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A Message from the Editors

Dear members of the CPA Psychopharmacology Section,

Welcome to the Summer 2026 edition of the PSYNAPSE Newsletter!

Following another successful CPA Annual Convention in Montreal, Quebec, we are pleased to bring you the latest issue of PSYNAPSE. This edition features updates, perspectives, and contributions from across our Section, reflecting the breadth of work being done in psychopharmacology through clinical practice, research, education, and advocacy.

We are especially pleased to feature a message from our Section Chair, Dr. Amir Sepehry, who provides an update on the Section's accomplishments over the past year and reflects on highlights from the 2026 CPA Annual Convention in Montreal. Additionally, we are grateful to Pierre Couture and Maria Barsoum who have provided suggestions and helped make modifications to the overall look and structure of the newsletter.

As we move into Volume 6 of PSYNAPSE, we remain committed to strengthening the newsletter as a platform for sharing knowledge, recognizing the achievements of our members, and fostering collaboration across the CPA Psychopharmacology Section. We are grateful to everyone who has contributed their time, expertise, and enthusiasm, and we look forward to continuing to showcase the outstanding work of our community.

We hope you enjoy this edition, and as always, we welcome your feedback and future submissions.

Warm regards,

Bryan and Jérémie

Editors, PSYNAPSE Newsletter



A Message from the Chair

I hope you have or are about to start a great summer. Here, I am taking the opportunity to inform you about the last CPA convention and what we have accomplished over the course of 2025-2026.

We had an unprecedented gathering of people at our symposium, where Dr. Jérémie Richard, accompanied by Florence Laroche, presented on harnessing the potential of music with psychedelic-assisted psychotherapy for substance use disorder. This was followed by my (Dr. Amir Sepehry) presentation on the use of the C-H-C broad cognitive abilities classification system in a meta-analysis toward repurposing trazodone. Then, we had Dr. Diana Velikonja and Dr. Errin Bailey-Sawatzky present on Prescription Privilege (RxP), covering evidence and regulation for a provincial policy for psychologists in Canada, helping with the expanded scope of practice. All of this on the 4th of June!

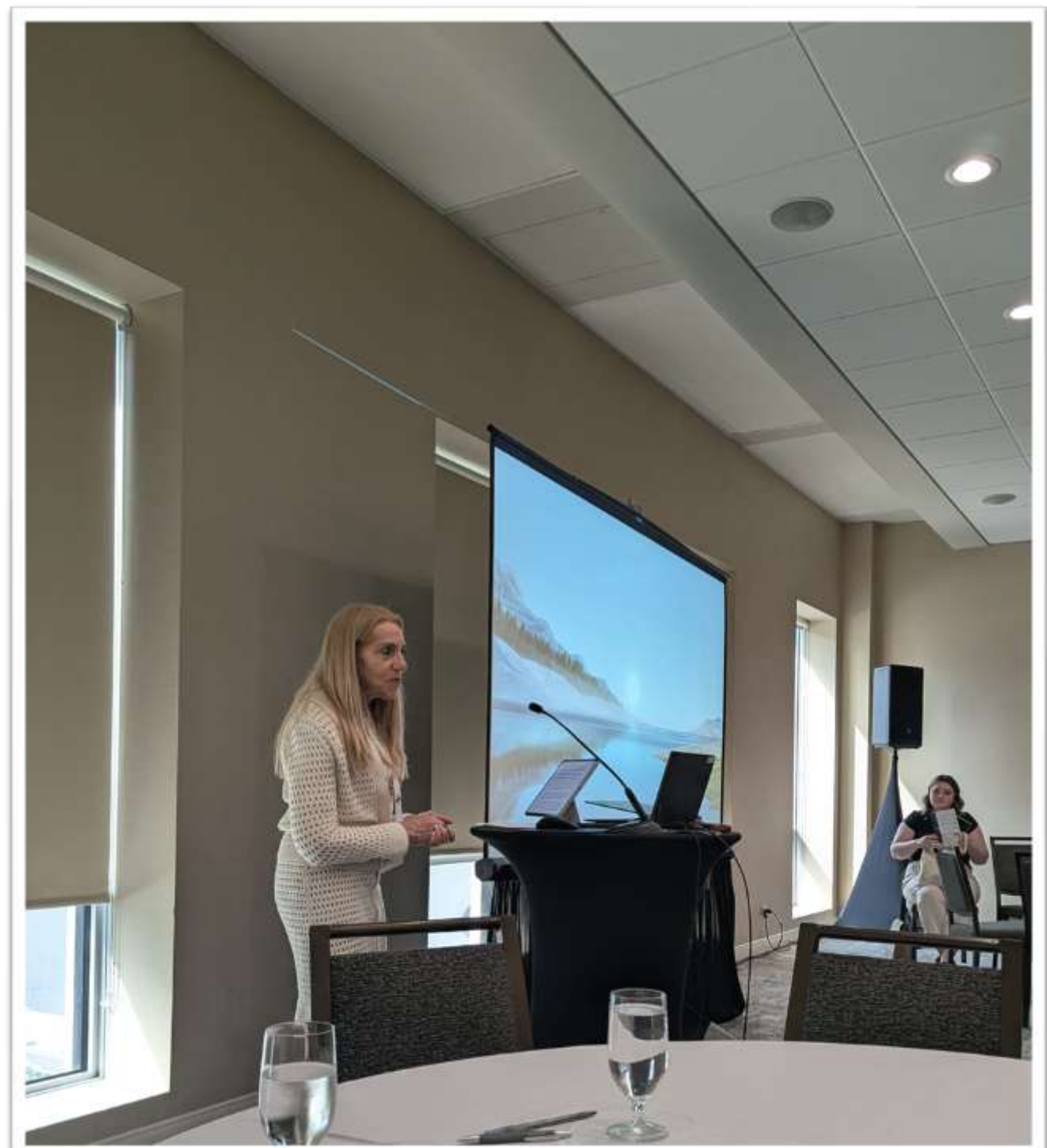
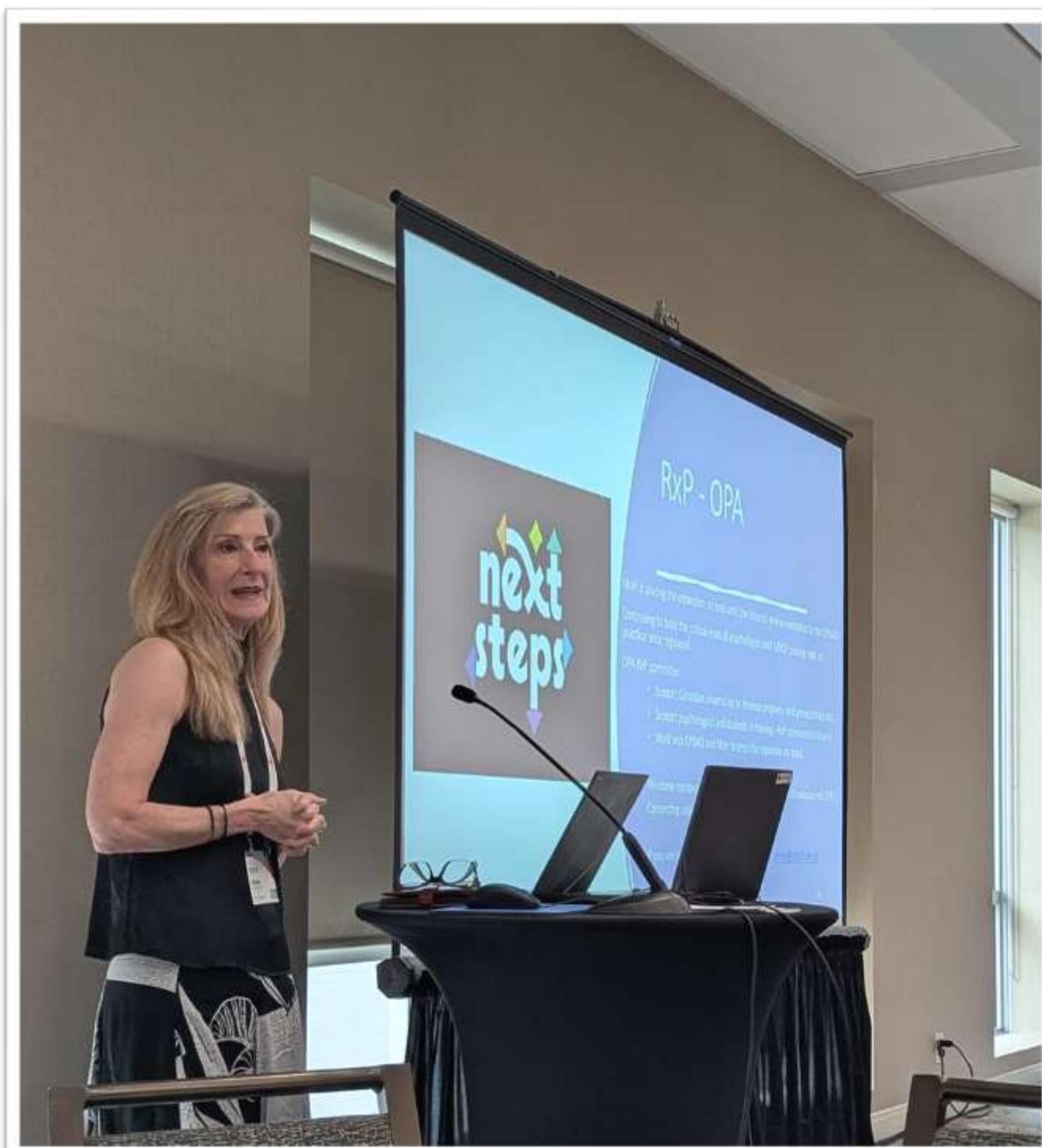


Dr. Jérémie Richard & Florence Laroche at CPA 2026, Montreal, QC.



On other days, we were part of a larger poster session (we had 4 posters on caffeine, ketamine, and 2 on psychedelics including psilocybin and LSD), we gave a 12-minute talk, and CPA held a closed committee meeting on prescriptive authority for psychologists. We also participated in a joint section's reception, which was well attended by students, experts, and policymakers.

Additionally, we had a guest/featured speaker, Dr. Diana Velikonja, and Dr. Beth N. Rom-Rymer (Illinois Association of Prescribing Psychologists (IAPP)) to address "Expanding the Scope of Practice for Psychologists to Include Prescribing Psychotropic Medications: The Process and Impact for Ontario." Dr. Beth Rom-Rymer, PhD, is a prominent clinical psychologist and a pioneer in the advocacy for prescriptive authority for psychologists. Her foundation provides scholarships for graduate students training in clinical psychopharmacology [<https://drbethromrymer.com/beth-rom-rymer-scholarships/>].



Dr. Dr. Diana Velikonja and Dr. Beth N. Rom-Rymer at CPA 2026, Montreal, QC.



We held the Annual General Meeting, where we reviewed the past year's contributions, key milestones, and the challenges we faced. This led us to aim for a monthly meeting and inviting more of the newsletter and members' involvement. We have set our aims to continue with the RxP plan, start a new survey, and collaborate with US counterparts (i.e., APA Division 55). Also, we have opted to launch a student grant application, for which we will allocate some of the funds from the section.

We completed the AGM by acknowledging the executives' volunteer help. We have elected a new Treasurer (Dr. Jérémie Richard), and a new undergraduate student representative (Idir Zaher).

Altogether, I must say, it was a productive year for me, and for the section. The CPA convention was exciting, and more students attended (if I am not mistaken, nearly 1,400). I collaborated with the Clinical Neuropsychology section and contributed to a poster session highlighting the use of the C-H-C model in a meta-analysis and application for clinical trials and medication repurposing. This was done in addition to other poster sessions.

In essence, I would like to thank the Psychopharmacology Section and the CPA for providing this opportunity not only to me but also to my colleagues and other executives with whom I have worked.

Thank you,

Amir A. Sepehry, Ph.D., Psychopharmacology Section Chair



Comparative Patterns of Alcohol, Cannabis, and Psychedelic Use in Canada: Evidence from the 2023 CSUS

Maria Barsoum, B.A. Student
University of Ottawa, School of Psychology

Introduction

In Canada, substance use is categorized into legal psychoactive substances, such as alcohol and cannabis, and illegal substances, including hallucinogens and other psychedelics. The Canadian Substance Use Survey (CSUS) is a national survey conducted every two years to gather information on substance use among Canadians aged 15 years and older. According to Health Canada (2025), the CSUS serves as a key tool for monitoring trends in substance use over time and across different demographic groups within the Canadian population.

Patterns of Substance Use in Canada

Alcohol, the psychoactive substance that has been legal the longest in Canada (legal in all provinces since 1948), remains the most widely used substance in 2023 (see Table 1). Recent national data indicate that a clear majority of Canadians report consuming alcohol within the past year, with particularly high rates among young adults (Health Canada, 2024). Several factors help explain alcohol's prevalence. It is deeply embedded in social life and cultural practices, ranging from business functions to casual social gatherings and celebrations (Kroon et al., 2025). Alcohol is also uniquely versatile, as it is commonly consumed across both professional and informal contexts (Thørrisen et al., 2022). This widespread normalization contributes to higher rates of use and may obscure associated risks, including injuries, alcohol use disorder, and longer-term health consequences.

Cannabis is the second most widely used psychoactive substance in Canada. Both prior to and following its legalization in 2018, higher rates of use have consistently been observed among youth and young adults (Health Canada, 2023). At the time of the 2023 CSUS, cannabis had been legal for only five years, reflecting its relatively recent transition to legal status compared to alcohol. Cannabis has a long history of use across religious, medical, and recreational contexts, which contributes to its widespread use (Burdette et al., 2018). However, unlike alcohol, cannabis has not been fully normalized within all social and professional settings and may still be perceived as unprofessional or more harmful. These persistent social perceptions may help explain why cannabis use remains lower than alcohol use in the CSUS (Sznitman et al., 2022).

Psychedelics, including substances such as LSD, psilocybin ("magic mushrooms"), and other hallucinogens, are used by a much smaller proportion of the population compared to alcohol and cannabis. Earlier Canadian survey research on illicit substances (excluding cannabis) found that hallucinogens were among the most tried illegal drugs, with approximately one in ten adults reporting lifetime use (Canadian Centre on Substance Abuse, 2004). In surveys such as the CSUS, psychedelics are classified within the CSUS, psychedelics are classified within



the broader category of illegal drugs, alongside substances such as cocaine and opioids. Unlike alcohol and cannabis, psychedelic use tends to be more episodic rather than routine and is often concentrated within specific subgroups of the population, as reflected in CSUS findings.

Public discussions about psychedelics, including debates surrounding psychedelic-assisted therapy, have begun to shift perceptions of these substances. Increasingly, psychedelics are being framed as having potential therapeutic benefits while still carrying noteworthy risks (Carhart-Harris & Goodwin, 2017; Plourde et al., 2024; Richard & Garcia-Romeu, 2025). Despite these changing perceptions, psychedelics remain much less commonly used at the population level compared to alcohol and cannabis. Notably, research involving 544 young adults found that psychedelic use often occurs within polysubstance use patterns, with individuals who use psychedelics being more likely to use other substances concurrently (Boileau-Falardeau et al., 2022).

Overall, Canadian survey data demonstrate a consistent hierarchy of substance use, with alcohol occupying the dominant and socially normative position, cannabis representing a widely used but more recently legalized and regulated substance, and psychedelics constituting a relatively uncommon yet meaningful component of the broader drug landscape. Psychedelic use appears to be more prevalent among certain subgroups, including younger adults and individuals in urban or socially marginalized contexts. Although psychedelics are legally classified alongside substances such as cocaine and opioids, their patterns of use differ substantially. For example, recent survey data indicate that past-year psychedelic use (approximately 6%) is roughly three times higher than cocaine use (approximately 2%), while remaining far lower than cannabis use (32%) (Health Canada, 2024). These findings suggest that psychedelics occupy a distinct intermediate position regarding patterns of use within Canada.

Given these differences in prevalence, context, and patterns of use, future iterations of the CSUS may benefit from assessing psychedelics as a distinct category rather than grouping them broadly with other illegal substances. This recommendation is particularly relevant in light of the rapidly changing social and cultural context surrounding psychedelics. In recent years, increased media coverage, growing scientific research on psychedelic-assisted therapy, and high-profile policy discussions have contributed to greater public awareness and reduced stigma surrounding these substances. At the same time, accessibility has evolved through online information exchange, underground therapeutic practices, decriminalization efforts in some jurisdictions, and legal medical access pathways in Canada, such as Section 56 exemptions and the Special Access

Program. These shifts suggest that psychedelics are becoming more visible and accessible, even while remaining formally illegal in most contexts. Further differentiation between specific types of psychedelics would also be valuable, as these substances vary meaningfully in their social contexts, motivations for use, accessibility, and associated patterns of consumption. Distinguishing between substances such as psilocybin, LSD, and DMT, for example, would allow surveys like the CSUS to more accurately capture emerging trends and better reflect the evolving role of psychedelics within contemporary Canadian substance use patterns.

Methods

The Canadian Substance Use Survey (CSUS) 2023 employed a cross-sectional design and incorporated a



substantial methodological redesign to improve the representation of key populations. To generate nationally representative estimates, the survey sampled 36,180 individuals aged 15 years and older across the Canadian provinces. Recruitment transitioned from primarily mail-based approaches to telephone-based sampling and recruitment. Potential participants were contacted using lists of randomly generated in-service telephone numbers and completed an initial screening process. To improve representation of historically under-represented populations, particularly youth and young adults, the survey intentionally oversampled individuals aged 15 to 24 years. This was accomplished by supplementing telephone recruitment with a probability-based general population panel, resulting in 7,026 respondents within this age group.

Following recruitment, participants received a survey link via text message or email and completed the questionnaire online. This approach allowed for efficient data collection while maintaining broad geographic coverage. The CSUS collects detailed information across a wide range of sociodemographic and health-related variables, including gender, age, household income, education level, and size of community, as well as self-rated physical and mental health. These variables enable granular analysis of substance use patterns and facilitate comparisons across demographic groups. This approach supports an equity-informed analysis by identifying populations with higher prevalence of substance use and highlighting disparities across social and structural contexts.

Comparative Analysis Using the CSUS Online Data Tool

In addition to reviewing summary reports, comparative analyses were conducted using the publicly available CSUS data visualization and reporting tool provided by Health Canada (<https://health-infobase.canada.ca/substance-use/csus/>). This interactive platform allows users to examine substance use patterns across a range of demographic and socioeconomic characteristics, including age group, gender, income level, education, and geographic region. The tool provides estimates of past-year and lifetime substance use, as well as indicators of substance-related harms and perceptions of risk.

For the present analysis, the CSUS online data tool was used to examine and compare patterns of alcohol, cannabis, and psychedelic use across key demographic subgroups, including age, gender, income, education, and community size. These comparisons allowed for the identification of groups with the highest prevalence of use and highlighted meaningful differences in patterns across substances. Examining substance use across these demographic dimensions also helped clarify how alcohol, cannabis, and psychedelics occupy different positions within the broader hierarchy of substance use in Canada. The ability to stratify results by multiple socio-demographic characteristics provided a more nuanced, equity-informed understanding of how substance use is distributed across the population and how psychedelics fit within evolving patterns of use.

Results

Table 1 presents key findings from the 2023 CSUS on past 12-month use of alcohol, cannabis, and psychedelics. Across every subgroup examined, alcohol was the most commonly used substance, with the highest prevalence observed across all demographic variables. This pattern closely reflects national trends. In most categories, alcohol use approached or exceeded 80%, suggesting that alcohol use is not only widespread

but also broadly distributed across diverse social and demographic groups. For example, respondents with higher household incomes and those holding a bachelor’s degree or higher reported alcohol use rates approaching or exceeding 80%. This is consistent with national research showing that alcohol use is often more prevalent among individuals with higher income and education levels, even though alcohol-related harms remain significant across all socioeconomic groups (Sersli et al., 2023).

Table 1. CSUS Data Investigating Alcohol, Cannabis and Psychedelic Use Over the Past 12 Months.

	Alcohol	Cannabis	Psychedelics
Population size	Small population (80.9%) Large population (79.7%)	Small population (32.9%) Large population (33.6%)	Small population (5.3%) Large population (6.7%)
Gender	Men (79.3%) Women (79.4%) Another Gender (78.5%)	Men (33.5%) Women (30.5%) Another Gender (68.8%)	Men (6.8%) Women (5.1%) Another Gender (19%)
Household Income	\$0 - \$19.9k (62.9%) \$20k-\$39.9k (71.2%) \$40k-\$59.9k (78.1%) \$60k-\$79.9k (80.4%) \$80k-\$99.9k (83.1%) \$100k-\$149.9k (85.3%) \$150k+ (88.0%)	\$0 - \$19.9k (36.4%) \$20k-\$39.9k (33.0%) \$40k-\$59.9k (32.7%) \$60k-\$79.9k (32.9%) \$80k-\$99.9k (32.8%) \$100k-\$149.9k (33.7%) \$150k+ (34.3%)	\$0 - \$19.9k (8.2%) \$20k-\$39.9k (6.9%) \$40k-\$59.9k (5.8%) \$60k-\$79.9k (6.2%) \$80k-\$99.9k (5.6%) \$100k-\$149.9k (6.0%) \$150k+ (6.0%)
Education	High School (72.6%) Post-Secondary (81.1%) Bachelor's + (82.7%)	High School (37.8%) Post-Secondary (32.8%) Bachelor's + (29.4%)	High School (7.4%) Post-Secondary (5.5%) Bachelor's + (5.6%)
Age	15-19 (62.7%) 20-24 (81.0%) 25-54 (80.4%) 55+ (80.4%)	15-19 (43.3%) 20-24 (52.4%) 25-54 (38.5%) 55+ (19.0%)	15-19 (9.9%) 20-24 (13.2%) 25-54 (8.1%) 55+ (1.1%)
Physical Health	Very good (80.5%) Good (79.8%) Poor or fair (73.2%)	Very good (28.5%) Good (35.0%) Poor or fair (43.1%)	Very good (5.5%) Good (6.0%) Poor or fair (7.3%)
Mental Health	Very good (79.0%) Good (80.5%) Poor or fair (78.9%)	Very good (22.9%) Good (36.7%) Poor or fair (53.4%)	Very good (3.4%) Good (6.4%) Poor or fair (12.5%)
Housing Security	Insecure (69.7%) Secure (79.8%)	Insecure (48.7%) Secure (31.9%)	Insecure (12.6%) Secure (5.7%)

Cannabis use was substantially lower than alcohol use but consistently occupied a middle position across demographic groups, with past 12-month prevalence generally ranging between 30% and 50%. This pattern aligns with broader Canadian data showing relatively high rates of cannabis use, particularly among young adults. The CSUS data also suggests somewhat higher prevalence among lower-income respondents and those living in smaller population settings, although differences across income and community size were not large. This distribution indicates that cannabis use is present across a wide range of social contexts. For some individuals, cannabis may serve as a socially embedded recreational substance, while for others (particularly students and young adults) it may also function as a coping strategy. At the same time, normalization following legalization may contribute to reduced perceptions of risk across socioeconomic groups, including higher-income and professional populations.



In contrast, psychedelic use was markedly lower than both alcohol and cannabis across all demographic categories. In most subgroups, past-year psychedelic use remained in the single-digit percentage range. This lower prevalence likely reflects several factors, including continued illegality, more limited accessibility, and lower overall social normalization compared to alcohol and cannabis. These findings are consistent with broader epidemiological patterns positioning psychedelics as a minority behavior within the general population. Unlike alcohol, which is highly normalized, and cannabis, which has become widely integrated following legalization, psychedelic use appears to remain more concentrated within specific subgroups and is typically characterized by less frequent and more episodic use. This positions psychedelics as a distinct category within the broader substance use landscape, occupying a niche but meaningful role.

A particularly notable pattern emerges when examining substance use by gender. Within the gender categories, respondents identifying as “another gender” reported the highest levels of both psychedelic and cannabis use, with approximately 19% reporting past-year psychedelic use and nearly 69% reporting cannabis use. In contrast, alcohol use was similarly high among women (79.4%) and men (79.3%), suggesting that alcohol use remains highly prevalent across binary gender categories but does not show the same elevated concentration among gender-diverse respondents. These findings suggest that gender-diverse individuals may be more likely to engage in non-alcohol substance use compared to their cisgender counterparts. This pattern is consistent with broader national research demonstrating higher rates of illicit drug use and non-medical prescription drug use among gender-diverse youth and young adults (Dharma et al., 2024). These disparities are often understood within the context of minority stress, stigma, discrimination, and barriers to affirming healthcare, which can increase vulnerability to substance use as a coping mechanism. The inclusion of an “another gender” category in Canadian datasets such as the CSUS represents an important advancement in capturing substance use patterns among gender-diverse populations. In contrast, many large-scale surveys in the United States have historically excluded or inadequately represented gender-diverse individuals, limiting the visibility of these disparities. The CSUS data highlights that gender-diverse populations represent an important and often overlooked group with elevated rates of substance use, underscoring the need for more inclusive data collection and targeted public health interventions.

Mental and physical health status also revealed important patterns. Respondents reporting fair or poor mental health showed higher prevalence of both psychedelic and cannabis use compared to those reporting better mental health. However, the cross-sectional nature of the CSUS prevents conclusions about causality. It is unclear whether individuals are using psychedelics and cannabis as a response to existing mental health challenges, whether substance use contributes to poorer mental health outcomes, or whether both are influenced by shared underlying factors such as stress, trauma, or socioeconomic disadvantage. Similar patterns were observed for physical health, with poorer self-rated health associated with higher rates of non-alcohol substance use.

In contrast, alcohol use was most prevalent among respondents reporting good or very good physical and mental health. At first glance, this may appear to suggest that alcohol use is associated with better health outcomes. However, because alcohol use is so widespread across the population, even relatively small proportions of users experiencing poor health can translate into a large absolute number of affected individuals. This reflects the principle of population burden, which emphasizes that the overall impact of a substance depends not only on the level of individual risk but also on how common the exposure is within the population (Rockhill et al., 1998). As a result, alcohol can contribute to a substantial public health burden despite appearing



broadly distributed across otherwise healthy populations. This interpretation is consistent with extensive global evidence identifying alcohol as a major contributor to morbidity, mortality, and long-term health problems (World Health Organization, 2024).

Finally, comparisons by town size show that psychedelic use is slightly more prevalent in larger urban populations, whereas alcohol and cannabis use remain common across both small and large population settings. This pattern is consistent with the idea that psychedelics may be more accessible in urban environments, where larger social networks, subcultures, and informal distribution channels increase opportunities for exposure and access (Matsukubo et al., 2025; Pirie & Simmons, 2014; Sattler et al., 2025; Zhong et al., 2025). Urban areas may also be more likely to host communities connected to psychedelic research, therapeutic practices, and cultural movements that contribute to greater awareness and openness toward psychedelic use. In recent years, storefronts openly selling psilocybin mushrooms have emerged in several major urban centers, reflecting growing cultural acceptance and increasing informal accessibility despite their continued illegal status under federal law. In contrast, alcohol and cannabis have become widely normalized and accessible across all town sizes. Alcohol has long been legally available and culturally embedded throughout Canada, while cannabis legalization has expanded retail access across both urban and rural settings. As a result, these substances show consistently high prevalence regardless of community size, reflecting their integration into mainstream social and recreational contexts (Pirie & Simmons, 2014; Zhong et al., 2025).

Discussion

When background literature and the CSUS 2023 data are viewed together, it becomes very noticeable that there is a hierarchy of substance use. Alcohol is the most widely used and socially normalized substance, cannabis is in the middle position and psychedelics is the minority concentrated in specific subgroups. At the same time, the CSUS shows that this hierarchy is not just about how many people use each substance, but which people are using and under what conditions.

The dominance of past 12-month alcohol use in Table 1 imitates the broader Canadian picture in which alcohol is the longest legalized most culturally embedded substance. Its ability to move between professional settings and casual environments shows alcohol's level of normalization. Even though cannabis and psychedelics are often seen as riskier, the data shows that alcohol use is extremely high in all categories even though harm can still be substantial (Sersli et al, 2023). With it being so common, alcohol users seem to have better mental and physical health on average than cannabis or psychedelic users, even though the number of people who consume alcohol with poor mental or physical health may be equal to or greater than for other substances just because the user base is so large.

Cannabis is in the middle of the hierarchy both legally and socially. The CSUS data shows cannabis use ranging from 30-50% in many subgroups, fitting national data that cannabis is very common in young adults and remains the second most used psychoactive substance. Since cannabis has been legalized, its use has become more widespread making it available in larger and smaller populations. This supports the idea that cannabis may function both as a socially embedded substance and as a coping strategy. In general, cannabis still does remain a risky substance even though it may be normalized now.



Psychedelics remain the lowest of this hierarchy. This matches with earlier Canadian work highlighting that hallucinogens are relatively common among illicit drugs but still tried by only one in ten adults over a lifetime. This is mostly due to its illegality and the fact that the public has such limited knowledge of psychedelics. The CSUS shows that psychedelics are not randomly distributed but are concentrated in specific groups, especially those marked by marginalization or vulnerability. An example of this is the “another gender” category which shows the highest rates of both psychedelic and cannabis use. This follows recent studies that show elevated substance use among sexual and gender minorities (Dharma et al, 2024). What additionally makes this so notable is that many studies done in the United States tend to disregard the “another gender” category. This means potentially crucial data in America of a group that appears to have some of the highest levels of use and risk in Canadian data is being missed.

The patterns in mental and physical health deepen this picture. Respondents with poor or fair mental health tend to show higher levels of cannabis and psychedelic use, but it is not possible to tell from this data whether substance use is contributing to poor health, being used to treat it, or both. To contrast this, alcohol users in this dataset are more likely to report very good physical health and good mental health. At first this might mean that alcohol is less harmful, but the extremely high prevalence of alcohol can imply that any proportion of users with poor health may be a large number of affected people. This reinforced the need to consider both relative and absolute burden when comparing substances.

With town-size, psychedelic use in large populations with alcohol use and cannabis use in both small and large populations follow the narrative that psychedelics are most likely easier to access in more cultural, urban settings while alcohol and cannabis are so common, they are easy to access across the entire urban-rural spectrum.

Conclusions

To conclude, the CSUS 2023 data and existing literature clearly highlight a hierarchy of substance use in Canada, with alcohol as the most widely used and socially normalized substance, cannabis used a little less than alcohol, and psychedelics remaining a minority behavior mostly in specific subgroups. Alcohol and cannabis are both legal and broadly accessible which helps their high levels of use across many sociodemographic groups while psychedelics which are illegal and less well known, are used far less frequently. At the same time, research has indicated that psychedelics may have potential therapeutic applications when used in a controlled clinical setting, even though their overall prevalence in population remains low. Together, these patterns underline that legality, social acceptance, and patterns of use do not always align perfectly with potential risks or benefits.



RxPs Competence Akin to Psychiatrists

Dr. Erinn Bailey-Sawatzky, Psy.D.

RxP Researcher, Clinician, Consultant

www.rxps4canada.ca



The time has finally arrived for prescribing psychologists (RxPs) where we have sufficient research that has expertly assessed their practice from several vantage points, to be able to say how competent they truly are. RxPs have an assessed competence akin to psychiatrists. Yes, you indeed read that correctly. The ability of RxPs to be safe and competent prescribing practitioners increases the number of available prescribing professionals available to the public, while also providing a unique clinician who has advanced training to employ psychotherapeutic and psychopharmacological techniques in their practice. Additionally, demonstrating RxP safety is also owed to psychologists who seek to study and train for prescriptive authority (PA), and the universities who create and staff the MSCP programs. This information becomes imperative to whether legislators are comfortable extending a psychologist's scope of practice in this way.

For over three decades, heated debates have ensued regarding the competence of RxPs. As we are all well aware, prescribing has typically fallen outside the scope of practice (SOP) of a psychologist. With the additional attainment of a Master of Science in Clinical Psychopharmacology (MSCP), plus clinical internship under prescriber supervision, along with the subsequent passing of the national Psychopharmacology Exam for Psychologists (PEP), psychologists with this advance training are able to prescribe in seven U.S. states, the Territory of Guam, and within associated federal public departments, military divisions, the Indian Health Services. Policy discussions are currently underway regarding the future of RxP in Canada (Sepehry et al., 2024).

According to my new colleague and long-time advocate for RxPs in Illinois and across the U.S, Dr. Beth Rom-Rymer, by the time an RxP is ready to prescribe independently, they have over 16,000 hours of training versus psychiatrists 12,000 hours. This is not a far leap, RxP at the level of psychiatrist, even simply given a look at those training hours, however the research was able to further support this fact in several different ways.

It is important to be aware of how the extended training that psychologists undergo within MSCP programs prepares them to competently prescribe. As part of my doctoral research project in my PsyD program, I completed a systematic literature review with a scoping review design with four research questions: one that specifically assessed the competency of RxPs. Here are the main themes and findings related to this very research question.

Highly Trained, Safe, and Competent Clinicians

Organized medicine has continually purported patient safety issues with all professions who have advanced their scope of practice to prescribing, suggesting directly that all other providers, aside from physicians, would be unsafe. This is undoubtedly not true given the numerous non-physician providers with prescriptive



authority such as nurse practitioners (NPs), dentists, pharmacists, midwives, and optometrists to name a few, who are now frequently legislated to prescribe. The stance that RxPs are unsafe for patients is not supported by the literature. For example, primary care physicians working with RxPs, RxPs personal experiences and patient experiences are consistent with the conclusions from the Department of Defense (DoD) psychopharmacology demonstration project that trained and evaluated the first RxPs over 30 years ago-they are safe and competent prescribers, at the level of psychiatrists, of which the same is true today. Further, unsafe practice by RxPs has not been proven through research or licensing complaints by clinicians or patients, by soaring insurance premiums, or college investigative processes.

Further, their training has been understood to give them the clinical competence to be safe and knowledgeable clinicians, noted over and over again in the research, with referral patterns, practice experience with colleagues, and content knowledge assessed to be high. More specifically, when assessed on their content knowledge against psychiatrists, primary care physicians, PMHNPs, general NPs, and psychologists who have not taken any prescriptive training, Cooper (2020) found that RxPs came in second to psychiatrists, followed by PMHNPs, which supports their safety and competence in practice. What surfaced as most concerning in Cooper's (2020) research, was that primary care physicians and general NPs, who write a majority of psychotropic prescriptions, performed worse (physicians) and significantly worse (general NPs) on content knowledge regarding psychotropics, which should assist in readdressing organized medical associations to focus on their own members continued learning needs prior to continuing to endeavor to delay RxP legislation based on concern for patient safety. Based on this data, it could be argued that some additional education be considered for primary care physicians and general NPs for their level of knowledge to be equivalent to that of a psychiatrist or an RxP.

Curtis et al. (2023) further highlighted this point in identifying that the Department of Defense (DOD) training project from over 30 years ago noted RxPs had graduated with knowledge assessed as comparable to third year psychiatric residents about to enter fully independent practice. It appears the results of safety and competence from 30 years ago remains true today. Given that psychologists without PA are engaged by physicians often in consulting on medication in general, and Cooper's (2020) research finding that psychologists absent of psychopharmacology training performed the lowest in competence regarding medication, is further supported by the APA's recommendations for psychopharmacology training at level one or two even if a psychologist decides not to take level three training to prescribe. It was further evident in the research that primary care physicians working with RxPs in some capacity overwhelmingly reported confidence in their knowledge and work which enabled referrals and confidence by physicians in shared care of patients while leaning heavily on their expertise in providing an accurate psychological diagnosis prior to considering medication which is imperative.

Hybrid Skillsets Benefit Patients

A long-standing fear of organized psychiatry has been that psychologists interested in training for PA were trying to practice psychiatry without being educated in the traditional psychiatric model of medical training. No research to date has indicated that RxP practice is the same as psychiatric practice. RxP practice is distinctive from both individual psychological and psychiatric practices, resulting in a unique hybrid of the two. Research on RxP practice has shown them to be unique clinicians that continue to rely upon their psychological training base utilize psychotherapy in a continued way, and now possess an additional tool of prescribing at their



disposal when needed. They are trained to prescribe if they are sure, and not to prescribe just because they can. The psychologist with PA is a new type of healthcare professional not yet seen in many parts of the US and not at all in Canada, who can combine the best in training for psychological and pharmacological knowledge to assist patients to their best outcomes.

Psychiatrists on the other hand, have become very limited in their practice over the years to be the specialists of psychotropic medications absent of the tools of psychotherapy which the psychologist has the most extensive training to employ with patients. RxPs are not limiting their practice to solely psychotropic prescribing such as psychiatrists are, due to their multiple years of psychological and behavioral training that provides a strong foundation in the importance of psychosocial case conceptualizations, versus a psychiatrist's heavily medicinal training base.

Further, primary care physicians report access to an RxP provides higher quality care for patients that is naturally more integrated, while providing specialty care due to these hybrid skills. These unique skills further provide many additional advantages to medical colleagues and patients, such as a solid grounding in a biopsychosocial lens for care that does not prioritize the biomedical view of care as evidenced in psychiatric practice (What evidence?). With PA, RxPs can very uniquely provide comprehensive wrap-around care to the patients they serve. Further, the RxP skillset has been seen by medical colleagues working with RxPs to meet the needs of a patient centered medical home as a valuable resource that contributes to increased patient outcomes with RxPs on the treatment team.

Ability to Treat the Medically Complex

Many opinionated commentaries of the past include a concern over if RxPs could treat medically complex patients given the need to identify biological issues from psychological, while being able to treat and/or refer appropriately. Given their PA training, and difference in undergraduate training from other prescribing professionals, concern over their ability to safely treat the medically complex spurred copious amounts of opinion articles about their purported inability despite this being contrary to what the DOD RxP project proved that RxPs could identify, treat, and refer medically complex patients appropriately.

Much of the research in my study identified that RxPs in primary care often handle multiple patient issues in conjunction with primary care physicians, where reciprocal consultation can happen to increase positive patient outcomes. Additionally, RxPs are found to be increasingly handling complex patients with multiple comorbidities in safe and comprehensive ways. Research described RxPs treating not only psychiatric concerns, but comorbidities such as obesity and heart disease. RxPs also know when to refer - surveyed primary care physicians were confident that RxPs were easily identifying when to refer to a family physician and did so appropriately. RxPs are also taking medically complex patients off medications with high side effects and alternatively providing them a more efficacious medication with less side effects thereby decreasing their associated risks and increasing their quality of life. Prescriptive authority training has allowed for learning how to incorporate treatment for comorbid conditions which enhanced all the treatments (therapeutic and pharmacological) that RxPs could provide. Further research described the ability of RxPs to reach more seriously ill patients, and to treat a more complicated patient base in actual practice that covered psychiatric, medical, and substance abuse illnesses.



If RxPs were unsafe and not well trained, one would not expect to find research that identifies that primary care physicians are relying on RxPs for their expertise in assessment, diagnostics, psychotherapy, and psychopharmacological prescribing. RxPs are often utilized by primary care physicians for referrals and for consultations for their patient's psychotropic medication options, while also being involved in training medical residents and psychology interns, according to the research in my study. Often times, relief is reported by primary care physicians knowing when an RxP is available, who is consequently seen as highly valued by medical providers. An advantage of RxPs over psychiatrists is that RxPs are regularly employing all facets of their training with patients that encompass a biopsychosocial lens to their treatment options as witnessed by primary care physicians. This provides them with not only psychopharmacological expertise but psychotherapeutic treatment as well when consulting with physicians about patients as needed, which was highlighted in several studies. These assertions were presented decades prior when the DOD demonstration project evaluated and graduated 10 RxPs who they found to have quality of care that was good to excellent in ratings by medical providers who were also aware of the benefits of reciprocal consultation with medical professionals. Research from New Mexico and Louisiana indicated that RxPs were receiving several referrals from primary care physicians and psychiatric hospitals to treat complicated patients, which supports the assessment of clinicians referring to providers with more specialty training than them.

Medical providers are assessing RxPs in an overwhelming positive way when they get to practice with them, which is not surprising given the research that indicates most primary care physicians are not as comfortable or feel as well versed in mental health issues of their patients. Medical providers working then with RxPs are much more confident in the work they do with their patients when an RxP is available for consultation. Their only complaint is that they wish more RxPs existed! Their complaint of not having enough RxPs available is a credit to the training RxPs receive, and to the profession of psychology in general.

Increased Access

A continual complaint regarding mental health care is access to appropriately trained providers, especially when it comes to specialists of psychopharmacology such as psychiatrists, where RxPs can assist in filling the gap, was continually reported in the literature. RxPs are giving patients access to a different treatment perspective all together when they see RxPs for assessment, diagnosis, psychotherapy and/or psychopharmacology. Currently, no other treatment provider specializes in both psychopharmacology and psychotherapy at a doctoral level. This is especially imperative in rural and underserved areas where access is improved. RxPs have multiple work settings that also resulted in an increase in access for patients, such as in the IHS, DOD, public health service, hospitals, medical clinics, and residency programs for family practice residents while filling unmet needs in rural and urban areas. RxPs and primary care physicians felt RxPs were indeed increasing access for patients in their clinics. Primary care physicians felt access was increased for patients and for physicians who required psychiatric consult and behavioral healthcare resources. Just the mere existence of RxPs increases access for patients. Given that Cooper (2020) was able to show RxP knowledge and competency at the level of psychiatrists, the assertion from RxP proponents from decades earlier regarding RxPs increasing access to specialty providers of mental health care is in fact true, as they are added to the specialist pool of providers.

Several authors further highlighted that referrals out to psychiatrists are reduced with RxPs being more readily available which assists psychiatrists and patients due to psychiatry's low number of clinicians and high number of referrals. Further, the IHS that has been utilizing RxPs for years and reports increased access for



patients via integrative specialty teams and coverage for psychiatrists to increase access and continuity of patient care. Instead of patients waiting several months for an appointment with a psychiatrist, RxPs provide an option for family physician referral and management by an RxP due to the profession's advancements in practice. The research also indicated that psychiatry has become less attractive to residents and patients over the years due to their siloed focus on management of psychotropics, whereas RxPs have remained rooted in psychotherapeutic techniques while also specializing in psychotropics with advanced training. Access is then increased to providers who can provide both therapy and psychotropic management versus one provider for each specialty. Several other studies showed that care to patients needing RxP services are more immediate than prior to RxP availability identifying an increase in access while many addressed the impetus of the RxP movement in increasing overall access to patients that decreased fragmented care between professionals. Access continues to increase as more RxPs are trained and licensed to provide prescriptive services.

A Natural Evolution of the Profession

Much debate has ascended in the literature concerning if PA for psychologists is a natural next step for the profession given their specialty training in assessment, diagnosis, and psychotherapeutic treatment of mental illness. For example, psychologists have been monitoring patients on medications for many years and have been asked for their opinions on biomedical treatments as well. We currently have three levels of psychopharmacological competency, with level three including extensive psychotropic training resulting in PA, or level one and two which assist a non-prescribing psychologist in monitoring patients in treatment for psychotherapy where medication has been initiated by another provider. The ability to complete level three training and obtain PA is a logical next step. The ability to add PA to a psychologists' repertoire means one less provider that the patient needs to see when accessing services, including the incorporation of psychotherapeutic techniques with psychopharmacology strategies and increased monitoring of side effects over the course of treatment than is typical with a medical provider.

Much of the research reviewed noted PA for psychologists is a response to the needs of mental health consumers and a need to increase their education in the biological realms of patient care in their striving of improving clinical outcomes for patients. Psychological practice has been growing in sophistication in its scope of practice and subspecialty areas, which is quite distinct from psychiatry which has narrowed their scope over the years to primarily medication consult which is a model of provider that psychiatrists resist. Some authors even posit that RxPs are essentially a new form of healthcare treatment provider who, due to extensive training in both psychology and psychopharmacology, can be relied upon to bring the best of both sets of training to the health care system for patient benefit, and I couldn't agree more! It appears that the scientist basis of psychologists, who when they incorporate PA training into their repertoire, allows for a natural expansion of skills in their behavioral health work with psychologists MSCP training allowing for PA which allows for more comprehensive treatment of psychiatric issues.

Psychologists must continue to seek innovative ways to psychologists look for innovative ways to address the mental health needs in hard to reach and rural areas, with the goal of ensuring comprehensive psychological and psychopharmacological treatment. Finally, this evolution for the profession is providing greater equity across providers related to compensation and employment opportunities.



Conclusions and Future Directions

Significant findings were the theme of safe and competent practice by RxPs whereby the opinioned concerns from lobbying medical associations and some academic psychological colleagues are confirmed to be absent of evidence. RxPs are safe and competent providers, from their initiation in the late twentieth century to their practice in the twenty-first century, without change. This is evidenced by positive appraisals by physicians and three external evaluators in the DOD, to the optimistic evaluations on RxPs by physicians in public and private practice in PA enabled states and associated federal departments. It is the positive patient experiences, prodigiously positive physician experiences, referrals from hospitals and psychiatrists for RxPs to treat patients, scarcely existing complaints against RxPs, and subsequently reasonable insurance costs for practice, and assessed competency in psychotropics against other psychotropic prescribers that speaks to their safety and competence from many different vantage points. While RxPs can prescribe, they are often noted to be deprescribing which subsequently reduces polypharmacy for patients. In doing so, RxPs are continuing to employ psychotherapeutic techniques. This is based off the hybrid skillsets of their doctoral-level psychological training and comprehensively focused psychopharmacology training, which delivers a unique healthcare clinician that is distinctly different from both general psychologist (psychologically trained) and psychiatrists (biomedically trained).

RxPs are sharing care and referring to medical providers appropriately while also showing their ability and safety in competently managing medically complex patients. RxPs are relied upon through referrals and consultations requested by primary care physicians who acknowledge their own knowledge gaps in psychiatric assessment, diagnosis, psychopharmacology, and when psychotherapy may be more appropriate than writing a prescription as RxPs are better positioned to assess that need. Additionally, RxPs are reported to increase access not only to primary care physicians and their patients, but by accepting referrals that get patients seen quicker than they do seeing psychiatrists suggesting RxPs mere existence increases access to all populations they serve. RxPs continue to increase their competency through collaborating with medical professionals and working with patients of all ages when authorized by state or federal legislation. Their hybrid skills are reported to be desired by healthcare consumers who positively report the higher quality of care they receive from RxPs which when viewed through the BPS framework, aligns with the focus on patient and provider relationships when patients continue to seek care from RxPs versus reject them. This seeking is seconded by primary care physicians who request more RxPs to be available after having worked with them.

RxPs were evaluated in the research to work across many settings and environments, in direct response to the need of healthcare consumers requiring access to mental health treatment. In this work, RxPs are achieving increased autonomy and respect from within a system that has consistently placed physician specialists at the top of a hierarchy, resulting in more equity and parity with physician colleagues. Further, RxPs by their very nature, are innovative in their desire to reach rural and underserved populations with treatment that is comprehensive and safe, while maximizing patient benefit showing the growing sophistication of the RXP scope of practice. PA for psychologists further moves them from monitoring involvement in the medications their patients are prescribed in silos of fragmented care, to autonomous management of their medication and therapy through a single RXP provider. RxPs are responsible for the needs of consumers, and research indicates they are the only hybrid profession of this kind able to apply both treatment options, in a biopsychosocial framework, to their patients for optimal care and outcomes evident in the research.



The review of the literature regarding safety and competency of RxPs shows a true integration of research and practice information that supports the efficacy and safety of RxPs which is imperative to allow stakeholders to conceptualize RxP integration in the US and Canada. Evidence must supersede emotion when it comes to the care of American and Canadian healthcare consumers desperately seeking mental health care. I am highly encouraged beginning to share my research findings with as many ministers of health and mental health and addictions in Canada about RxPs and their utility here in Canada. I am equally encouraged that we are on the brink of moving forward with RxPs here in Canada, while we continue to advocate and research on their behalf as well to support our U.S. psychological members in continuing to advance RxP legislation more expeditiously.

With healthcare systems stretched, limited specialist availability, and patient needs increasing, governments are evolving in their interests around increasing scopes of practice for all health care providers when it is safe to do so, in efforts to meet the needs of their citizens. Education and advocacy for RxPs is currently very timely, and as I was recently told by a provincial minister in Canada, RxPs are the types of innovative solutions our healthcare system needs regarding health human resources if we are to meet the needs of the population! The time is now.



Creatine Supplementation and Cognition Reserve in Older Adults: To Use or Not, that is the Question

Amir A. Sepehry, Chelsea Jewell, Nicolas Mora Morales, & Jag Gill

Adler University, Vancouver, BC, Canada.

Introduction

Life expectancy has increased substantially over the past century, with a growing proportion of individuals now living into advanced old age. In clinical practice, adults aged 65 years and older are typically classified as geriatric (Halter et al., 2017). According to the World Health Organization (WHO), by 2030, 1 in 6 people will be considered geriatric (World Health Organization, 2025). Complex, interrelated changes across multiple domains of health, including autonomous self-care, physical health, mental health (e.g., depression, anxiety), mobility, and cognitive processes such as concentration, memory, and decision-making, accompany aging. Of course, as we age, so do our bodies. As physiological systems age, the risk of chronic disease and functional decline increases, often necessitating pharmacological intervention and supplementation. For example, antihypertensives for heart conditions, antidiabetic medications for diabetes management, or anticoagulants for clotting disorders or stroke prevention are often present in older adults' regimen. Oftentimes, elderly patients are prescribed more than one medication for more than one condition; this is known as polypharmacy (World Health Organization, 2022). Polypharmacy can present many adverse effects, such as an increased risk of drug reactions, cognitive impairments, falls, and even death.

As geriatric patients are prescribed various medications to manage their aging bodies and assist with bodily deficits, the risk of polypharmacy increases due to age-related changes in the body's ability to metabolize and manage the effects of drugs. Age-related changes in pharmacokinetics (i.e., drug absorption, metabolism, and elimination) and pharmacodynamics (i.e., drug effects on the body) further exacerbate the risks associated with polypharmacy (Julien et al., 2023). Bodily changes, irrespective of medication intake, such as renal or hepatic disorders, gastrointestinal disorders, extreme weight loss, decreased exercise, reduced sleep, or even mental illness, may impact the mechanisms of pharmacokinetics and pharmacodynamics. In addition to prescribed medications, many older adults use over-the-counter (OTC) products and nutritional supplements, including natural substances (e.g., St. John's Wort or Melatonin), multivitamins, Medium-Chain Triglyceride (MCT), and creatine. Therefore, the introduction or addition of supplemental agents that may influence metabolic and perhaps cognitive resilience, such as creatine, must be considered cautiously, as these agents may interact with existing medication regimens and further complicate metabolic burden in geriatric populations. Besides, evidence shows that creatine interacts with diet and tissue, and its absorption is age-dependent (Solis et al., 2017); hence, the purpose of this research paper.



Creatine: Supplement for Mind and Body?

Creatine is a naturally occurring nitrogen-containing compound synthesized endogenously from the amino acid's arginine, glycine, and methionine, primarily in the liver, kidneys, and pancreas. Creatine can also be obtained exogenously through dietary sources such as meat and fish (Kreider, 2003; Rawson & Volek, 2003).

Approximately 95% of the body's creatine is stored in skeletal muscle, with the remainder distributed across the brain and other energetically demanding tissues (Forbes et al., 2022). Its primary biological role is to support cellular energy homeostasis via the creatine–phosphocreatine system, which rapidly regenerates adenosine triphosphate (ATP) during periods of increased or fluctuating energy demand. However, in elderly, frail individuals, these creatine levels are diminished, which often results in muscle atrophy, a decline in renal function, maybe cognitive deficit, and adverse effects on medication pharmacokinetics (Candow et al., 2014).

Moreover, the creatine clearance is not simple. This must be eliminated in urine or serum as creatinine. This elimination involves the phosphocreatine system, in which the hydrolysis of phosphocreatine regenerates ATP via creatine kinase (Guimaraes-Ferreira, 2014). The process is called cyclization (Borsook & Dubnoff, 1947). The optimal process depends on the individual's muscle mass, as creatinine secretion is proportional to it. Age-related sarcopenia – a progressive condition affecting skeletal muscle mass, strength, and function -- can complicate the interpretation of renal biomarkers in older adults (Rule et al., 2009). Age-related muscle mass reduction may mask impaired kidney function, while creatine supplementation may elevate serum creatinine concentrations without reflecting true renal pathology. Since elderly individuals are more likely to have muscle mass loss, they are expected to have creatinine clearance equivalent to their muscle mass. Hypothetically, if additional creatinine is introduced via creatine monohydrate intake, higher serum creatinine levels are expected, which can mask an underlying condition or place an additional renal load that could jeopardize organ integrity. In geriatric populations characterized by multimorbidity and polypharmacy, these physiological nuances warrant careful monitoring when considering the addition of supplements such as creatine.

The importance of creatine stems from its function as an intracellular energy buffer. In skeletal muscle, phosphocreatine enables rapid ATP resynthesis during short-duration, high-intensity activity, thereby sustaining force production and delaying physical fatigue (Kreider, 2003; Turner et al., 2015). In the central nervous system, where energy demands are continuous and tightly coupled to synaptic transmission and ion homeostasis, it is hypothesized that creatine may help maintain neuronal function, membrane potential stability, and metabolic resilience (McMorris et al., 2006; Pires et al., 2021), and perhaps helps with mental fatigue. However, the brain can synthesize creatine and appears to be resistant to its uptake (Forbes et al., 2022). Therefore, brain creatine availability appears particularly relevant under conditions of metabolic stress, including sleep deprivation, hypoxia, prolonged cognitive effort, and neurological vulnerability (Forbes et al., 2022; Gordji-Nejad et al., 2024). Therefore, creatine intake before evaluation may affect neuropsychological assessment.

Although endogenous synthesis and dietary intake generally meet baseline physiological requirements, creatine availability can become functionally limiting in several contexts. These include aging (e.g., reduced cognitive function, body frailty, and organ deterioration and workload, food regimen), increased physical or cognitive workload, and pathological states characterized by mitochondrial dysfunction or impaired cerebral energetics (Pires et al., 2021; Turner et al., 2015). Importantly, these physiological vulnerabilities often coincide with age-related reductions in appetite and overall energy intake, even among otherwise healthy older adults (Giezenaar et al., 2016). When overall caloric intake decreases, it often becomes harder to achieve adequate protein intake, and population-level data show that a substantial proportion of older adults do not meet recommended protein targets (Krok-Schoen et al., 2019). This matters for the elderly for the following reasons: (1) endogenous creatine



synthesis depends on amino-acid precursors, and (2) exogenous creatine is primarily obtained through animal-based foods (e.g., meat and fish), which are foods that some older adults may consume less due to appetite changes, chewing/swallowing barriers, gastrointestinal tolerance, cost, or changes to dietary preferences. Consistent with this, dietary survey evidence suggests that many older adults consume relatively low amounts of dietary creatine, with a sizable subgroup consuming little to none (Ostojic et al., 2021). In practical terms, supplementation may serve as a targeted way to increase creatine availability when dietary intake is reduced, particularly in older adults who (a) eat less overall, (b) struggle to meet protein needs, or (c) consume minimal creatine-rich foods. Experimental evidence from the young adult population indicates that oral creatine supplementation reliably increases intramuscular and intracerebral creatine and phosphocreatine concentrations, thereby enhancing energetic buffering capacity and resistance to metabolic stress (Merege-Filho et al., 2017; Rawson et al., 2008), but the data are inconsistent. But what about the elderly with multi-organ slowing due to various metabolic conditions, such as diabetes and hypertension, just to name a few?

Beyond its well-established role in exercise performance, accumulating evidence supports a role for creatine in cognitive function and brain health. Supplemental studies report improvements in working memory, reaction time, and executive performance, particularly under conditions of sleep deprivation, mental fatigue, or high cognitive demand in various populations (McMorris et al., 2007; Merege-Filho et al., 2017). Mechanistically, these effects are thought to reflect not only improved ATP availability but also secondary influences on mitochondrial efficiency, oxidative stress regulation, calcium homeostasis, and neuroprotective signalling pathways (Pires et al., 2021; Sandkuhler et al., 2023). However, the cognitive relevance of creatine in aging populations may extend beyond these direct neurobiological effects. Aging is accompanied by progressive declines in skeletal muscle mass and bone mineral density, which are associated with reduced mobility, lower physical activity, and decreased engagement in cognitively stimulating environments—all factors linked to accelerated cognitive decline in later life (Buchman et al., 2007; Kirk-Sanchez & McGough, 2014). Physical activity, particularly resistance and multicomponent exercise, has been consistently associated with improvements in executive functioning, attention, and memory, likely through effects on cerebral blood flow, neurotrophic signalling, synaptic plasticity, and mitochondrial efficiency (Erickson et al., 2011; Northey et al., 2018). Age-related declines in physical capacity may therefore indirectly compromise these neuroprotective mechanisms by limiting sustained engagement in cognitively beneficial exercise.

Within this broader context, creatine supplementation may be additionally relevant to cognitive aging insofar as it supports energetic capacity and reduces fatigue during exertion, thereby facilitating continued participation in physical activity (Chilibeck et al., 2017). Through this combined direct and indirect pathway, creatine may contribute to cognitive resilience not only by enhancing cerebral energetics, but also by helping preserve the behavioural and physiological conditions that support long-term brain health. However, the evidence shows that the absorption of standardized creatine supplementation protocol (0.3 g.kg⁻¹. Day⁻¹ for 7 days) between muscle tissue and brain is different, where the brain did not significantly absorb compared to muscle (Solis et al., 2017). Whether this difference is due to body mass index or tissue composition differences at onset, it remains to be found.

Creatine has also been investigated for potential neuroprotective effects in neurodegenerative disorders (Meftahi et al., 2023). For instance, evidence suggests modulation of dopaminergic systems with potential neuroprotective effects against mitochondrial dysfunction in Parkinson's disease (Bender et al., 2006); however, the outcome remains controversial, and no explanation is given for why this occurs or can be applied to other conditions. Furthermore, the level of evidence on the efficacy of creatine use regarding other neurodegenerative conditions is mixed.



Conclusions & A Call for Research

Collectively, creatine represents a metabolic modulator with potential relevance for aging populations characterized by energetic vulnerability, multimorbidity, and polypharmacy and can support a fundamental biological requirement: the capacity of high-demand tissues, especially muscle and brain, to maintain energetic stability in the face of fluctuating or excessive demands. While historically framed within sports and exercise physiology, contemporary evidence and media positions creatine as a broader metabolic modulator with relevance for cognition, brain resilience, and clinical populations. Understanding the contexts in which creatine availability becomes limiting is therefore essential for its rational application across performance, health, and disease (Moriarty et al., 2023; Turner et al., 2015). However, the evidence is limited and fraught with methodological challenges (Candow et al., 2026; Pratt et al., 2026): A) there are only 2 meta-analyses on the effects of creatine on cognitive functions with limited data and mixed samples, and B) a notable lack of randomized studies focusing on geriatric populations, who are often prescribed polypharmacy medication regimens. Given the complexity of age-related physiological changes and polypharmacy prescriptions, the addition of creatine supplements in the geriatric population must be approached cautiously and evaluated within the broader context of comorbid conditions and overall pharmacological profiles.

About the Writers



Comparative Patterns of Alcohol, Cannabis, and Psychedelic Use in Canada: Evidence from the 2023 CSUS

Maria Barsoum is a second-year BA student in psychology at the University of Ottawa. Her academic interests include psychopathy, substance use (particularly alcohol, cannabis, and psychedelics), and life-course perspectives, with a focus on people who are incarcerated. She plans to become a forensic psychologist and

work directly in correctional settings to support rehabilitation and sustainable re-entry into the community.



RxPs Competence Akin to Psychiatrists

Dr. Erinn Bailey-Sawatzky is an APA Award Winning Doctor of Psychology, an experienced healthcare executive, consultant, clinical counsellor, and rural private practice owner in Central Alberta. She has a degree in Human Resources and Labour Relations, a Certificate in Information Access and Protection of Privacy, a Master of Arts in Counselling Psychology, and is a Doctor

of Psychology (PsyD) with a specialty in testing/evaluation in clinical counselling psychology, while being the Canadian research expert on Prescribing Psychologists (RxPs) (www.rxps4canada.ca). Her research won her the 2025 Patrick DeLeon American Psychological Association (APA) Division 55 Award for Outstanding Student Contribution to the Advancement of Pharmacotherapy.

About the Writers



Creatine Supplementation and Cognition Reserve in Older Adults: To Use or Not, that is the Question

Dr. Amir Ali Sepehry is an Associate Professor of Clinical Psychology at Adler University and trained under scientific-practitioner model with expertise in psychopharmacology and its interface with neuropsychology and neuroscience. His work focuses on the cognitive and functional effects of pharmacological interventions across conditions, including mood disorders, substance use disorders, traumatic brain injury, and neurodegenerative diseases such as mild cognitive impairment, Alzheimer's disease, and dementia praecox. His research examines how medications influence cognitive processes, decision-making capacity, and real-world functioning, with particular attention to therapeutic and adverse cognitive effects. He has contributed to evidence synthesis through systematic reviews and meta-analyses, and to the development of clinically meaningful outcome measures. Dr. Sepehry teaches graduate-level psychopharmacology, emphasizing mechanisms of action, evidence-based prescribing, and integration of biological and psychosocial models. His work supports the advancement of safe, individualized pharmacological strategies to optimize cognitive and mental health outcomes.



Creatine Supplementation and Cognition Reserve in Older Adults: To Use or Not, that is the Question

Chelsea Jewell is a registered psychiatric nurse and registered clinical counselor with experience in emergency, high-acuity, and forensic mental health settings. She currently works in a federal correctional institution, supporting the treatment, rehabilitation, and reintegration of federally sentenced women. She holds a Master's degree and specializes in complex personality disorders, substance use, and trauma. Chelsea is completing her PsyD dissertation through Adler University, exploring meaning-making and resilience among members of British Columbia Search and Rescue Association. She has applied to pursue a Master's degree in Clinical Psychopharmacology with the goal of obtaining prescription privileges as a medical psychologist. Outside of work, she enjoys camping, hiking, and gardening with her husband and their chocolate Labrador, Ross.

About the Writers



Creatine Supplementation and Cognition Reserve in Older Adults: To Use or Not, that is the Question

Originally from Colombia, **Nicolas Mora Morales** started his academic journey studying to become a MD. After considering his goals to bring holistic care to his patients and promote mental health, he switch careers and earned his undergraduate degree and psychologist title from Pontificia Universidad Javeriana de Bogotá in 2023. His thesis focused on school-related anxiety and burnout, reflecting his early interest in youth mental health and academic stress. Later that year, he began graduate training in evidence-based clinical psychology while working as both a school counselor and a private practice psychotherapist. In 2025, Nicolas relocated to Vancouver, British Columbia, to pursue a Master of Counselling degree at Adler University, specializing in youth and school-based practice. Through this program, he aims to further refine his therapeutic competencies while deepening his engagement with research in behavioral science and neuroscience.



Creatine Supplementation and Cognition Reserve in Older Adults: To Use or Not, that is the Question

Jag Gill is a PsyD Candidate in Clinical Psychology at Adler University. His research focuses on parent–child estrangement, and he brings a background in exercise science and kinesiology to his integrative approach to health and psychological wellbeing.

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