Chapter 5
A Qualitative Assessment of Risks and Benefits of Ayahuasca for Trauma Survivors

Jessica L. Nielson, Julie D. Megler, and Clancy Cavnar

Introduction

With the renaissance of psychedelic research and culture, increasing attention has been paid toward their therapeutic potential to treat a variety of disorders. Ayahuasca is a psychedelic tea that has shown promise as a therapeutic option to treat symptoms of depression (Osório et al. 2015; Palhano-Fontes et al. 2017; Sanches et al. 2016) and help with substance abuse (Lawn et al. 2017; Loizaga-Velder and Velder 2014; Thomas et al. 2013). Emerging anecdotal and proposed evidence have also indicated its potential to treat post-traumatic stress disorder (PTSD) (Galvão et al. 2018; Inserra 2018; Nielson and Megler 2014; Tafur 2017). Recent years have seen a boom in ayahuasca tourism, where an increasing number of people from Western countries are seeking out ayahuasca Amazonian ceremonies for psycho-spiritual healing related to trauma. In order to maximize potential benefit and reduce risk of harm, it's important to develop a therapeutic container for administering ayahuasca that is appropriate for mental health disorders such as PTSD. Ayahuasca is taken in various contexts, including traditional indigenous or mestizo ceremonies; South American religious ceremonies, such as Santo Daime and UDV (Labate and MacRae 2010; Labate et al. 2009); spiritual retreat centers catering to "gringos"; as well as ceremonies in underground communities in the United States and other parts of the world where it is illegal (e.g., Europe and Australia) (Labate et al. 2017). Therefore, it is possible to get a sense of what aspects of these different settings

J. L. Nielson (✉)
Department of Psychiatry, Institute for Health Informatics, University of Minnesota, Minneapolis, MN, USA
e-mail: jnielson@umn.edu

J. D. Megler
Entheogenic Research, Integration, and Education, San Francisco, CA, USA

C. Cavnar
Chacruna Institute for Psychedelic Plant Medicines, San Francisco, CA, USA

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have the potential for contributing to healing traumatizing experiences, especially in the context of treating PTSD.

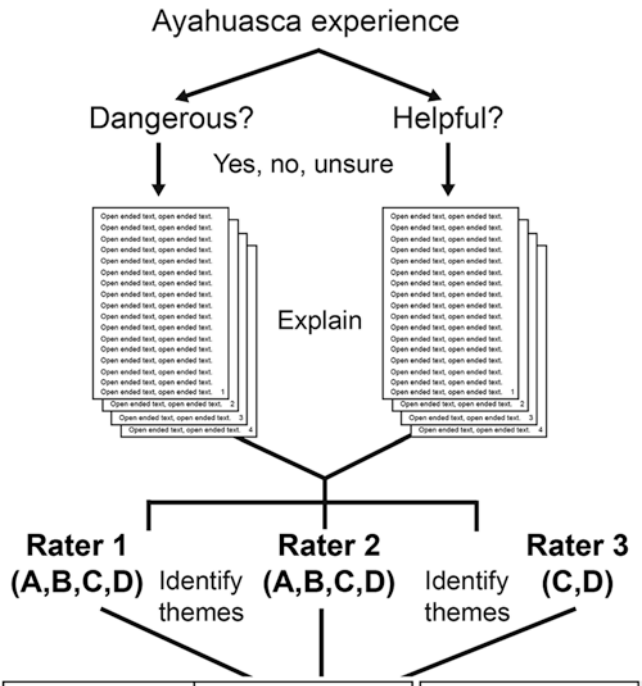
The combination of various settings and the mental state of the individuals participating in ceremonies relates to a popular notion in the psychedelic research community known as "set and setting" (Hartogsohn 2016; Leary et al. 1969; McElrath and McEvoy 2002). The context under which someone has a psychedelic experience can dictate whether the experience is helpful or harmful to their healing process. Previous risk factors and contraindications have been reported previously that suggest potential harm for people with pre-existing conditions like cardiovascular disease and major psychotic disorders, as well as pharmacological interactions between serotonergic drugs and alkaloids extracted from the different plant admixtures used to make ayahuasca (dos Santos 2013; Gable 2007). The current chapter discusses facets of set and setting for the use of ayahuasca in the context of treating PTSD and potential recommendations for appropriate preparation of the set and setting for modern ayahuasca trauma treatment.

Methods

Data were collected from a retrospective, cross-sectional online survey (UCSF IRB #16-19906) between June 27, 2016, until queried for the current analysis on December 29, 2017. The survey was shared on social media by the Multidisciplinary Association for Psychedelic Studies (MAPS) to recruit participants to the study.

We applied qualitative analysis on survey data from ayahuasca users regarding the perception of their experiences and whether they found them to be dangerous and/or helpful. Respondents' answers were broken up into condition groups based on self-reported history or current diagnosis of PTSD. Open-ended responses in text format were blocked similarly into four conditions for no PTSD (A), declined to answer (B), current PTSD (C), and past PTSD (D) (Fig. 5.1). Text were analyzed by three separate raters, blinded* to condition to identify common and unique themes related to dangerous and helpful experiences reported by the survey respondents. *We note that rater 1 created the blinding code to condition and therefore was not completely blinded during her coding of the responses. Each document was split into whether they responded to the experience being dangerous or helpful for each condition. Raters 1 and 2 coded all four conditions, and rater 3 coded only the PTSD groups (Fig. 5.1).

Qualitative analysis was performed using grounded theory, which aims to carefully examine the text of the data from each respondent and identify themes that emerge from the data (Charmaz 2006; Strauss and Corbin 1998). We applied this within the context of different groups self-reporting various degrees of PTSD severity to determine if those seeking out ayahuasca to treat PTSD need special care beyond what people with no history of PTSD find helpful during ayahuasca ceremonies.



Respondent group sample sizes (N)	Dangerous		Helpful	
	Responded	Explained	Responded	Explained
A - No PTSD	227	87	221	199
B - Decline Answer	30	10	29	21
C - Current PTSD	121	59	121	112
D - Past PTSD	92	43	92	85

Fig. 5.1 Workflow for identifying themes of dangerous and helpful experiences of ayahuasca use

Rater 1 read through condition A (no history of PTSD) first to get a starter set of themes for potential dangerous and helpful experiences, which were used to help quantify their occurrence in the remainder of the text from the other PTSD conditions. Repetitions of similar ideas or experiences were tallied with matched identified themes, and new themes or unique experiences were recorded as they emerged in the readings. Comments described not only what the participants experienced themselves but anything they had witnessed or observed during their experience in others. These distinctions are not separated for simplicity in the current analyses.

Rater 2 was blinded to condition and coded all four PTSD categories for both helpful and dangerous experiences. First, instances of judgment were noted; many respondents had several mixed replies, and these were parsed out so that individual aspects of experiences could be noted. As particular descriptors added up, categories emerged. Some answers appeared to be speculative, rather than from direct

experience, or from someone else's experience, but all were treated as mentions, including responses that indicated the individual had not yet drunk ayahuasca. Despite several outliers, clear patterns emerged from the bulk of the responses, many reflecting complaints heard among ayahuasca user's groups online and elsewhere.

Rater 3 was blinded to condition and began coding condition C (current PTSD) and condition D (past PTSD), by first reading through open-ended responses about dangerous experiences encountered or observed during their ayahuasca ceremony, followed by analyzing the helpful experience open-ended responses. The coding process for this rater began with writing in a spreadsheet phrases that have potential to be themes. As rater 3 read through the reported experiences, she noted new potential themes as they appeared, counting the occurrence of repeats in already identified themes. At the completion of tallying all sections, rater 3 read back through the spreadsheet of identified themes, combined themes and their tallies that were similar in meaning, and then organized themes into categories based on commonalities and overlap.

Rater 1 then combined all three rater responses to identify overlapping and distinct themes between raters. The sum of counts within each theme was converted to a proportion of the total counts each rater reported within each PTSD condition. This was necessary to normalize the variability in total counts each rater submitted. For example, raters 1 and 2 identified roughly the same number of unique phrases related to dangerous experiences; however, their tallies for how frequently they were found within the text was substantially different. These proportions were calculated and graphed together for all raters to visualize how consistent each theme was and whether they changed between PTSD groups, for both helpful and dangerous experiences. Graphs were made using GraphPad Prism® v7.

Results

The results from the retrospective cross-sectional online survey reported here are from respondents who completed the full survey, were over the age of 18, and did not opt out of consent at the end of the survey. Responses from a total of 520 people revealed approximately half the respondents had a self-reported past (N = 99) or current (N = 147) diagnosis of PTSD, with the rest of the respondents either declining to answer about their PTSD history (N = 33) or reporting no previous history or diagnosis of PTSD (N = 241). The authors provide the following disclaimer regarding the perceived "dangerous" experiences of ayahuasca. Many of the themes described below are considered by regular users to be normal aspects of the ayahuasca experience. However, the tone with which the answers were provided and

the context under whether they agreed them to be "dangerous" or not provided these categorizations for themes as either "helpful" or "dangerous" (see Fig. 5.1).

While most respondents provided answers of either "yes," "no," or "unsure" for questions of whether they experienced either helpful or dangerous aspects of their ayahuasca experience, not everyone was willing to provide details in the open-ended responses. Data for dangerous experiences had substantially less open-ended responses associated with them across all groups (33–49% of answers), compared to helpful experiences which respondents were more willing to provide details about (72–93% of answers). We may speculate as to why this is the case, but this wasn't specifically asked of the survey participants. The authors propose that participants are more inclined to describe the helpful aspects of their experience because they aren't as triggering as the perceived dangerous experiences. Another interpretation may be that the survey was self-selecting for people who are already enthusiastic about ayahuasca and therefore may have an implicit bias toward describing these qualities in more detail than the ones that may be seen as adding controversy to the use of ayahuasca. For the no PTSD group, 94% answered the yes/no/unsure question about dangerous encounters; however, only 38% of those provided further descriptions in open-ended responses as to the details of those dangerous experiences. Similarly, 90% of the respondents that did not disclose their PTSD status answered the simple question, but only 33% provided detailed responses on the dangers they encountered. Interestingly, a higher proportion of the respondents with a past or current diagnosis of PTSD provided open-ended responses about dangers. While only 82% of the current PTSD group answered the simple yes/no/unsure question, 49% of those responses provided additional details about what those dangers were. Compare this to the past PTSD group, where 93% of them answered the simple question, with 47% of them providing more details in the open-ended responses.

Within each PTSD group, approximately 16–20% of the respondents reported that they experienced and/or observed something dangerous about their experience, while 68–76% claimed they did not observe anything dangerous about their experience. However, evaluating only the proportion of respondents who provided open-ended answers to describe specifics about what was helpful or harmful has slightly different results. While there was no difference between PTSD groups on whether they experienced helpful aspects of their experience (92–99%), those who chose to disclose more about their dangerous experiences (39–60%) reported "yes" to encountering some dangerous aspects of ayahuasca, with only 20–44% reporting "no" as to whether they observed these dangers.

From the open-ended responses, we describe below the common themes that arose that each of the raters identified while reading through the open-ended responses for the participants willing to share what they perceived to be dangerous and/or helpful. These themes are summarized in Tables 5.1 and 5.2 across all PTSD groups for simplicity.

Table 5.1 Common themes related to dangerous aspects of an ayahuasca experience

Dangerous themes	Details	Raters
Complications with other participants in the ceremony	Overcrowding, lack of screening for unstable people	1, 2, 3
Psychological complications	Internal fears, panic, intense emotions, feeling out of control, presence of "entities," psychosis	1, 2, 3
Unsafe setting, no supervision	No medical supervision, lack of one-on-one support, fires, language barriers, dangers of the jungle, intoxicated facilitators	1, 2, 3
Physical complications	Increased heart rate and blood pressure, problems breathing, exhaustion, dehydration, unsteady gait	1, 2, 3
Access to purging facilities	Difficult or no access to toilet/bucket, walking to bathroom without help/falling	1, 2, 3
Not being prepared	Not following dieta, contraindicated medications, pre-existing conditions, too soon after trauma, facilitators not educating participants about risks	1, 2, 3
Brew ingredients	Presence of *Datura* or tobacco, non-traditional admixtures	1, 2
Unethical facilitators	Sexual abuse, financial exploitation, legal concerns, "witch doctors"	1, 2, 3
Lack of follow-up care	No process for integration, risks of self-harm	1, 2, 3
Dogmatic practices	Strict religious practices, gender issues	1, 3
Inexperienced facilitators	Not having a shaman, lack of trust due to inexperience, unable to handle psycho-spiritual complications	2, 3
Use of cannabis	Smoking marijuana during ceremony	3

Dangerous Themes

Complications with other participants in the ceremony was a theme that popped up for all three raters. Respondents describe the behaviors and the energy of the other participants to feel dangerous. Some attributed this to poor screening of participants by the center beforehand. Others found it was dangerous to be in ceremony with other participants who are not also taking ayahuasca. There was mention of feeling that other participants may be "energy vampires" that felt unsafe to them, as well as sitting with dark energies brought by others. The feeling that they didn't know the other people in ceremony, leading to feelings of not knowing if they could trust them while all in a vulnerable state, also was mentioned. A very common issue that was discussed was that ceremonies were simply overcrowded, with too many participants crammed into the ceremony space. Some reported that they felt unsafe around "entities" that were brought in by other people, and that their purging was too distracting for their own process to unfold, which became frustrating as well as feeling unsafe. One participant noted that there were teenagers in the ceremony, which they felt was unsafe for the teenager, but not necessarily for the ceremony space or them. Some respondents noticed that there was sexual activity and sexual energy being brought into the space by others that made them feel unsafe, while it

Table 5.2 Common themes related to helpful aspects of an ayahuasca experience

Helpful themes	Details	Raters
Soothing sounds	Shaman singing icaros, playing instruments, sounds of the jungle, familiar music, being able to sit in silence	1, 2, 3
Experienced facilitators and helpers	Having a shaman, having support from helpers, one-on-one attention	1, 2, 3
Supportive, like-minded group	Doing ceremony with others in their community, people they are comfortable with	1, 2, 3
Safe/comfortable space	Having a space to lay down, pillows, blankets, spaces to be alone, being in nature, darkness/limited light	1, 2, 3
Trust	Trusting the facilitators, trusting ayahuasca, being able to let go/surrender	1, 2
Self-support	Meditation, journaling, yoga, prayer, connection to spirits/guides, self-love	1, 2, 3
Ritual components	Smudging/cleansing of space, sacred items (talismans, an altar), mapacho smoke	1, 2, 3
After-care	Post-session meetings with shaman, with group	1, 2
Preparation	Pre-session meetings, setting intentions, following dieta, experience with other psychedelics	1, 2, 3
Comforts and supplements	Places to lay down, pillows/blankets, Agua de Florida, ginger tea for nausea, citrus, flower baths, scented oils, pets	1, 2, 3
Help with purging	Helpers to provide and clear purge buckets, toilet paper/tissue, easy access/help to bathroom, being comfortable purging in front of others	1, 2, 3
Symptom alleviation	Claims of being healed by ayahuasca from symptoms of trauma (e.g., PTSD, depression)	3[a]

[a]Rater 3 categorized this as a theme, whereas raters 1 and 2 took note of it, however didn't create a theme for it since symptom alleviation is an outcome rather than a predictor of potential treatment response

seems one participant noted that others in ceremony were using an audio recorder that they kept hidden from the group, which felt deceptive and dangerous.

Psychological complications experienced by the respondents was also a major theme that felt somewhat dangerous to many of those willing to share their experiences. The most common description was related to feeling out of control, which brought on feelings of fear, panic, and anxiety. More specific psychological complications were also noted that may be unique to smaller groups of respondents but warrant description of potential psychological complications that could arise. Some respondents claimed to have lasting complications beyond their experience, including the development of panic attacks during the months after their ceremony and psychosis for several days after, and one participant claims to have been haunted by an "imp" for a long duration after their ceremony that lived in their home, whose spouse, who did not take ayahuasca, claimed to have seen as well. Other respondents noted feeling threatened by unfriendly "entities" that made them feel scared. Other psychological complications included paranoia, intense emotional reactions, being catatonic, feeling as though they were dying, fear of being persecuted, inner

conflict, questioning their identity, fear that they were being subjected to sorcery, terrifying visions, and undergoing spiritual battles, and some felt the experience was itself re-traumatizing.

Unsafe settings and a lack of supervision was another major theme that arose among the respondents. Elements of the setting that felt unsafe included having bonfires or other types of fires/flames in the ceremony space that respondents felt was a potential danger. Some claimed that there was access to weapons that felt very unsafe. Having stairs nearby where participants could trip and fall was noted, as well as unsafe walkways for trying to navigate around that were often too dark too see, in addition to them trying to navigate around while under the influence of ayahuasca. Some respondents felt unsafe being in the Amazon jungle where they felt they were in danger from creatures and animals such as snakes, spiders, and jaguars. There was also mention of being nervous about the language barrier and being around strangers. Others mentioned feeling unsafe due to a lack of supervision from those facilitating or supporting the participants during their experience. Some respondents felt it was unsafe for the facilitator/shaman to also be drinking ayahuasca with them and feeling uncomfortable that no one was "sober" during their experience and therefore did not feel supported. Many people claimed that there wasn't enough, if any, supervision during their experience. This was described as either having no one present or not enough people present to administer one-on-one care to each participant as needed. Respondents also felt it was dangerous that there were no medical and/or psychological professional on-site to help if/when serious complications arose during their experience. This lack of support also extended to making sure people were ready to leave when the experience was over and often feeling they were forced to leave while still under the influence and having to drive home.

Physical complications were another prominent theme, which is to be expected during an ayahuasca experience, especially considering that most people feel nausea and vomit/purge during their experience. However, additional complications that went beyond these typical physical reactions included risks of choking while purging and feeling as though they had overdosed or were given too much ayahuasca. Cardiovascular complications were described by many respondents, including both hypertension and hypotension, tachycardia, chest pain, and trouble breathing. Some respondents felt extreme dehydration due to excessive sweating, convulsions, fainting and/or blackouts, temporary blindness, physical pain, and extreme exhaustion by the end of the experience.

Access to purging facilities was also described as a problem that could introduce potential dangers where participants could be harmed. Some people describe more of a discomfort or unwillingness to purge in front of others in the group settings. However, some respondents claimed there wasn't safe access to purging facilities or bathrooms, where they had to get up and walk to a place to purge while intoxicated, where some people would fall and hurt themselves or felt additional stress about where they could purge. Some also claimed that the purging

facilities were unsanitary, which could pose risks for infection or other gastrointestinal complications.

Lack of sufficient preparation was another theme that emerged from the respondents, spanning from a lack of information from the retreat center or facilitators to their own personal lack of physical and psychological preparation before the experience. Within this theme, many claimed to experience "pre-flight" anxiety beforehand, where they felt scared and anxious about what was going to happen because they didn't know what to expect from the experience. Others mentioned dangers associated with not following the pre-prescribed dieta/diet, including weaning themselves off contraindicated medications and avoiding certain foods. Some felt not having any prior experience with other psychedelics was potentially dangerous, while those seeking treatment for PTSD felt they may have taken it too soon after their trauma and were therefore unprepared. The system that responds to fearful memories threats may be hyper-activated early after a trauma. These are the same systems that are activated during an ayahuasca experience that may act like exposure therapy (Nielson and Megler 2014). However, if done too soon after the trauma, the impact of such an intervention may be more harmful to recovery.

Unethical facilitators were mentioned as dangerous themes, which seems to circle around the emerging topic of "ayahuasca tourism." Respondents mentioned feeling as though they were being taken advantage of, either through forms of sexual abuse by the shamans/facilitators or through the theft of their personal belongings. Others mentioned that their facilitators demanded more money from them during their ceremony, threatening to leave them alone if they didn't pay them more. Others felt unsafe from a legal standpoint and worried that they would be arrested for doing ayahuasca. Along that same vein, another theme was related more to the lack of experience of the facilitators. While not mentioned as being unethical, respondents felt unsafe with "neo-shamans" who clearly did not have the experience or expertise necessary to safely facilitate the ayahuasca ceremony. Some felt this was very inappropriate and opened them up to more psycho-spiritual damage because the person facilitating was not prepared to handle such challenging experiences. Respondents mentioned feeling the facilitators or support staffs choice of words to try and sooth them actually made them feel worse.

Lack of follow-up care was another theme that was mentioned. Respondents who felt unsupported afterward mentioned risks of self-harm that could follow without sufficient after-care and discussions with the facilitators to discuss what came up for them and how best to process and integrate that once the ceremony was over.

Dogmatic practices were noted, more specifically related to the ayahuasca religions, including Santo Daime. Some respondents felt uncomfortable and unsafe in these religious settings, claiming to feel as though they were being attacked, with references to Catholic practices and themes resembling bondage, discipline, dominance, submission, sadism, and masochism (BDSM).

Helpful Themes

Soothing sounds and music were one of the most prominent themes mentioned across all participants. Music of some kind, whether it was through the icaros being sung by the shaman, musical instruments and songs being played by the facilitators or others in the group, as well as the sounds of nature, was found to be profoundly helpful for participants. Musical instruments described included drums, flutes, didgeridoos, and chimes, whereas natural sounds that were found to be soothing included the various sounds of jungle life, including birds chirping and insects buzzing, as well as the sound of the rain falling outside. While most respondents found the icaros and singing to be one of the most helpful aspects of the experience, some found the ability to be able to sit in complete silence to be very helpful for them as well.

Experienced facilitators and helpers were another very common theme that respondents reported. Having an experienced shaman present was one of the more prominent topics mentioned within this theme. However, not everyone felt a shaman was necessary, but at least having someone guiding the experience that had sufficient training and experience in the traditional uses of ayahuasca. Other skills respondents reported to be very helpful from their facilitators and support staff included having trained psychotherapists present, and having plenty of one-on-one attention from the facilitators, as well as having someone sober there to take care of them. Some claimed that a healing touch was very helpful from the shaman/facilitator or helpers, while some even felt being able to touch the facilitator or hold/be held was helpful for them. Some mentioned having a facilitator that spoke the same language was helpful, as long as there was sufficient consent from both participant and facilitator regarding the extent of that soothing touch or hug.

Sitting in ceremony with a supportive and like-minded group was also found to be very helpful for respondents during their ayahuasca experience. Being in a group where they felt comfortable with the other people in the ceremony, through either getting to know them beforehand or sitting in a group with friends and family or other shared community, was very important to them. Some mentioned enjoying having a large group, while others prefer either a small group of people or just being alone to be helpful.

Doing ceremony in a safe and comfortable space was another prominent theme that was helpful for a productive and safe ayahuasca experience. Many respondents described being able to be in nature and in a setting that had low light and/or darkness was very helpful for them, meaning being in the jungle and doing ceremony at night was a common setting that people found to be helpful. Being in a familiar place was found to be helpful for some while having sufficient space to move around and express themselves as they needed.

A sense of trust with either the medicine or the space/facilitators was also a very important theme that helped respondents have positive ayahuasca experiences. Many felt that the ability to surrender and “let go” to the experience was crucial for it to be a healing experience. This emerged as a result of the other themes, where if

they trusted that ayahuasca itself was safe, that their environment was safe, and that the shaman/facilitator was experienced, then they were able to fully surrender to the experience. Respondents also described a need to trust themselves to alleviate any fears that may arise during the experience and be reassured that the effects are only temporary, whereas some felt it was helpful to trust in a higher power to help them through the experience.

Self-support was discussed where respondents felt that being able to rely on their own tools was profoundly helpful during their ayahuasca experience. Various tools of self-support were mentioned, including meditation, yoga, prayer, breathing techniques, and positive self-talk and self-love. Respondents felt it was important to have their own spiritual practice and connection to guides and spirits beforehand to help guide them through the experience.

Ritual aspects of the ayahuasca experience were also found to be very helpful for respondents. Having an altar in the ceremony space decorated with personal talismans from the participants was noted. Others describe the cleansing ritual from the shaman/facilitator to be profoundly helpful, including feathers, mapacho smoke, incense, sage, fire, and other religious symbols and cleansing rituals to protect the space from dark energies.

Providing participants with access to sufficient after-care and integration techniques was found to be helpful for many respondents. This took the form of post-ceremony meetings with the group and facilitators, as well as check-ins from facilitators after returning home to make sure participants were feeling stable and transitioning back into their daily routine without complications.

Preparation prior to the ayahuasca ceremony was a very important theme that respondents found helpful. Preparations included following the recommended diet and detoxing from any contraindicated medications. Knowing beforehand that they would be returning home to a supportive community was found to be helpful. Respondents with prior experience taking other psychedelics was mentioned as being a good way to prepare for taking ayahuasca. Doing research about the retreat center, the facilitators, and ayahuasca itself was described as being helpful methods of preparation. Having clear intentions and no expectations of outcome was discussed, as well as allowing themselves adequate time to prepare and making sure they were able to be away from home and work to have adequate time to prepare, experience, and recover from their ayahuasca ceremony.

Comforts and supplements during the ayahuasca ceremony were found to helpful. These comforts appeared to be tailored to individuals, with a few common recommendations including Agua de Florida, essential oils, flower baths, and pillows and blankets for comforts. Additional comforts and supplements included having pets present to interact with, having a journal to write in, ginger tea to help with nausea, and hammocks for laying in, and anti-anxiety medications in some cases were helpful.

Help with purging was another theme that emerged, where respondents described feeling much more comfortable and supported when they didn't have to worry about how, when, or where they could purge. Ensuring that someone could help them to the bathroom or having their own bucket next to them that was consistently cleaned

out by helpers was important. Some felt that being able to feel comfortable purging around others was important, especially in group settings where people have purge while others are watching. Access to tissue and toilet paper was also mentioned as helpful so people could clean up after purging.

Symptom alleviation was also described. While not directly related to details of set and setting during the ayahuasca experience, it's worth noting that within the open-ended responses about what was helpful, participants do describe an alleviation of their symptoms because of their ayahuasca experience. Many described that ayahuasca healed them from their trauma and their PTSD symptoms, as well as from depression. Some described that ayahuasca helped them to identify their PTSD and anxiety triggers, while others described having a mystical/spiritual experience that helped alleviate their symptoms.

Differences Between Normal Respondents and Those with a Reported History of PTSD

Figure 5.2 reports on the identified themes for dangerous (Fig. 5.2a–d) and helpful (Fig. 5.2e–h) aspects of the ayahuasca experience, blocked by the self-reported PTSD group, and separated for each rater based on how frequently they observed these themes within each PTSD group. Only raters 1 and 2 coded for respondents with no history of PTSD (Fig. 5.2a, e) or who declined to report their history (Fig. 5.2b, f), and all three raters coded for past (Fig. 5.2c, g) and current PTSD groups (Fig. 5.2d, h). The most noticeable difference between the PTSD groups for dangerous themes was related to physical complications, which were much more prominent in those with a reported history of PTSD (Fig. 5.2c, d). Additionally, people with a history of PTSD reported more dangers associated with the lack of safety and supervision in the setting. Among the helpful themes reported, no major differences between PTSD groups were observed in the distribution across the themes, where there was a consensus across all respondents and raters that the most helpful aspects of their ayahuasca experience were having a shaman and/or experienced facilitator and support staff present and being able to listen to music, icaros, or other soothing sounds (Fig. 5.2e–h).

Discussion

The term "set and setting" was identified in the late 1960s by Timothy Leary, Ralph Metzner, and Richard Alpert to describe not only the importance of the mindset of the individual undergoing a psychedelic experience (set) but also the setting in which the experience takes place (Leary et al. 1969). In both categories of dangerous and helpful themes related to ayahuasca, topics related to "set and setting"

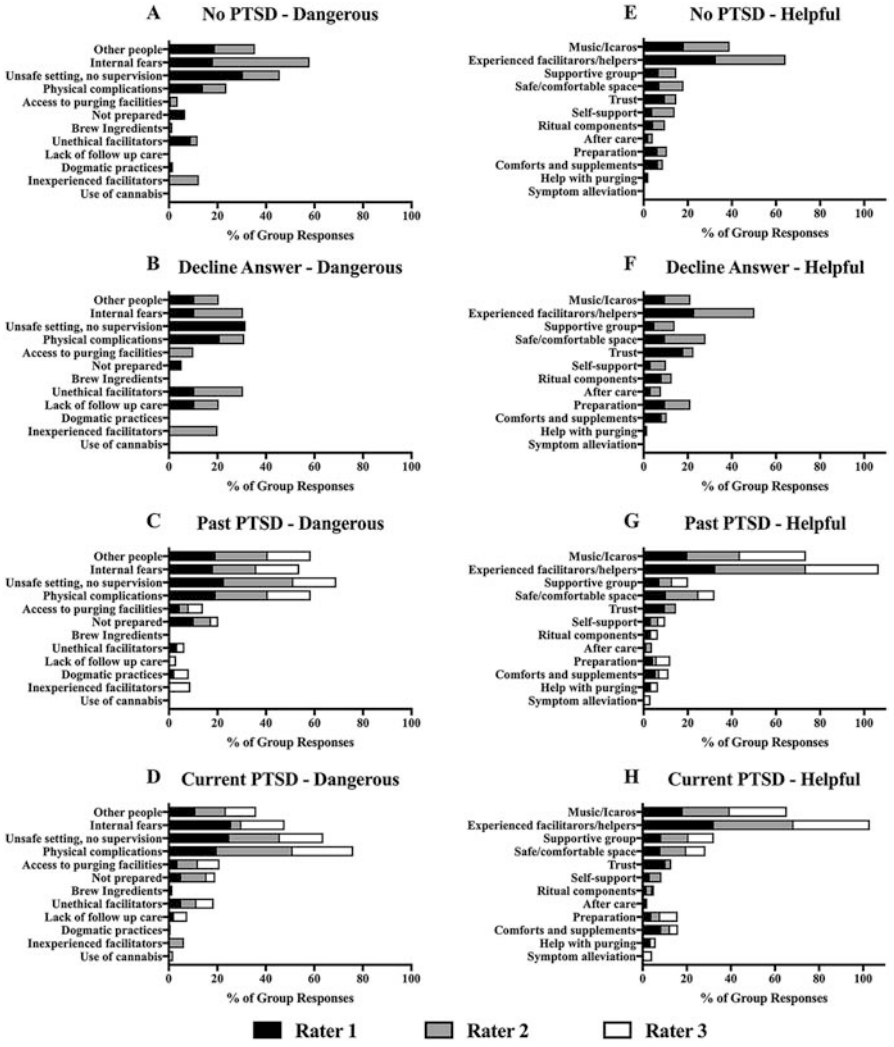


Fig. 5.2 Common themes identified across three independent raters for dangerous (**a**–**d**) and helpful (**e–h**) aspects of the ayahuasca experience across self-reported PTSD diagnostic categories, including no history of PTSD (**a**, **e**), respondents that declined to answer their PTSD status (**b**, **f**), those claiming to be in remission from a past diagnosis of PTSD (**c**, **g**), and those claiming to have a current diagnosis of PTSD (**d**, **h**)

appeared to be the most commonly acknowledged across all groups. This indicates that creating a safe and supportive environment and ensuring that participants are prepared and in the right mindset are perhaps the most important factors to achieve beneficial outcomes from a psychoactive experience such as ayahuasca.

In traditional cultures that use plant-based medicines, people grow up being familiarized with such medicines and the ecosystems they come from, allowing

participants to enter the psychedelic experience with a knowledge and understanding. Thus, the unpredictable effects of psychedelics are held within the container of their native culture and perspective (Goldsmith 2011). For individuals coming from modern industrial societies, understanding practices from shamanistic paradigms when using psychoactive substances is critical for using psychedelics safely and effectively (Bravo and Grob 1989). Individuals not familiar with the traditional context or container are often left to discover alone a practical application of the transpersonal ayahuasca experience into the modern culture they live in. Bravo and Grob (1989) state:

> In traditional societies, shamans discuss and explain the significance of what transpired during the profoundly altered state of mind that the patient encountered during the session. From the perspective of modern psychedelic psychotherapy, similar emphasis must be placed on utilizing the post psychedelic state to optimize the realization of the therapeutic goals. Comprehensive processing in the hours and days that follow the psychedelic experience is necessary to increase the likelihood that the insight and gains achieved during the drug-facilitated state will be retained. (page 127)

Thus current techniques for "Westerners" to maximize the therapeutic potential of psychedelic experiences have been developed to bring together indigenous practices and the modern context participants live in, as the experiences must be made relevant for the current culture from which the individual will be returning home to (Bravo and Grob 1989).

Considering these results from the standpoint of treatment of PTSD in ayahuasca rituals, it is clear that safety is the overriding concern: the safety of being in a comfortable, secure place; the safety of being with a known group and leader; and the safety of following a known protocol. The dangers of feeling unsafe for participants are that they may manifest anger or paranoia, the feeling that the person is the subject of a plot to harm him or her, and they may react in a defensive style to an imagined offense. The paranoid reaction is one of the more common manifestations of mental delusion found in the world of substance-induced mental disorders and also one of the more common negative mental health problems associated with ayahuasca-induced negative mental states.

Rituals conducted in the dark in a foreign language open the door for doubt and unease in people primed to be suspicious. One way to prevent such moments could be to give familiarity precedence by showing the site of the ritual in the daytime, meeting with the shaman and other participants, and preparing the participants in helping them know how the ritual will proceed. Working only with highly recommended centers and shamans is another way to prevent negative outcomes by ensuring feelings of safety and competence. Adequate staffing will also be a safety factor that can be assessed prior to the ritual. All of these precautions can be understood under the title of "preparation," and, while preparation is important for all ayahuasca drinkers, it is even more so for those who suffer from PTSD.

To reference another chapter from this volume that is related to the current study from the chapter "Ayahuasca and Psychotherapy: Beyond Integration" by Mauricio Diament, Bruno Ramos Gomes, and Luis Fernando Tófoli:

> For a meaningful experience, individuals must feel supported and protected by the environment, so that they can evolve together with what is experienced. In a similar manner, we can say that the setting of an ayahuasca experience has to be supportive and provide a sense of protection to the participant. This is the key role of the ritual and its responsible guidance. A supportive and protected setting helps the experience to fully develop. Within this protective environment, individuals may 'let happen' on themselves psychological processes during the experience.

Studies on the use of ayahuasca for the treatment of substance abuse disorders may also be capturing people suffering from PTSD, as substance misuse is often a symptom of unresolved trauma (Jacobsen et al. 2001). "Healing" from addiction is often healing from trauma, as symptoms are faced in sobriety and worked through, rather than buried beneath dopamine dumps provided by substances or behaviors of abuse.

Other symptoms of PTSD that may be exacerbated by ayahuasca rituals include disturbing images regarding the trauma (Nielson and Megler 2014) and emotional lability (Riba et al. 2003, 2006). Sleep disturbance, another symptom of PTSD, does not seem to be a factor beyond the acute intoxication stage of ayahuasca use (Barbosa et al. 2012). In most reported cases, mood is improved after ayahuasca sessions, and ayahuasca has been found to help in cases of treatment-resistant depression (Palhano-Fontes et al. 2017); negative changes in mood are another symptom of PTSD, and mood elevation is one of the more promising effects of ayahuasca on humans (Palhano-Fontes et al. 2014; Sanches et al. 2016). The anxiety and depression common to sufferers of PTSD may well be alleviated by the use of ayahuasca, making progress in therapy more likely.

However, another major factor to account for when considering ayahuasca to treat PTSD is the fact that those with a history of PTSD reported more physical complications associated with cardiovascular function. This is especially important considering that many people living with PTSD will develop some form of cardiovascular disease (Edmondson and Cohen 2013) and may be at greater risk for adverse events related to heart rate and blood pressure regulation during an ayahuasca session. Careful monitoring should be performed by a physician to ensure prospective PTSD patients are safe during any treatment protocols.

Another important factor to consider regarding the appropriate use of ayahuasca to treat people with PTSD is related to whether it should be administered individually, or in a group setting, as is the traditional method. However, those in the past PTSD group reported having more issues with overcrowding or unstable people sharing the ceremony space, compared to the current PTSD group. This is particularly interesting for any sort of group therapy for trauma work. People's nervous systems resonate with each other, so if one individual is agitated, it can cause others to become agitated as well. If someone is agitated and they are in a therapeutic relationship with someone whose nervous system is relaxed, it can create a container whereby the agitated person may start to feel more regulated. This type of resonance with others in the environment is further supported by the results reported in the current study, where a substantial proportion of individuals identified having supportive staff readily available as being helpful during their ayahuasca experience.

Similarly, being around people they felt comfortable with was reported to be helpful and may further support this theory of being in a type of energetic harmony with others in the room.

This concept of people's nervous systems resonating with each other is referred to as "limbic resonance" (Lewis et al. 2001). There has been discussion among researchers involved in ayahuasca and trauma work (anecdotal) about whether or not it is best for ayahuasca ceremony groups aiming to support healing for those with PTSD to be comprised of all individuals with PTSD or a mix of individuals with PTSD and those without. If all the participant in a group have PTSD, it would mean there are not any regulated and calm nervous systems for the individuals with PTSD to resonate with, aside from the person facilitating the ceremony, presumably. Having this type of distribution of only participants with PTSD could potentially lead to an entire room full of nervous systems perceiving some level of threat, which may make the therapy re-traumatizing rather than therapeutic. Therefore, we propose that if PTSD patients are to undergo treatment with ayahuasca in a group setting, the safest care for both individuals with PTSD and those without PTSD should be a small proportion of the total group having PTSD. Another important aspect of having additional able-bodied individuals physically and mentally available is to help participants in the space feel safe. It would be reasonable to assume that the calm presence of support staff allows for ceremony participants to have more regulated nervous systems for similar reasons as described above.

Lastly, we'd like to touch upon the cultural differences inherent in the present study and how those may be perceived as "dangerous" or otherwise abnormal to seekers from outside the traditional culture of ayahuasca use. These are related to issues with encountering "entities" or "spirits" as well as feeling that some of the shamans or facilitators were witch doctors of some sort. While some cases of true psychosis or other major mental illness not compatible with taking ayahuasca may be present in certain individuals, a certain amount of what those consider dangerous may simply be artifacts or misinterpretations of traditional practices that seem dangerous because they are foreign and unfamiliar. What some may consider to be a psychotic experience of seeing "entities" may in fact be a spiritual emergency that often can be navigated by the so-called witch doctor familiar with such encounters. It has been suggested that participants emerging from these types of situations may benefit from integration work back home with a Western-trained psychotherapist familiar with dealing with spiritual crisis (Lewis 2008).

In conclusion, while the current study supports the literature regarding the safety and therapeutic potential of ayahuasca for alleviating symptoms associated with mental health disorders related to trauma, there are some potential risks that clinicians, researchers, and patients should be accounting for if this is to be used to treat PTSD. Therapeutic and ritualistic settings must be equipped with the appropriate monitoring equipment and prophylactic drugs to counteract cardiovascular complications, accompanied by experienced clinicians, a shaman, and trained and supportive staff, and include personal comforts and music to maximize the therapeutic potential of ayahuasca for PTSD. Additionally, for Westerners not familiar with the traditional and indigenous uses of ayahuasca, additional preparation before and

integration after may help participants process unfamiliar encounters that may be perceived as dangerous. However, these encounters may be cultural differences that require more time and energy to understand and process, with the appropriate supportive environment upon returning to daily life back home.

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