

Exploring ayahuasca-assisted therapy for addiction: A qualitative analysis of preliminary findings among an Indigenous community in Canada

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Abstract

Introduction and Aims. A previous observational study of ayahuasca-assisted therapy demonstrated statistically significant reductions in self-reported problematic cocaine use among members of an Indigenous community in Canada. This paper aims to qualitatively explore the impact of ayahuasca-assisted therapy on addiction and other substance use-related outcomes and elucidate the lived experiences of participants. **Design and Methods.** Qualitative interviews were conducted with 11 adult Indigenous participants of the ayahuasca-assisted ‘Working with Addiction and Stress’ ceremonial retreats (June–September 2011). Semi-structured interviews assessed experiences of participants following the retreats at 6-month follow up. Thematic analysis of interview transcripts was conducted. **Results.** Narratives revealed that the retreats helped participants identify negative thought patterns and barriers related to their addiction in ways that differed from conventional therapies. All participants reported reductions in substance use and cravings; eight participants reported complete cessation of at least one substance at follow up. Increased connectedness with self, others and nature/spirit was described as a key element associated with reduced substance use and cravings. **Discussion and Conclusions.** This analysis expands upon prior quantitative results highlighting the therapeutic potential of ayahuasca-assisted therapy and provides important contextual insights into why ayahuasca-assisted therapy may have been beneficial for members of an Indigenous community seeking to address their problematic use of substances. Given limited efficacy of conventional treatments for resolving addiction issues, further research should investigate the role of ayahuasca and other psychedelic-assisted therapies in enhancing connectedness and other key factors that may improve well-being and reduce harmful substance use. [Argento E, Capler R, Thomas G, Lucas P, Tupper KW. Exploring ayahuasca-assisted therapy for addiction: A qualitative analysis of preliminary findings among an Indigenous community in Canada. *Drug Alcohol Rev* 2019]

Key words: ayahuasca, psychedelics, psychedelic-assisted therapy, addiction, indigenous health.

Introduction

Indigenous peoples in Canada and globally experience a disproportionate burden of social and health inequalities with significant heterogeneity across settings [1]. Stemming from multi-generational impacts of colonialism, racialised policies and related trauma, high rates of concurrent mental health and substance use disorders among Indigenous populations remain of critical concern. Despite decades of ongoing efforts, conventional treatment approaches have had limited success,

exacerbated by formidable barriers to health faced by those who have experienced devastating disconnection from traditions, culture and spirituality [1,2].

Ayahuasca, an Amazonian plant-based tea, is among various psychedelic substances purported to have therapeutic benefits mainly in non-clinical settings but more recently also in clinical ones [3–6]. In recent years, a renewed interest in psychedelic-assisted therapy has generated mounting evidence linking therapeutic uses of psychedelics with improvements in problematic substance use [7–9], trauma [10] and

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Received 2 September 2018; accepted for publication 12 August 2019.

psychological well-being [11–15]. Ceremonial or ritualistic use of ayahuasca has been associated with reductions in substance use problems [16–19]. Recently, the first randomised controlled trial on ayahuasca for treatment-resistant depression was conducted in Brazil: findings demonstrated significant, rapid antidepressant effects following a single dose of ayahuasca compared to placebo [20]. Clinical trials have demonstrated similar outcomes with other psychedelics (e.g. psilocybin, LSD) [14,15,21]. However, further research is needed to more conclusively demonstrate the therapeutic potential of psychedelics in addressing addiction.

Previously, members of our research team published results from an observational study of ayahuasca-assisted therapy in the context of ‘Working with Addiction and Stress’ retreats among Indigenous members of a rural Coast Salish community in British Columbia (BC), Canada. Findings demonstrated statistically significant reductions in self-reported cocaine use and improvements in measures of mental well-being and quality of life [22]. This paper aims to share the life experiences of participants in their own words to provide a deeper and more personalised understanding of how ayahuasca-assisted therapy affected their psychosocial well-being and substance use.

Methods

Detailed information on methods for the observational study can be found in the previously published paper [22]. Briefly, a First Nations band in rural southwestern BC invited the retreat team to hold healing retreats that included ayahuasca ceremonies for community members with problematic substance use—including alcohol, tobacco, cocaine and pharmaceutical painkillers—and related issues. All participants were Indigenous members of the same Coast Salish band and most were residents of a small, isolated community of approximately 10 000 people. Eligibility criteria included ability to communicate in English, be over the age of 18, no past experience with ayahuasca, no current use of selective serotonin reuptake inhibitors and no current or recent experience of psychosis.

The retreats took place over four days and incorporated two ayahuasca ceremonies guided by a Shipibo master ayahuasquero and three (non-Indigenous) Canadian apprentice ayahuasqueros. The retreats took place in the band’s longhouse (traditional ceremonial space) that was blessed and prepared in Coast Salish tradition by spreading cedar boughs over the floor. Participants adhered to a diet that adhered to traditional Shipibo (Peruvian Amazonian Indigenous)

practices, refraining from meat, sugar, alcohol, salt and strong seasonings. For full descriptions of each retreat day, please refer to the previous paper [22]. The retreat team conducted group talk therapy sessions and breathing and meditation exercises during the day led by a Canadian physician with expertise in addiction medicine and experience working with Indigenous people. Purposes were to elicit reflection and insights about traumatic life experiences and consequent emotional and psychological problems, including problematic substance use. Participants were invited to share their intentions prior to starting the ayahuasca ceremonies, which were conducted at night (approximately 9.00 pm to 3.00 am). Small glasses (50–100 mL) of ayahuasca were offered to participants and traditional chants, known as *icaros*, were sung in Shipibo, Quechua or Spanish by ayahuasqueros. Participants slept in the longhouse after the ceremony and had opportunities to share experiences the next day in both unstructured dialogues and more formal debriefings with the retreat team.

At the request of several study participants to share their experiences in their own words, a qualitative analysis was added to the project. The research team received ethics approval from Institutional Review Board Services (Aurora, Ontario) to add a short semi-structured interview as part of the final (six-month) follow-up session of the quantitative study. The process of specifying the interview frame and developing the questions was informed by discussions with participants throughout the retreats and follow ups with the aim to produce personal narratives to better understand the impact of the retreats. The interview included three questions:

1. Did the retreat have any impact on your life?
2. On a scale of 1–10, with 1 being extremely negative and 10 being extremely positive, how would you rank the impact of the retreat on your life?
3. Please describe how the experience impacted your life, for example your substance use, personal relationships, sense of self and connection with nature and/or spirit.

Formal consent was given using a recorded interview consent form, which conveyed the purpose of the interview, plans for incorporating information into the study and procedures for protecting privacy. Interviews were conducted either in-person or by phone and recorded with a digital voice recorder. Interviews were transcribed and thematic analysis [23] was performed to describe patterns emerging across the data. Two researchers (EA and RC) independently coded the interviews, and the research team then reviewed

themes to arrive at a consensus of the six central and final themes, as presented below.

Results

Overall, 11 of the 12 individuals who participated in the retreats and prior quantitative study participated in the qualitative study, including six men and five women, ranging in age from 19 to 56 years old (mean age = 38). One participant chose not to drink ayahuasca on the second night; otherwise all participants drank ayahuasca in both ceremonies. All participants responded that the retreat had an impact on their lives. On a scale of 1 (extremely negative) to 10 (extremely positive), eight participants ranked their experience at 8 or higher, with a mean score of 7.95 (range = 5–10). Some of the participants experienced nausea and vomiting during the ceremonies (i.e., the purge), which are expected effects of drinking the brew and considered by many to contribute to its perceived healing properties.

Diminished substance use and cravings

A consistent theme to emerge from the narratives was that participants experienced considerable reductions in substance use and/or cravings following the retreats. All participants described the retreats as having a positive impact on their substance use, coinciding with significant life improvements and healthier relationships with themselves and others. For example, participants explained that ayahuasca-assisted therapy helped them to release the pain or trauma (e.g., losing loved ones) that was being masked by their substance use, facilitating recovery from addiction:

‘Before the ceremony I was struggling with my addiction, crack cocaine, for many years. And when I went to this retreat, it more or less helped me release the hurt and pain that I was carrying around and trying to bury...with drugs and alcohol. Ever since this retreat I have been clean and sober. So it had a major impact on my life in a positive way. It affected my life in giving me another chance at life’.—P4 (41-year-old female)

‘It put my substance [use] in my face and I just faced the problems that I was having keeping me in my abuse, and it...mostly had to do with my grief and loss of my twin brother and my...infant daughter that passed away. And I just kept living it over and over again until I finally faced it and I just feel that there was closure. I do not use any more. I do not use anything. I do not smoke or anything’.—P8 (34-year-old male)

Following the retreats, eight participants reported complete cessation of at least one substance and cravings. The remaining three reported reductions in use or problematic use with two reporting they quit temporarily and then returned to using but less problematically, and one stating that they ‘still party—but think about what (I am) doing more, not go past good buzz’. This effect was reported for a variety of substances, including tobacco, alcohol, pharmaceutical painkillers and crack/cocaine. Two women described a very visceral, physical rejection by the body after participating in the retreat.

‘When I left ayahuasca [the retreats]...I bought a pack of smokes, and I pretty much vomited... It was literally like my body would not absorb the nicotine... So that was really amazing... because I had this old habit of going to nicotine when overwhelmed with stress.... So it helped me...be with all of the emotions and...not need a substance...helped me eliminate an old behaviour...it is quite the journey. Whew [laughter]’.—P3 (22-year-old female)

‘I am off all my painkillers. I was on 50 mg of Fentanyl patches, I was on...oxycodone, you name it, I was on it. But I am off everything...I believe that...my ayahuasca experience, will not let me put any more drugs in my body... It is rejecting it. Because it is making me physically ill... I was drinking, I was drugging, I was cracking out, I was IV drug using. I was a hard-core drug addict. And now I am just down to maybe one or two medicinal marijuana joints a day. I am off everything’.—P1 (49-year-old female)

‘No cravings whatsoever for the crack cocaine or drinking, whatsoever. It is pretty strong that ayahuasca as far as removing that craving, that desire, that habit or however you want to describe it. For me It is not even there’.—P7 (56-year-old male)

The narratives portrayed significant shifts in the way participants related to their substance use stemming from experiences of emotional release from pain and/or trauma. One 19-year-old female participant summarised: ‘I felt free of my addiction that is for sure... I stopped completely. I had no desire to use’. (P5).

Comparison with other treatment experiences

Participants explained that other forms of therapy were often unsuccessful in treating the antecedents to addiction, leaving them with unresolved mental/emotional issues. One participant reported seven unsuccessful

previous treatment attempts and all had at least one previous addiction treatment attempt. In contrast, the retreats were reported to more effectively treat addiction by addressing underlying trauma/emotional issues:

'This treatment, it is better man. I know it is...people that have gone to treatment over and over again...are now [following the retreats]...finally clean'.—P6 (32-year-old male)

'I am on methadone and that did not work...after that [retreat] I had no desire...I do not know what it is about that but it really is very life-changing'.—P5 (19-year-old female)

Narratives recounted multiple instances where other kinds of treatments did not produce sustainable improvements and that any positive effect was fleeting, whereas the retreats were perceived to address underlying issues in a shorter time period to facilitate positive changes:

'This [retreat] got into my mind and into me better. I got more out of it... just that short period of time. It is exactly what I needed...every time that I come back out from a treatment centre, I do good for a while and then that old mentality comes back and...made me worse every time. It was pretty discouraging, but things have changed now. I feel a lot better...healthier. My mind is more clear'.—P8 (34-year-old male)

'Other treatments sort of like scraped the surface as they say. This one got me...deep, deep into myself which I have never admitted to or confronted I guess you could say in the other treatments...this was just a mind-bending experience boy (laughter), I cannot believe what I seen and who I talked to, like my mom and my dad and my granddaughter who are in the next world there (i.e. deceased). It really touched me deeply and I think about that every day. So, there you go'.—P9 (55-year-old male)

Participants explained that the retreat allowed them to delve more deeply into aspects of their psyches that had been inaccessible with other treatment approaches and helped identify overlooked residual emotional issues. One participant commented on the use of ayahuasca in the retreat as a more spiritual approach:

'It was way different...a whole new experience for me. I do not think I could compare it to anything else because all the other treatment centres are like, more counselling...but this one was like... I guess you could say it was way more spiritual than any other treatment centre

because the plant [ayahuasca] intensified it'.—P2 (28-year-old female)

One participant highlighted the intercultural aspect of ayahuasca, and that this Indigenous plant medicine could be integrated across Indigenous communities. This underscores the important therapeutic potential of incorporating Indigenous perspectives and traditional healing practices, such as psychedelic plant medicine, into modern substance use interventions [24,25]:

'It is an Aboriginal plant and we are Aboriginal people. I pray every morning that they let it be practiced within our communities...there is nothing wrong with Aboriginal medicine bringing in to another Aboriginal community'.—P1 (49-year-old female)

Enhanced connection with Spirit and nature

A central theme to emerge from the interviews was that the retreat enhanced a sense of connection with spirit and nature. While all but one participant expressed already having an established sense of connection with spirit/nature, narratives indicated that this connection was intensified or renewed following ayahuasca-assisted therapy:

'I just feel that definitely it [ayahuasca] got me more in touch with my spirit... It brought it out more because it was there. But now it is there even more'.—P2 (28-year-old female)

'I have always been connected to nature and spirit bathing but upon ayahuasca, it is a far greater connection with the surroundings, connected to all living things—it is a big one. It is grounding, like feeling cleansed and purified. Grounded to mother Earth'.—P7 (56-year-old male)

The retreat elicited appreciation for the natural world, deeper sense of gratitude, and a profound sense of spirituality, including for one participant who described an absence of spirituality prior to the retreat (P11).

'About a week or two after [the retreat] I was just waking up every morning...to have a big connection with nature...I would sit outside and it was just beautiful. I have never noticed it that much ever in my life. After I had the ayahuasca it was just amazing, the connection with nature'.—P5 (19-year-old female)

'I had no sense of spirituality before really, coming clean and sober even while I was going through, like AA and

NA. They tell you to reach your higher power or whatever. I thought that was a bunch of bull. But after the retreats I have really opened up to spirituality big time. I smudge every night before bed. I pray...I say thanks to whatever is out there, you know?—P11 (30-year-old male)

Participants reported a shift in perspective and gain more clarity on life, and described how the experience removed energetic blocks allowing for deeper connection with spirit/nature:

'The whole retreat, shifted energy in my body...helped me in the nature sense and spirit sense as being more aware of my surroundings, you know? Because I was in an addiction, right...? I feel like I can see more clearly and perceive things more accurately'.—P3 (22-year-old female)

'I got my spirit back... Like it is so beautiful outside, and where was all that all this time? You know, I was just living a black cloud over me. And the black cloud's been removed'.—P1 (49-year-old female)

Heightened connection with sense of self

The narratives suggested that the retreats facilitated a connection to a 'higher self' and significant changes in emotional and psychological states that they associated with addiction:

'Ayahuasca connected me to my higher self...phenomenal changes, it is indescribable. It is just profound, big changes...in areas of my life. Being free from...holding myself hostage through my addiction'.—P7 (56-year-old male)

'The impact was huge on my spiritual and my emotional side...I feel stronger...my last experience with ayahuasca, I really faced myself. Like, my fear, my anger. Which really, I think is a big part of my addictions'.—P11 (30-year-old male)

The retreat experiences helped participants identify negative thought patterns and gain insights into psychological barriers. For example, two participants described that the retreats reduced stress and anxiety by eliciting greater self-acceptance and emotional releases that enabled them to resolve conflicts within themselves and others:

'It sort of relieved a lot of stress, a lot of negative thoughts within my body...opened my eyes to see where my stress and conflict is coming from... It is hard to explain but...

it just brought a lot of grief up that I had inside me, it brought it out and I got rid of a lot of grief'.—P9 (55-year-old male)

'I felt like, just like a whole new reborn person... I had not felt that happy in a long, long time. I felt way better about myself'.—P5 (19-year-old female)

The retreat was described as having a positive impact on achieving balance in life, understanding the importance of stillness and mindfulness, and harnessing courage to address emotions with acceptance and patience:

'It is actually helping me to do my psychological work... it made me look at myself and see how I react to the world, and how I can shift in the way that I actually truly desire which is...unconditional love...so ayahuasca has helped me, the whole retreat, to eliminate those barriers so I can...keep on healing and go forward and accomplish what I want to'.—P3 (22-year-old female)

'It gave me the courage to go in deeper... I found out why I did not feel worthy, or did not feel good enough to do anything... Before I ever did ayahuasca I had absolutely no balance in my life...I am not on stimulants anymore...So that I can keep time for my husband and my grandchildren, my daughters and me'.—P1 (49-year-old female)

Transformations in relationships with others

The changes reported by participants (e.g. increased clarity, insights into psychological barriers, emotional openness and self-acceptance) improved their social relationships facilitating better communication with friends and family. One participant explained that he reconnected and felt more accepted by his family:

'My son and my daughter-in-law see a lot of changes... kindness and whatever [laughter]...now that they are respecting me, who I am now...they allow me to see the grandkids, without them being there... My friends at the music store said there is a change in me: "You are glowing!"'—P10 (51-year-old male)

A common theme to emerge from the narratives was that the retreat facilitated more open and less judgmental interactions between participants and their friends and family. Participants explained that the retreat helped to mend important relationships and fostered increased feelings of love for others:

'Since doing the ceremonies...I am more open to caring for other people... I think I have more love and respect for the people in my life...more gratitude'.—P11 (30-year-old male)

'It helped me see that they [friends] are actually trying and to eliminate judgment and have only love for them. So it has helped me in a lot of ways to love...people on so many levels'.—P3 (22-year-old female)

Notably, one participant described the how the retreat led to new friendships with other participants helping to build trust and understanding of the challenges faced by people in their community. It was expressed that the opportunity to share stories with other participants enhanced a sense of community:

'As for relationships with the participants...we have become friends and it is really nice to actually have friends in the community. In First Nations communities the norm is, usually we are all separated. The retreat brought in different people and I have been able to connect with them and it is really nice...I got a sense of where the community is at and...I got to hear their stories. They shared their past and I was like, okay, they are the way they are because of multiple reasons'.—P3 (22-year-old female)

Overall feelings about the retreats

Overall reflections were predominantly positive. Participants conveyed deep gratitude for the retreat experiences, relating how the retreats benefited their overall health and well-being and transformed relationships to self and others.

While most reflections about the retreat relayed positive experiences, one participant mentioned that it could have been more positive if he drank ayahuasca with different people, indicating that he felt that others were dealing with more severe issues than he was and that he may have been negatively influenced by their experiences:

'I think it would have been a little bit more positive...if I was not with certain people when I did take it [ayahuasca], to be honest with you...I really absorbed a lot of...if you want to call it energy...some of their baggage...I was in somewhat of a different category than some of the other people...I really got messed up from a lot of the other people. There were some people that had some serious hard-core demons'.—P6 (32-year-old male)

One participant exclaimed that: *'I do not think I would do it [ayahuasca] again, but I am happy with it [laughter]',*

indicating that although she felt the retreat helped her, the experience was enough to begin implementing changes from what she learned (P3, 22-year-old female). Further, one participant who chose not to participate in the second ayahuasca ceremony reported feeling overwhelmed by the first experience.

Participants described gaining valuable tools and knowledge that could be applied to aspects of daily life. The narratives also conveyed an admiration for all who guided the participants through the process, including the spirit of ayahuasca, the shamans and the physician who facilitated the retreats.

'The ayahuasca retreat was overwhelmingly educational...Everybody educated me in one way or another and I left with an immense amount of knowledge that I was able to attempt to apply to my daily life'.—P3 (22-year-old female)

'I felt honoured and proud...like I am a success through the program, right?'—P1 (49-year-old female)

'I wish I was introduced to it [ayahuasca] like 20 years ago. It could have saved me a lot of time and trouble'.—P11 (30-year-old male)

Participants stated they would like to see ayahuasca-assisted therapy become available to others who suffer from addiction, and indicated they would benefit from further ayahuasca-assisted therapy in the future. The overall experience was one they would highly recommend to others:

'I am looking forward to having that experience again. It was probably the best experience I have had in my life. And I have not had a very good life. I have lived a very shitty life around people in addiction in my family and everything... that lifestyle is very hard to get out of. And, I did not think it was possible. I have tried to do it on my own and I do not know what it was but it actually it worked'.—P5 (19-year-old female)

'I think it [ayahuasca] is a good medicine. Why? Because it can shift energy and help people clear up some things so they can continue on their journey...Because we are so unaware about if we are holding things in or not... I highly advise it to be used. It is a nice stepping-stone to another level'.—P3 (22-year-old female)

Discussion

This qualitative study describes how ayahuasca-assisted therapy, delivered in a supportive community retreat setting, helped facilitate recovery from

addiction for members of an Indigenous community, including some with highly traumatic histories and several failed attempts to treat addictions. The narratives offer a deeper understanding of the ways in which ayahuasca-assisted therapy can lead to increased connectedness with nature/spirit, self and others, which was described as a key element associated with significant reductions in problematic substance use and cravings. This study corroborates and expands upon findings from prior quantitative analyses that documented reductions in problematic use of cocaine, alcohol and tobacco in this setting [22].

Findings add to the growing body of research supporting therapeutic use of ayahuasca and other psychedelics. Mounting evidence suggests psychedelics may be important tools to help treat addictions to alcohol, tobacco, cocaine and heroin [7–9,26–28], and randomised-clinical trials have demonstrated significant reductions in depression and anxiety, improvements in psychological well-being [14,15,21,29], and long-term benefits for patients suffering from treatment-refractory post-traumatic-stress disorder [30,31].

As suggested by the narratives, ayahuasca-assisted therapy within the context of a therapeutic retreat setting may facilitate recovery from addiction by enhancing one's relationship with self, others and connection to nature/spirit. Experiences of enhanced connectedness were characterised as pivotal to reducing substance use and align with other recent qualitative work that highlighted the importance of social connection in the context of psilocybin-assisted therapy for treatment-resistant depression [32]. These findings contribute to the well-developed literature on the protective effects of meaningful connection with others, as extensively documented in the youth prevention literature [33,34].

A core belief among Indigenous peoples, in Canada and elsewhere, is that all things are interconnected, which points toward a connection-focused approach to healing addiction that recognises the importance of spirituality (e.g., meaning), recovery of self-awareness, and the therapeutic power of the natural world [2]. Indigenous belief systems reiterate that the foundation of recovery from addiction is comprised of overlapping and interdependent dimensions of the psyche and spirit [35], whereby strengthening connections with self, community, spirit and nature, alongside self-actualisation, help to achieve balance and attain healing [2]. As described, ayahuasca-assisted therapy elicited an enhanced sense of self-acceptance and self-awareness that helped to resolve residual emotional trauma at the root of ongoing conflicts within the self and in relationships with others. Likewise, a recent systematic review and meta-analysis underscored the effectiveness of mindfulness and psychological integration on reducing addictive behaviours [36].

This research is bolstered by nascent neuroimaging research that postulates that psychedelics can alter neural pathways to shift cognitive biases and facilitate positive reprocessing and reconciliation of traumatic memories [37,38]. The potential and tendency of psychedelics to generate awe [39] and mystical-type experiences [40] have been hypothesised as key underlying drivers of change by, for example, bringing a deeper sense of meaning and purpose in the lives of those suffering from addiction [41]. Prior qualitative research on psychedelics for tobacco cessation corroborates this work, underscoring the importance of establishing strong rapport within a supportive therapeutic setting, as well as the value of qualitative research [42].

Given the heterogeneity of Indigenous populations and distinct vulnerabilities faced by those living in rural/remote settings, this study supports carefully advancing research on psychedelic-assisted therapy in marginalised populations. Further research should employ mixed-methods to elucidate the ways in which ayahuasca and other psychedelic therapies may facilitate enhanced connectedness to improve well-being and treat addiction. Given that health inequities are shaped by multi-level socio-structural factors, increased support for community-driven interventions that are culturally appropriate are urgently needed, and any clinical treatments utilising psychedelic-assisted therapy must be integrated within a multi-faceted community-led structural approach.

Limitations

The study involved a small convenience sample, introducing the potential for self-selection bias. The observed positive effects of the retreats may not be generalisable to Indigenous peoples in other settings. The study did not assess the effects of group therapy work, other ancillary potentially therapeutic elements, or the pharmacological action of the ayahuasca, and did not track whether participants received other forms of treatment during the study. The study therefore cannot separate out the effect of these individual treatment elements on reported outcomes, and the exploratory nature of this study cannot determine causal relationships. Given the complex pharmacology of ayahuasca, it is not possible to know whether the outcomes were dependent upon varying amounts or relative concentrations of the psychoactive components ingested. Nevertheless, the described effects of the ayahuasca were characteristic of its phenomenology and therefore do not suggest any concerns about its composition or potency.

Conclusions

This qualitative analysis expands upon prior quantitative results highlighting the therapeutic potential of ayahuasca-assisted therapy and provides important insights into experiential factors that may have facilitated recovery from addiction among members of an Indigenous community. Given the limited efficacy of conventional treatments for resolving addiction issues, further research should investigate the role of ayahuasca and other psychedelic-assisted therapies in enhancing connectedness and other key factors that may facilitate sustainable recovery from substance use disorders.

Acknowledgements

The authors would like to thank the retreat participants who shared their experiences with us, the First Nations band that made the study possible and Dr. Gabor Maté and his retreat team for allowing us to observe their work. This work was supported by the Multidisciplinary Association for Psychedelic Studies (MAPS), Dr. Bronner's Soaps, the Riverstyx Foundation, TIDES Canada and an anonymous donor who provided generous financial support for the research. The study funders had no role in the study design, data collection, analysis, interpretation, writing of the report or decision to submit the paper for publication.

Conflict of Interest

The authors have no conflicts of interest.

References

- Gracey M, King M. Indigenous health part 1: determinants and disease patterns. *Lancet* 2009;374:65–75.
- Chansonneuve D. Addictive behaviours among Aboriginal people in Canada. The Aboriginal Healing Foundation Research Series. Ottawa: Aboriginal Healing Foundation, 2007 Available at: <http://www.ahf.ca/downloads/addictive-behaviours.pdf>.
- Sessa B. Shaping the renaissance of psychedelic research. *Lancet* 2012;380:200–1.
- Tupper K, Wood E, Yensen R, Johnson M. Psychedelic medicine: a re-emerging therapeutic paradigm. *Can Med Assoc J* 2015;187:1054–9.
- dos Santos RG, Osorio FL, Crippa JAS, Riba J, Zuardi AW, Hallak JEC. Antidepressive, anxiolytic, and antiaddictive effects of ayahuasca, psilocybin and lysergic acid diethylamide (LSD): a systematic review of clinical trials published in the last 25 years. *Ther Adv Psychopharmacol* 2016;6:193–213.
- Johnson MW, Garcia-Romeu A, Johnson PS, Griffiths RR. An online survey of tobacco smoking cessation associated with naturalistic psychedelic use. *J Psychopharmacol* 2017;31:1–10.
- Bogenschutz MP, Forchimes AA, Pommy JA, Wilcox CE, Barbosa PCR, Strassman RJ. Psilocybin-assisted treatment for alcohol dependence: a proof-of-concept study. *J Psychopharmacol* 2015;29:289–99.
- Krebs T, Johansen P-Ø. Lysergic acid diethylamide (LSD) for alcoholism: meta-analysis of randomized controlled trials. *J Psychopharmacol* 2012;26:994–1002.
- Johnson MW, Garcia-Romeu A, Cosimano MP, Griffiths RR. Pilot study of the 5-HT_{2A}R agonist psilocybin in the treatment of tobacco addiction. *J Psychopharmacol* 2014;28:983–92.
- Mithoefer MC, Grob CS, Brewerton TD. Novel psychopharmacological therapies for psychiatric disorders: psilocybin and MDMA. *Lancet Psychiatry* 2016;3:481–8.
- Hendricks PS, Thorne CB, Clark CB, Coombs DW, Johnson MW. Classic psychedelic use is associated with reduced psychological distress and suicidality in the United States adult population. *J Psychopharmacol* 2015;29:280–8.
- Osório FL, Sanches RF, Macedo LR *et al.* Antidepressant effects of a single dose of ayahuasca in patients with recurrent depression: a preliminary report. *Rev Bras Psiquiatr* 2016;37:13–20.
- Gasser P, Kirchner K, Passie T. LSD-assisted psychotherapy for anxiety associated with a life-threatening disease: a qualitative study of acute and sustained subjective effects. *J Psychopharmacol* 2015;29:57–68.
- Griffiths RR, Johnson MW, Carducci MA *et al.* Psilocybin produces substantial and sustained decreases in depression and anxiety in patients with life-threatening cancer: a randomized double-blind trial. *J Psychopharmacol* 2016;30:1181–97.
- Ross S, Bossis A, Guss J *et al.* Rapid and sustained symptom reduction following psilocybin treatment for anxiety and depression in patients with life-threatening cancer: a randomized controlled trial. *J Psychopharmacol* 2016;30:1165–80.
- Fábregas JM, González D, Fondevila S *et al.* Assessment of addiction severity among ritual users of ayahuasca. *Drug Alcohol Depend* 2010;111:257–61.
- Grob CS, McKenna DJ, Callaway JC *et al.* Human psychopharmacology of hoasca, a plant hallucinogen used in ritual context in Brazil. *J Nerv Ment Dis* 1996;184:86–94.
- Cruz JJ, Nappo SA. Is ayahuasca an option for the treatment of crack cocaine dependence? *J Psychoactive Drugs* 2018;50:247–55.
- Loizaga-Velder A, Verres R. Therapeutic effects of ritual ayahuasca use in the treatment of substance dependence: qualitative results. *J Psychoactive Drugs* 2014;46:63–72.
- Palhano-Fontes F, Barreto D, Onias H *et al.* Rapid antidepressant effects of the psychedelic ayahuasca in treatment-resistant depression: a randomised placebo-controlled trial. *Psychol Med* 2018;49:1–9.
- Carhart-Harris RL, Kaelen M, Bolstridge M *et al.* The paradoxical psychological effects of lysergic acid diethylamide (LSD). *Psychol Med* 2016;46:1–12.
- Thomas G, Lucas P, Capler NR, Tupper KW, Martin G. Ayahuasca-assisted therapy for addiction: results from a preliminary observational study in Canada. *Curr Drug Abuse Rev* 2013;6:30–42.
- Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol* 2006;3:77–101.
- Dawson A. If tradition did not exist, it would have to be invented: retraditionalization and the world ayahuasca diaspora. In: Labate BC, Cavnar C, Gearin A, eds. *The world Ayahuasca diaspora: reinventions and controversies*. New York: Routledge, 2017.
- Calabrese J. A different medicine: postcolonial healing in the native American church. New York: Oxford University Press, 2013 234 p.
- Brown TK. Ibogaine in the treatment of substance dependence. *Curr Drug Abuse Rev* 2013;6:3–16.
- Alper K, Lotsof HS, Frenken GM, Luciano DJ, Bastiaans J. Treatment of acute opioid withdrawal with ibogaine. *Am J Addict* 1999;8:234–42.
- Mash DC, Kovera CA, Pablo J *et al.* Ibogaine in the treatment of heroin withdrawal. In: Apler K, Cordell G, eds. *The alkaloids*. New York: Academic Press, 2001:155–71.
- Kraehenmann R, Preller KH, Scheidegger M *et al.* Psilocybin-induced decrease in amygdala reactivity correlates with enhanced positive mood in healthy volunteers. *Biol Psychiatry* 2015;78:572–81.
- Mithoefer MC, Wagner MT, Mithoefer AT *et al.* Durability of improvement in post-traumatic stress disorder symptoms and absence of harmful effects or drug dependency after 3,4-methylenedioxymethamphetamine-assisted psychotherapy: a prospective long-term follow-up study. *J Psychopharmacol* 2013;27:28–39.
- Oehen P, Schnyder U. A randomized, controlled pilot study of MDMA (\pm 3,4-methylenedioxymethamphetamine)-assisted psychotherapy for

- treatment of resistant, chronic post-traumatic stress disorder (PTSD). *J Psychopharmacol* 2013;27:40–52.
- [32] Watts R, Day C, Krzanowski J, Nutt D, Carhart-Harris R. Patients' accounts of increased "connectedness" and "acceptance" after psilocybin for depression. *J Humanist Psychol* 2017;57:520–64.
- [33] Centres for Disease Control and Prevention. School connectedness: strategies for increasing protective factors among youth. Atlanta: Centres for Disease Control and Prevention, 2009 Available from: <https://www.cdc.gov/healthyyouth/protective/pdf/connectedness.pdf>.
- [34] Sieving RE, McRee A-L, McMorris BJ *et al*. Youth–adult connectedness: a key protective factor for adolescent health. *Am J Prev Med* 2017;52: S275–8.
- [35] Mustain JR, Helminiak DA. Understanding spirituality in recovery from addiction: reintegrating the psyche to release the human spirit. *Addict Res Theory* 2015;23:364–71.
- [36] Li W, Howard MO, Garland EL, McGovern P, Lazar M. Mindfulness treatment for substance misuse: a systematic review and meta-analysis. *J Subst Abuse Treat* 2017;75:1–35.
- [37] Bogenschutz MP, Pommy JM. Therapeutic mechanisms of classic hallucinogens in the treatment of addictions: from indirect evidence to testable hypotheses. *Drug Test Anal* 2012;4:543–55.
- [38] Carhart-Harris RL, Leech R, Williams TM *et al*. Implications for psychedelic-assisted psychotherapy: functional magnetic resonance imaging study with psilocybin. *Br J Psychiatry* 2012;200:238–44.
- [39] Hendricks P. Awe: a putative mechanism underlying the effects of classic psychedelic-assisted psychotherapy. *Int Rev Psychiatry* 2018;30:1–12.
- [40] Griffiths RR, Richards WA, McCann U, Jesse R. Psilocybin can occasion mystical-type experiences having substantial and sustained personal meaning and spiritual significance. *Psychopharmacology (Berl)* 2006; 187:268–83.
- [41] Garcia-Romeu AP, Griffiths RR, Johnson MW. Psilocybin-occasioned mystical experiences in the treatment of tobacco addiction. *Curr Drug Abuse Rev* 2014;7:157–64.
- [42] Noorani T, Garcia-Romeu A, Swift TC, Griffiths RR, Johnson MW. Psychedelic therapy for smoking cessation: qualitative analysis of participant accounts. *J Psychopharmacol* 2018;32:1–14.