay close attention and keep myself open to the possibilities that reveal themselves along the way. During the winter months, while I was deeply engaging with these questions, life presented several promising opportunities, and I pursued them with intention. My experience was marked by alternating phases of optimism and heightened aspirations, alongside periods of ambiguity and emotional heaviness. For a significant stretch of time, I found myself questioning my professional identity and was struck by how

deeply I had emotionally invested in the idea of becoming a university professor. This idea and potential future identity it represented, had lingered just beneath the surface of my awareness for months. In the process of applying for positions, I was forced to confront it more directly. When faced head-on, the energy that had been implicitly invested in this concept surged into consciousness, becoming both active and volatile. Now conscious, I had the opportunity to engage more directly with this potential pathway forward as the process of identity formation was taking root.

Through this process, my understanding of why I wanted to become a professor grew clearer. It is not merely a title or role, but an opportunity to cultivate close ties within a community of like-minded individuals. These relationships would be grounded in mutual respect and committed to the betterment of both individuals and society. It is about bridging the divide between academic research and the broader public, contributing to societal conversations and shaping public opinion. To me, this is the true value of a professor as a public intellectual. A life embedded within community, serving the public good.

So, what happened in the end? Coincidentally, just as I was looking for a position, I noticed a job posting from the School of Psychology at the University of Ottawa. They were seeking a bilingual candidate with expertise spanning psychedelic medicine, mental health, psychopharmacology, psychotherapy, neuroscience and spirituality. To make a long story short, I applied for the job, and I ended up receiving an offer to begin a tenure-track position as an Assistant Professor in the School of Psychology at the University of Ottawa. This was in the final weeks of May 2025. After a short week of deliberation, I eagerly accepted this offer and officially started in this role on July 1st, 2025. The timing was truly impeccable.

The Academic Job Search

Searching for academic positions and putting together all the necessary paperwork is incredibly demanding. Just to illustrate, most of the applications I came across asked for a two-page cover letter, a two-page research statement, a one-page teaching philosophy statement, a one-page statement on diversity, equity, and inclusion, an up-to-date curriculum vitae, a recent first-author peer-reviewed article, samples of teaching evaluations, plus three to four academic reference letters. After submitting these documents and they are reviewed, if you pass the initial evaluation stage, you are then invited to attend a full day campus visit, meeting and interviewing with faculty members, students, program directors, and the faculty dean.

One of the most critical components of the campus visit for a tenure-track position is the *research talk*. This 50-minute presentation requires candidates to share their research interests and experiences dating back to their doctorate, while also outlining their plans for the first three to five years as early-career faculty. In preparation for my talk, I went through over half a dozen revisions before feeling confident in the final version I delivered on May 9, 2025. In the following section, I will outline the key elements of my research talk, as I believe this may be valuable for readers of these commentaries who are preparing to apply for positions as postdoctoral researchers or early-career faculty.

Narratives of Transformation: Understanding the Effects of Psychedelics on Mental and Physical Health

At the beginning of my research talk, I introduced my research program by presenting the key question I aim to address through my ongoing and upcoming projects. The question was:

"What are the biological, psychological and sociocultural factors that contribute to the management of health via the clinical and naturalistic use of psychedelics?"

Based on this question, I dichotomized "health" into two overlapping domains:

1) Mental Health & Addictive Behaviors

2) Physical Health & Quality of Life

Following my introductory statement, I provided a brief overview of the theoretical and conceptual models I aimed to integrate to develop a biopsychosocial model of health. I made sure that this integrative model elaborated in detail on the extra-pharmacological factors interacting with the pharmacological effects of psychedelics—specifically, "set," "setting," and "matrix" (Eisner, 1997; Pronovost-Morgan et al., 2025). The conceptual frameworks I outlined included the Research Domain Criteria (RDoC; Cuthbert & Insel, 2013), Hierarchical Taxonomy of Psychopathology (HiTOP; Cicero et al., 2024), and Transtheoretical Model of Change (Prochaska & DiClemente, 1983; Prochaska et al., 2019) to conceptualize "set"; the guidelines for safety and practice in psychedelic-assisted therapy (Golden et al., 2022; Johnson et al., 2008) to address "setting"; and the Ecological Systems Theory (Bronfenbrenner, 1979, 2005) to explain "matrix".

I then took a moment to reflect on how and why I began conducting research on psychedelic compounds. I reviewed my doctoral research, focusing on risk and resilience factors in the development of psychopathology, the comorbidity of mental disorders, and my growing interest in studying predictors of treatment response in psychotherapy. I also touched on my clinical experiences during graduate school, particularly my predoctoral internship at the Mood and Anxiety Disorder Program, a pivotal period that deepened my interest in psychopharmacology and the interplay between pharmacology and psychotherapy in treating severe and/or chronic mental disorders. With this context in place, I transitioned into a discussion of my postdoctoral research and collaborations with colleagues at the Center for Psychedelic and Consciousness Research, much of which I have previously detailed in earlier editions of *Experiences in Scientific Psychedelia.* Rather than recounting this work in detail here, I will instead share a slide from my presentation that highlights one of the most vital aspects of research: the meaningful relationships formed as we pursue our intrinsic motivations and scientific curiosity.

The section of my talk focused on my postdoctoral research was the longest, comprising about half of the presentation—roughly 25 minutes. Organized across two research domains (Mental Health & Addictive Behaviors and Physical Health & Quality of Life), I detailed my research activities to date, including literature reviews, mixed-methods observational studies, and my involvement in clinical trials. I also highlighted several ongoing projects expected to conclude within the coming year. Additionally, I introduced a secondary research question that spans both domains: "*What is the role of preparation, integration, dosing session-related variables, and psychotherapy in psychedelic-assisted treatments?*". In this part of the presentation, I discussed broader methodological challenges currently at the forefront of research into psychedelic medicine, along with ongoing efforts I have in place to address these issues.

Finally, I presented the future directions of my research. This section took the most time to prepare as I needed to strike a careful balance between ambition and feasibility. Ultimately, I outlined five key areas of research to pursue over the next three to five years. These areas are as follows:

1) Scale Development & Bilingual Translation

2) Clinical Trial Research

3) Observational Mixed-Methods Research

4) Health Systems and Expanded Access Programs

5) Population-Based Research & Public Outreach

For each of these areas, I provided concrete details about the projects I aim to pursue, ways students could be engaged through undergraduate honors theses, master's projects, and doctoral dissertations, potential collaborators, and strategies for securing research funding.

In reflecting on my journey over the past six months, from exploring questions of professional identity to embracing a new opportunity, I have come to appreciate the intricate balance between passion and preparation in academic research. My commitment to exploring the complex intersections of psychedelics, mental health, and quality of life drives both my current work and future ambitions. Through careful planning, meaningful student engagement, and strategic collaboration, I look forward to contributing not only to the scientific community but also to broader societal conversations. To me, this path is both a professional calling and a deeply fulfilling way to serve the public good.

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"ONCE I WAS AFRAID…. AND I WAS CHALLENGED TO BE STRONG"

Pat DeLeon, Ph.D., MPH, JD
Former APA President

An Intriguing Perspective: Phil Hughes, Division of Pharmaceutical Outcomes and Policy, University of North Carolina Eshelman School of Pharmacy, has been conducting the type of comparative research on Prescribing Psychologists (RxP) that many in the field have been asking for since the movement began. Approximately 15 states had some form of an RxP bill submitted or in development this year in addition to the 7 states that have already passed such legislation (plus Guam, several federal organizations, and Indiana's unique RxP exception). As I've submitted testimony regarding RxP in some states and listened in on committee discussions in others, one question policymakers consistently asked is: 'How many other states have an RxP policy?' For some, this is seemingly a question about keeping their state at the forefront of mental health policy; for others, it is seemingly a risk assessment to ensure RxP has been tried before to avoid potentially uncharted policy waters. Regardless of motivation, however, this question always calls Everett Roger's *Diffusion of Innovations* theory to my mind.

First proposed in 1962, the *Diffusion of Innovations* theory describes the process by which innovative ideas, products, and policies are adopted by the target population – in this case, the adoption of RxP by states. One of the major contributions of this model is the classification of adopters in terms of when they adopt the innovation as a percentage of the population. The 'Innovators' were comprised of the first 2.5% of adopters, followed by the 'Early Adopters' (2.6%-16%), the 'Early Majority' (17%-50%), the 'Late Majority' (51%-84%), and the 'Laggards' (85%-100%). Using this classification, I went through the list of states that have adopted RxP and those with a bill in progress and examined where RxP currently sits within this theory, assuming all 50 states to be the target population.

As anyone familiar with the history of RxP would expect, New Mexico and Louisiana were the 'Innovators,' representing the first 2% of the U.S. to adopt RxP. The remaining RxP states (Illinois, Iowa, Idaho, Colorado, and Utah) fall within the 'Early Adopters' stage, bringing up to 12% of the U.S. If (and when) two additional states pass RxP, that will bring the total to 16% and officially push RxP into the 'Early Majority' stage – the point at which an innovation really becomes a mainstream idea rather than a novelty. While adding two additional states is a tall order, as I understand it, there are several states that may realistically pass RxP in the next year or two.

Moving into the 'Early Majority' stage should, assuming the theory holds, ramp up pressure on other states to move RxP forward. When every state with RxP legislation passes their bill, RxP will be moving quickly towards the 'Late Majority' – the official downslope of the distribution.

To be clear, RxP will still inevitably face resistance from the late majority and the laggards, much like PSYPACT still has some states that continue to hold out. However, it will become increasingly difficult for

RxP to be framed as a fringe idea by those opposed to the policy, and progress towards passing RxP should come faster as momentum builds. In short, theory suggests that RxP is on the very brink of becoming a mainstream mental health policy in the United States.

Update from Alex Siegel, Director of Professional Affairs, Association of State and Provincial Psychology Boards: "Montana passed and enacted PSYPACT on April 16th to become the 43rd jurisdiction. There is no effective date set yet. Active legislation still exists in Hawaii, Iowa, New York, and Massachusetts. Those ["Sleepy"] jurisdictions without PSYPACT or active legislation include: Alaska, California, Guam, Louisiana, New Mexico, Oregon, Puerto Rico, and the U.S. Virgin Islands.

The Potential in Rural America: Rick Barnett -- "As the curtain falls on the 2025 legislative session of the Vermont Legislature and our first year of the biennium comes to a close, I wanted to provide you with an update on H. 237. In what can only be described as the typical last-minute legislative shuffle, Senate Health and Welfare had H. 237 on the agenda Wednesday through Friday, but priorities shifted elsewhere. The Committee became entangled in deliberations over H. 91 – a homelessness bill that evolved into something of a philosophical tug-of-war between the Governor's administration and Senate leadership. Consequently, H. 237 was removed from the agenda during these final three days. While we did encounter some eleventh-hour resistance from the Vermont Nurse Practitioner Association, this appears to have been a minor factor in the overall equation…

"The silver lining: our bill remains very much alive and positioned advantageously for 2026. To put things in perspective, this delay creates minimal impact on our implementation timeline. Even with passage this week, the bill's language would have allowed us to begin drafting the prescribing psychologist rule on July 1, 2025, with actual prescribing authority taking effect January 1, 2028. The revived timeline will simply move the rule-writing commencement to July 1, 2026, while maintaining the same January 1, 2028 effective date…

"Nine consecutive years with legislation in either the House, Senate, or both chambers has brought us to this point – our most significant progress to date. Adding a tenth year seems a modest investment for the substantial gains we've made. The perseverance and diligence demonstrated throughout this journey have been remarkable, and I remain confident in our success for 2026. I extend my heartfelt appreciation to each of you for your contributions, whether through direct advocacy, behind-the-scenes support, or simply maintaining faith in our collective vision. This is but one more chapter in our story – a momentary pause rather than an ending. We remain undaunted. With gratitude and determination."

Divisional Involvement & Perhaps Assistance? The Uniformed Services University (USU) recently held its 46th Commencement Exercises at the Daughters of the American Revolution (DAR) Constitution Hall. There were 290 graduates including, for the first time ever, a member of the U.S. Coast Guard. Alumni include an increasing number of flag officers and several of the military Surgeon Generals. USU was the home of the original Department of Defense psychopharmacology training program with the U.S. Navy's John Sexton and Morgan Sammons becoming the first credentialed military psychology prescribers. During the ceremony, I reflected upon how an increasing number of military clinical and medical psychology students are genuinely interested in obtaining this clinical expertise. And, how those who do prescribe uniformly report that possessing this clinical skill has been highly beneficial. Accordingly, given its importance to fulfilling the mission of serving those who place themselves in harm's way, could, and perhaps should, Division 19 (the Society for Military Psychology) affirmatively pursue this possibility on behalf of its members and future members?

Artificial Intelligence (AI): The National Academy of Medicine (NAM) recently released its report *An Artificial Intelligence Code of Conduct for Health and Medicine: Essential Guidance for Aligned Action*. "Recent advancements in artificial intelligence (AI) technologies have unlocked unprecedented opportunities in health, health care, and biomedical science, and these breakthroughs hold the potential to fundamentally transform approaches to medical and health research, health promotion, disease prevention, diagnosis, treatment, and health system management. By enabling more effective, efficient, and personalized care, AI stands poised to address some of the most persistent challenges in the health sector, provided it is properly governed and effectively stewarded… The promise of AI extends beyond its technological capabilities to encompass a more profound reconsideration of care delivery, aiming to improve outcomes for everyone, particularly our most vulnerable. However, the development and deployment of AI introduces critical ethical, accountability, and safety considerations. As AI technologies diffuse into health care, it is vital to establish robust guidance for their integration, ensuring alignment with the foundational commitment to improve health and well-being for all."

The NAM Artificial Intelligence Code of Conduct framework's six core commitments include: 1) Advance Humanity; 2) Ensure Equity; 3) Engage Impacted Individuals; 4) Improve Workforce Well-Being; 5) Monitor Performance; and 6) Innovate and Learn. These reflect NAM's longtime commitment to fostering a Learning Health System (LHS). "The integration of AI into health, health care, and biomedical science applications requires realization of AI's transformative potential. The ethical deployment of AI necessitates proactive harm-reduction strategies to ensure that its positive effects are maximized while minimizing negative externalities. To this end, many entities from the organizational to the global level, have developed AI governance frameworks to address these concerns."

NAM further opines: "To achieve trustworthy health AI at scale, the development, implementation, and use and monitoring of and ongoing learning about health AI will require intentional and sustained collaboration between and among all impacted stakeholders…. (And) With intentional, sustained efforts and ongoing communication, feedback and collaboration by all stakeholders, safe, effective, and efficient advancement of responsible health AI is possible… While many technological advances have had potential to improve human health and well-being, they have failed to fully deliver on their promise." "If Dad could see me now!" (Kinky Boots, *Raise You Up*).

Aloha,

Pat DeLeon, former APA President

RxP Media

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Prescriptive Authority for Psychologists

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