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Exploring the therapeutic potential of ayahuasca for adults with childhood trauma: a mixed-methods approach

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As we navigate a world that is still coping with the enduring impacts of the global pandemic COVID-19, the escalating climate crisis, and conflicts such as the Russia-Ukraine war or the Israel-Hamas war, the vulnerability of humanity becomes quite apparent. Particularly vulnerable are children and adolescents (McCrory et al., 2022). Their developing nervous systems, along with their still maturing cognitive and socio-emotional abilities, make them particularly susceptible to potentially traumatic events and enduring life stress.

But not only global crises and human conflict impact the healthy development of growing children. Research indicates that over 60% of adolescents have experienced potentially traumatizing events (McLaughlin et al., 2013; Merrick et al., 2018) and depending on geographical location 25% – 47% (Hanlon et al., 2020; Lippard & Nemeroff, 2020; McLaughlin et al., 2013; Stoltenborgh et al., 2015) have experienced *childhood trauma*, i.e., physical abuse, sexual abuse, emotional abuse, physical neglect, and emotional neglect up to the age of 18 (Bernstein et al., 2003). Childhood trauma and other critical life events like war can have long-lasting and severe consequences to the development and the biopsychosocial well-being of affected individuals (McCrory et al., 2022; Nurius et al., 2015; Teicher et al., 2016) and it impacts even future generations through epigenetic pathways, as recent research has shown (Arnold et al., 2023; Yehuda & Lehrner, 2018). Clearly, childhood trauma is a globally widespread problem and has severe consequences in the context of health and disease.

Biopsychosocial Risks Linked to Childhood Trauma

Although childhood trauma exposure does not constitute a diagnosis, it defines a population at increased risk for various biopsychosocial illnesses (Fares-Otero et al., 2023; Hales et al., 2023; Yang et al., 2023). This section reviews the neurobiological, psychological, and social risks associated with childhood trauma, providing a comprehensive understanding of its widespread consequences.

Physical Health Issues

Childhood trauma can lead to significant and long-lasting impacts on an individual's life course and is associated with substantial morbidity and mortality (Grummitt et al., 2021). It is linked with an elevated risk of various physical health issues (Brown et al., 2010; Goodwin & Stein, 2004; Halland et al., 2014) including adult obesity (Wiss & Brewerton, 2020), cardiovascular disease (Bossé et al., 2018) and functional somatic syndromes (Afari et al., 2014; Chandan et al., 2020). It can even influence the gut microbiome (Rohr et al., 2023; Vogel et al.,

2020; Zhang et al., 2022), which seems to contribute to the development of several mental health disorders (Halverson & Alagiakrishnan, 2020; Rogers et al., 2016). Furthermore, there is some evidence that the relationship between early life stress and inflammatory markers increases in magnitude with increasing age (Chiang et al., 2022). Childhood trauma is also linked to adverse health behaviors, which may lead to further health issues throughout one's life (Beutel et al., 2016; Tavares & Tsotsoros, 2024).

Neurobiological Effects

Childhood trauma may occur within periods that are critical for healthy brain development (Nelson & Gabard-Durnam, 2020). It is not surprising, that brains of individuals who experienced childhood trauma and those who did not, but share the same psychiatric diagnosis, seem to be fundamentally different (Teicher & Samson, 2016). Early exposure to childhood trauma can alter trajectories of brain development and affect a wide variety of regions and circuits due to phenotypic adaptation mechanisms (Samson et al., 2024). These adaptions seem to support coping and survival of traumatic childhood experiences, but they might be maladaptive in later life (Teicher & Samson, 2016). Recent research shows that childhood trauma seems to affect primarily brain regions that are involved in cognitive functions, socio-affective functioning, stress regulation, emotional regulation, threat processing, autobiographical memory, and avoidance behaviour (Busso et al., 2017; Ireton et al., 2024; Yang et al., 2023).

Mental Health Effects

Moreover, around 30% of mental health disorders are related to childhood trauma (Kessler et al., 2010). Early life stress increases the likelihood of adult mental health disorders such as depression, anxiety, bipolar disorder, *substance use disorder* (SUD), *post-traumatic stress disorder* (PTSD), personality disorders, and psychosis (Agnew-Blais & Danese, 2016; Carr et al., 2013; Copeland et al., 2018; Lippard & Nemeroff, 2020; Sahle et al., 2022; Stanton et al., 2020; Teicher & Samson, 2016) with a high prevalence of comorbidity and poorer treatment outcomes (Karatzias et al., 2019; Teicher & Samson, 2013).

Psychological mechanisms that might connect childhood trauma with adult psychopathology include enhanced threat processing (McLaughlin et al., 2020), difficulties in emotion regulation (Compas et al., 2017; Gruhn & Compas, 2020; Heleniak et al., 2016; Jenness et al., 2021), and increased stress sensitivity (Wichers et al., 2009). Specifically, the more frequent use of avoidance and suppression as emotional coping strategies can affect mental health issues across psychopathologies (Aldao et al., 2010). Additionally, childhood trauma can cause a bias in implicit memory towards trauma-relevant and negative visual information (Amir et al., 2010)

and can impair episodic long-term memory (beyond the traumatic event), particularly affecting verbal memory (Petzold & Bunzeck, 2022).

Interpersonal Issues

Individuals who suffered childhood trauma may experience interpersonal difficulties in adulthood (Paradis & Boucher, 2010). Childhood trauma is linked to lower global social functioning, poorer interpersonal relations, and increased aggressive behavior, with emotional abuse and neglect showing the largest magnitudes of effect (Fares-Otero et al., 2023). Another study found that neglect and household dysfunction predicted challenges in forming interpersonal relationships (Tavares & Tsotsoros, 2024). Additionally, a history of childhood trauma is associated with greater social isolation and loneliness (Hanlon et al., 2020) and less social support in adulthood (Sperry & Widom, 2013). Other findings showed that more exposure to traumatic events in childhood correlates with less satisfaction in communication and more issues in romantic and sexual domains (McNeil & Rehman, 2024).

Childhood trauma is associated with increased interpersonal sensitivity in adults with mood disorders which might be an underlying mechanism for psychopathology (Kwon et al., 2024). Another study with depressed patients showed that more trauma exposure was associated with being too caring in relationships (Goldstein et al., 2023). A study with patients with depression and anxiety disorders found that emotional abuse and neglect, and sexual abuse during childhood might contribute to general interpersonal distress and other interpersonal problems in adulthood (Huh et al., 2014). Another study revealed that the effect of emotional abuse during childhood on depressive symptoms was mediated by emotion dysregulation. Interpersonal problems and dysfunctional emotion regulation seem to predict general functional impairment (Cloitre et al., 2005), which shows the interconnectedness of the neurobiological effects of childhood trauma and the development of psychopathology (Christ et al., 2019).

Ayahusaca's Transdiagnostic Therapeutic Potential For Childhood Trauma Sequelae

In the search for effective approaches to address various adverse effects in adults with a history of childhood trauma, the therapeutic use of psychedelics has been revisited recently (Bhatt et al., 2022; Bird et al., 2021; Mitchell et al., 2021; Raut et al., 2022) due to their transdiagnostic potential for various mental health disorders (Luoma et al., 2020; Nichols, 2016; Nutt & Carhart-Harris, 2021; Reiff et al., 2020; Vollenweider & Preller, 2020) and their potential for enhancement of accessing and modifying trauma-related memories (Fattore et al., 2018; Kéri, 2022). Among these, the use of ayahuasca, a traditional South American brew from the Amazon, which has been used for centuries in traditional healing ceremonies, has been suggested for its

potential to facilitate the healing and recovery of childhood trauma sequelae (Perkins & Sarris, 2021).

Ayahuasca, which is a Quechua term for "vine of the souls", is a psychoactive brew from the Amazon (Schultes et al., 2001). It is composed of the *Banisteriopsis caapi* vine, which contains *β*-carboline alkaloids, and the *Psychotria viridis*, which provides the serotonergic receptor agonist *N,N-dimethyltryptamine* (DMT) that mainly induces ayahuasca's hallucinogenic effects. The complete pharmacological composition of ayahuasca is notably complex compared to other plant-based psychedelics due to its combination of two plants (McKenna et al., 1984; Rossi et al., 2022; Ruffell et al., 2020). It is noteworthy to highlight that DMT, when taken orally, is metabolized by visceral *monoamine oxidase* (MAO), which neutralizes its hallucinogenic effects. However, the *β*-carboline alkaloids present in the *Banisteriopsis caapi* vine act as MAO inhibitors: they block the breakdown of DMT in the digestive system, enabling the psychoactive components of the brew to take effect (McKenna et al., 1984).

Religious and Personal Growth-Oriented Use

Ayahuasca has been used for centuries by the indigenous of the Amazon for spiritual and healing purposes, divination, sorcery, and engaging with their local environment (Labate, 2014; Metzner, 2006; Schultes et al., 2001). Archaeological findings indicate the use of ayahuasca dating back to at least 1000 CE (M. J. Miller et al., 2019) with potential earlier use suggested around 1500–2000 BC (Naranjo, 1979).

Ayahuasca has been used as a sacrament in syncretic churches like *Santo Daime* and *União do Vegetal* (UDV) since the 1930s and has seen global growth (Tupper, 2008). Santo Daime has around 100,000 participants, while UDV has 17,000 members in Brazil (Johnson et al., 2019). In fact, several studies have not found post-acute harm associated with regular participation in naturalistic ayahuasca ceremonies (Fábregas et al., 2010; Halpern et al., 2008; Kohek et al., 2022). In contrast, it seems to improve general well-being and may even serve as a protective factor against psychopathology (Barbosa et al., 2009; Bouso et al., 2012; Grob et al., 1996; Jiménez-Garrido et al., 2020; Kohek et al., 2022; Perkins et al., 2022).

In recent decades, the globalization of ayahuasca has led many Westerners to undertake international journeys to traditional, often indigenous communities in South and Central America (Tupper, 2008). Most ayahuasca travelers are motivated by intentions of healing or personal growth (Bathje et al., 2021; Gonzalez et al., 2021; Perkins et al., 2021), and around 16% seek ayahuasca for healing childhood trauma (Perkins et al., 2021).

Ayahuasca's Therapeutic Potential

In addition to its religious, spiritual, self-seeking, and personal growth-oriented use, emerging evidence suggests that ayahuasca may also be effective in treating mental health disorders (Frecska et al., 2016; Labate & Cavnar, 2014; Maia et al., 2023).

Ayahuasca's diverse neurobiological and psychological properties make it a potential transdiagnostic agent for addressing diverse mental health issues. It demonstrates potential neuroprotective, neuroplastic, immunomodulatory, anticarcinogenic, anti-addictive, and rapid anxiolytic and antidepressant effects (Rossi et al., 2022). Recent reviews highlight the promising therapeutic potential of ayahuasca (Gonçalves et al., 2023; Maia et al., 2023; Ruffell et al., 2023). While one controlled clinical trial showed evidence of ayahuasca's efficacy for depression (Palhano-Fontes et al., 2019), ayahuasca has been successfully utilized for anxiety, SUD, PTSD and personality disorders in observational studies. However, more controlled studies with larger populations are necessary to better understand its efficacy and associated side effects. Another issue is the lack of control over the concrete preparation of ayahuasca, the diversity of the plants used and the variety of their alkaloids. An overview of ayahuasca's scientific evidence for clinical disorders is given in Table 1.

Depression and SUD frequently co-occur in trauma sequelae, with the latter being linked to worse treatment outcomes (Fedele et al., 2018; Roberts et al., 2015). Ayahuasca has been documented to provide both rapid and sustained antidepressant effects, particularly for cases of treatment-resistant depression (dos Santos et al., 2018; Osório et al., 2015; Palhano-Fontes et al., 2019; Sanches et al., 2016), and there are observational studies in the treatment of SUD (Perkins et al., 2022; Rodrigues et al., 2022). Additionally, ayahuasca appears to enhance emotion regulation in individuals exhibiting borderline-like personality traits (Domínguez-Clavé et al., 2019), and has been associated with reductions in suicidal ideation (Zeifman et al., 2019).

Table 1

Evidence for therapeutic effects of ayahuasca for diverse mental disorders (Maia et al., 2023)

Condition	Controlled clinical trial	Noncontrolled clinical trial	Observational studies	Exploratory studies	Preclinical studies
Depression	++	++	++	+	++
Anxiety	+	-	+	-	++
SUD	-	-	++	++	++
PTSD	-	-	+	+	-
Personality disorders	-	-	+	-	-

++ = Yes; + = Preliminary; - = None

Ayahausca may also strengthen therapy-enhancing mechanisms, such as psychological flexibility and cognitive reappraisal (Agin-Liebes et al., 2022), as well as cognitive flexibility and mindfulness (Murphy-Beiner & Soar, 2020; Sampedro et al., 2017; Soler et al., 2016, 2018), which are known to act as protective factors against various psychological disorders (Michal et al., 2007; Richardson & Jost, 2019; Rodman et al., 2019). Furthermore, ayahuasca has been reported to reduce neuroticism for up to six months (Netzband et al., 2020; Weiss et al., 2021) and to enhance overall well-being and quality of life (Barbosa et al., 2009; Gonzalez et al., 2021; Rodrigues et al., 2022; Ruffell et al., 2021). Beyond its psychological impacts, there is ongoing research into ayahuasca's potential positive effects on the gut microbiome, particularly in veterans (Ruffell, 2023).

Ayahuasca in the Context of Trauma

Related to Childhood trauma. Interventions with ayahuasca have been specifically suggested for adults with traumatic childhood experiences based on early results of qualitative data (Perkins & Sarris, 2021). Approximately half of the 600 respondents indicated that they gained a new understanding of childhood events or situations during their ayahuasca experiences. The cross-sectional data of the Global Ayahuasca Survey with over 10,000 participants from more than 50 countries provided evidence that 16% percent of ayahuasca drinkers had healing of childhood trauma as motivation for their ayahuasca experiences (Perkins et al., 2021). These early results revealed that respondents often reported that ayahuasca allowed them to gain a new understanding of their childhood events (Perkins & Sarris, 2021), thus providing preliminary evidence of a therapeutic potential. Nevertheless, the study did not include a rigorous analysis, while potential mechanisms have been hypothesized. A qualitative pre-study of this Master's thesis utilizing interpretative phenomenological analysis on four participants also revealed a therapeutic potential of ayahausca in the context of childhood trauma due to reexperiencing and reappraisal of traumatic events (Nagler, 2023). Two participants reported that they had processed memories of their traumatic childhood and could afterwards better deal with them. Three participants were able to process and transform related negative emotions.

Related to PTSD. There are also studies showing therapeutic potential of ayahuasca for PTSD. Potential applications for treating PTSD have been outlined due to hypothesized facilitated access of implicit memories due to ayahuasca (Nielson & Megler, 2014). Recent research provides preliminary evidence of ayahuasca's utility in the context of PTSD, as it has been employed in treating PTSD among military veterans (Ceman & Klass, 2019; Weiss et al., 2023a). A qualitative study asked ayahuasca users with and without a diagnosis of PTSD whether

they perceived aspects of their experience as helpful and/or dangerous. Around 92–99% perceived their ayahuasca experience(s) as helpful, and 16-20% reported something dangerous about their experience(s). The concrete results revealed a higher need for safety and supervision for trauma survivors (Nielson et al., 2021).

Related to Trauma Recall. Another recent study suggests that ayahuasca may facilitate the reexperiencing of adverse life events (Weiss et al., 2023b), which might be similar to the processing of trauma within exposure therapy. The study reported a prevalence rate of 42% for reexperiencing of adverse life events in general, and 27% for severe adverse life events while under the acute effects of ayahuasca. The study did not address childhood trauma particularly. Nevertheless, reexperiencing might allow individuals to process and integrate traumatic memories due to reappraisal mechanisms (Weiss et al., 2023b).

Mouse Models. Neurobiological research from mouse models offers additional evidence for considering ayahuasca in the context of trauma. Specifically, ayahuasca appears to disrupt fear memory reconsolidation (Daneluz et al., 2022), which may aid in the healing of traumatic memories by interfering with the memory reconsolidation process. Additionally, ayahuasca seems to facilitate the extinction of both recent and remote fear memories (Werle et al., 2024) and the recovery from traumatic stress in mice (Kelley et al., 2022). Especially the extinction of remote fear memories might be a useful link to childhood memories, though a transfer of these results to humans might not be possible. Further findings from mouse models suggest that ayahuasca may promote adult neurogenesis in the hippocampus (Morales-Garcia et al., 2020), which could assist in reorganizing old and constructing new episodic memories following the processing of traumatic memories. Finally, it is hypothesized that a DMT-induced sigma-1 receptor agonism promotes the healing of traumatic memories (Inserra, 2018).

Adverse Effects of Ayahuasca

Ayahuasca is generally considered safe, especially in controlled settings, and serious adverse effects are rarely reported within healthy populations (White et al., 2024). Nevertheless, adverse effects can occur. In the following an overview is provided.

In rare circumstances, psychedelic substances may induce prolonged psychotic reactions, particularly among individuals with a family history of psychosis. As such individuals are typically excluded from clinical studies, this phenomenon has not been documented in this setting (dos Santos et al., 2018). Psychotic episodes induced by participation in naturalistic ayahuasca ceremonies are documented infrequently (less than one in 1000) and typically resolve spontaneously (Cerón Tapia et al., 2022; Cornejo & Saúl, 2015; Marin et al., 2023). Furthermore, individuals with a personal or family history of epilepsy have an increased risk of seizures in

(Simonsson et al., 2022).

Additional side effects include changes in personality and belief systems. For example, the use of psychedelics can alter metaphysical beliefs, leading to deviations from strictly materialistic worldviews (Timmermann et al., 2021). After treating treatment-resistant depression with the psychedelic substance psilocybin, participants were observed to be more nature-oriented and exhibited reduced authoritarian political views (Lyons & Carhart-Harris, 2018). Similarly, another study found that lifetime experience with psychedelics predicted pro-environmental behavior through an increase in nature relatedness (Forstmann & Sagioglou, 2017). Several studies have reported both acute and enduring changes in personality traits such as *openness* and *self-transcendence* (Bouso et al., 2018; Weiss et al., 2021).

The Global Ayahuasca Survey (N = 10, 836, Bouso et al., 2022), conducted online between 2017 and 2019, collected data on adverse side effects from ayahuasca experiences. Although there is a high incidence of acute adverse physical effects (e.g., nausea, vomiting, diarrhea, and headache) and psychological effects (e.g., persistent altered perception, feelings of disconnection or isolation, and nightmares) associated with ayahuasca, these effects are generally mild and of transient nature. Still, 12% of participants who experienced adverse effects required medical attention or sought professional mental health support. Besides, the setting of the ayahuasca experience had an influence on reported adverse effects. The study revealed that adverse effects were more often reported in non-supervised and non-traditional supervised ayahahuasca ceremonies, while fewer adverse effects have been reported for the use of ayahuasca in a religious setting. No data is available for adults with a history of childhood trauma.

Research Questions

According to the theoretical background, there is little knowledge of how ayahuasca may be supportive in the life of adults with a history of childhood trauma and whether there are specific risks for this population.

Nevertheless, several studies suggest its potential therapeutic benefits (Gonçalves et al., 2023; Maia et al., 2023; Ruffell et al., 2023) and safe use in ceremonial contexts (Perkins et al., 2021). Notably, ayahuasca has shown promise in addressing depression, anxiety, suicidal tendencies, PTSD and SUD (Maia et al., 2023) which are common sequelae of childhood trauma. Even more, it appears that ayahuasca may facilitate the recall of traumatic memories (Weiss et al., 2023b), while this study has not addressed childhood trauma specifically. Besides, ayahuasca seems to promote general therapy-enhancing mechanisms such as psychological flexibility and cognitive reappraisal (Agin-Liebes et al., 2022), enhance emotion regulation in a borderline-like

population (Domínguez-Clavé et al., 2019) and seems to improve general well-being and quality of life (Bouso et al., 2012; Ruffell et al., 2023). Finally, a therapeutic benefit for adults with childhood trauma has been explicitly suggested based on an early qualitative analysis of 120 participants (Perkins & Sarris, 2021).

To address this research gap, this Master's thesis aimed to study the suggested therapeutic potential of ayahuasca for adults with a history of childhood trauma by utilizing an explanatory sequential mixed-methods design (Creswell & Creswell, 2023). The initial quantitative design allowed to acquire results that were generalizable and could provide an overview of ayahuasca's therapeutic potential and possible risks for adults with childhood trauma. Given the limited understanding of how ayahuasca influences traumatic memory traces in humans, this study further explored whether ayahuasca facilitates the processing of traumatic memories associated with childhood. Besides, the quantitative analysis explored possible relationships between participants' background (e.g., the trauma type, cumulative trauma exposure, psychopathology or psychotherapy experience) and their ayahuasca experiences related to childhood trauma. The qualitative analysis will explain, enhance and extend the quantitative analysis with subjective experiental information. The integration of both analyses allows to gain a deeper understanding of found results.

Specifically, the research questions are:

Research Question 1 Does ayahuasca contribute to overcoming childhood trauma sequelae and the processing of traumatic memories [initial quantitative phase], and how does it contribute to it [explored in the qualitative phase]?

Research Question 2 Are there adverse experiences linked to the processing of traumatic memories within ayahuasca experiences [initial quantitative phase] and if so, how are they experienced [explored in the qualitative phase]?

Research Question 3 Are ayahuasca experiences perceived as beneficial [initial quantitative phase] and if so, how does it impact the life of adults with childhood trauma after ayahuasca experiences [explored in the qualitative phase]?

Research Question 4 What factors are associated with trauma processing, psychological distress and support within ayahuasca experiences related to childhood trauma [quantitative phase only]?

Method

Research Design Overview

This Master's thesis employed an explanatory sequential mixed-methods design to address the research questions. This design integrates both quantitative and qualitative methods, allowing for a comprehensive analysis and understanding of the research problem.

Mixed-methods research involves the systematic collection and analysis of data through multiple methods, typically utilizing both quantitative and qualitative approaches (Creswell, 2022; Plano Clark, 2019). These methods can be integrated at various stages of the research process, often referred to as "mixing", to enhance the comprehension of the research problem. An explanatory sequential mixed-methods design (Ivankova et al., 2006) consists of two distinct phases. Initially, the researcher collects and analyzes quantitative data, followed by a phase of qualitative data collection and analysis. This subsequent phase aims to refine, explain, build upon, elaborate or extend the initial quantitative finding (Creswell & Plano Clark, 2011; Ivankova et al., 2006).

By integrating qualitative and quantitative approaches, a comprehensive understanding of a research problem can be achieved. To explore the therapeutic potential of ayahuasca in the context of childhood trauma only through quantitative research allows for the generalization of results to a wider population but it might be limiting as only known therapeutic factors can be identified and quantitative data do not allow for exploring underlying subjective experiences. Conducting only qualitative research might allow to explore the therapeutic potential based on concrete lived experiences, but it cannot be generalized easily to other contexts due to the smaller sample size. The explanatory sequential mixed-methods design approach allows for a more comprehensive view of the research problem and utilizes the strengths of both approaches.

The first quantitative phase seeks to find out whether there is a therapeutic potential of ayahuasca for adults with childhood trauma and if potential trauma processing is associated with adverse experiences. In the subsequent qualitative phase, this study aims to explore in detail how ayahuasca might serve as therapeutic agent and whether adverse effects occur that might speak against its therapeutic use. The rigorous quantitative analysis will allow for the generalization of results to a wider population, while the detailed qualitative analysis will explain and enrich the quantitative analysis with subjective experiential information. Utilizing quantitative and qualitative data, known and unknown contributing therapeutic factors and adverse experiences can be identified. As both methods provide a significant contribution to the research question, both data have equal priority in this mixed-method research.

Data integration was implemented at two phases in the study. Initially, participants for the qualitative interviews were selected based on the quantitative analysis results to ensure a robust and representative sample. This selection focused on participants who reported experiencing psychological distress during the processing of childhood trauma, maintaining an equal distribution of heightened levels of distress. This approach ensured that the qualitative sample mirrored the quantitative findings without overlooking adverse experiences, allowing for a deeper exploration of these results. Subsequently, during the interpretation phase, both quantitative and qualitative data were synthesized, highlighting areas of convergence and divergence to provide a comprehensive understanding of the research questions. This method of integration enhances the validity and richness of the study findings by combining the strengths of both quantitative and qualitative approaches. Figure 1 illustrates the research design and where and how integration of mixed methods data occurred.

This mixed methods research was guided by a critical realist perspective which "utilizes the compatibility thesis of worldviews, supporting the point that quantitative and qualitative research can work together to address the other's limitations" (Shannon-Baker, 2016, p. 11). It is grounded in the belief that theories on reality are inherently partial, underscoring the importance of incorporating diverse perspectives into research. Besides, critical realism emphasizes the process of investegatating a context-based causality. The context is addressed in both phases, quantitative and qualitative, by collecting information about the background of participants that allows to ultimately state something about the impact of ayahuasca for overcoming childhood trauma.

Participants

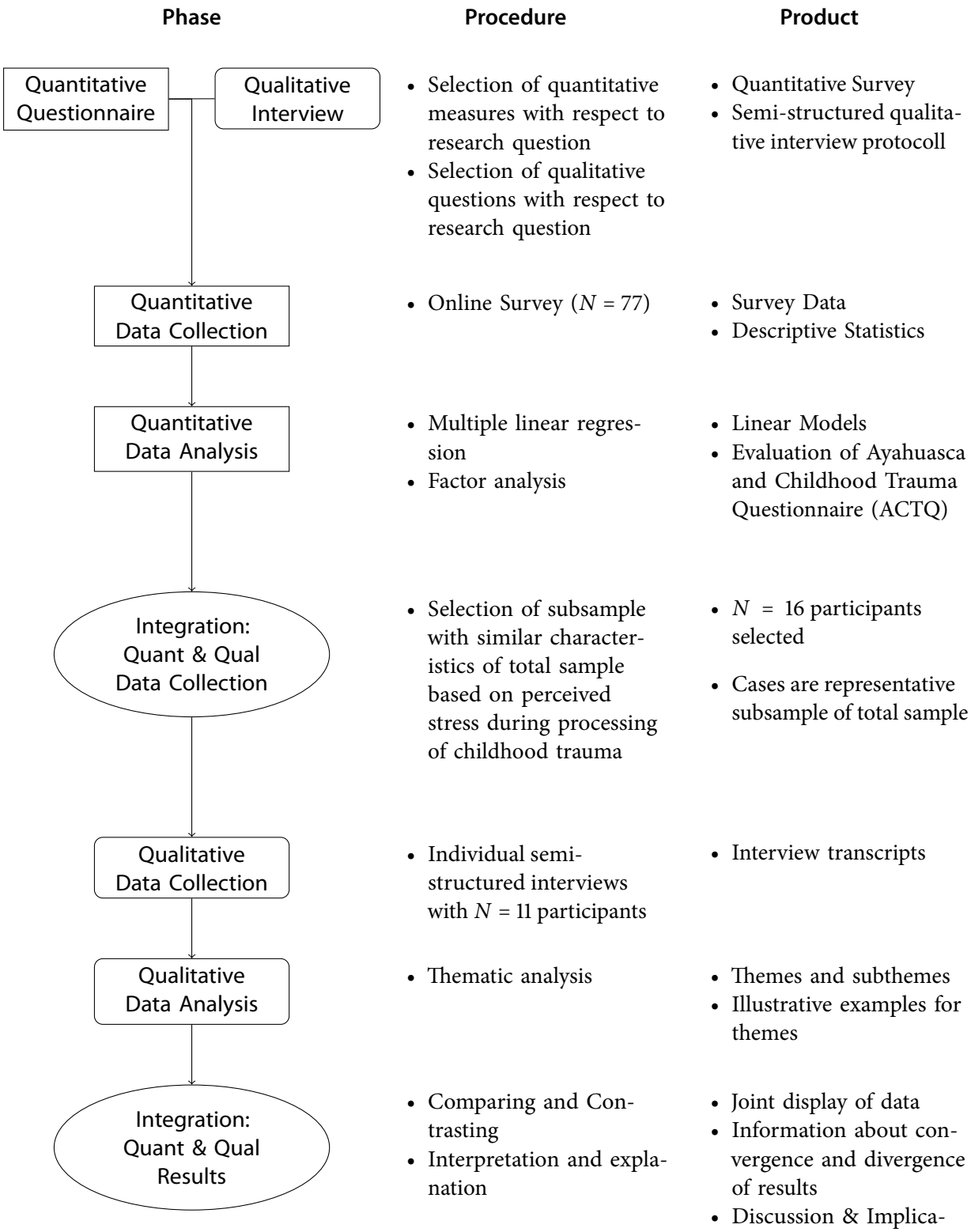
The population for both phases of this study consisted of German or English-speaking adults (age 18 or older) who had experienced or witnessed childhood trauma and already had at least one experience with ayahuasca. To minimize risks of personal distress due to the focus on traumatic childhood experiences, individuals with acute suicidality, acute substance abuse, and acute psychotic symptoms were excluded from study participation.

The intended sample size for the quantitative online survey was $N = 65$ based on a power analysis (G*Power; Faul et al., 2007) with a moderate estimated effect size of $f = 0.25$, $\alpha = 0.05$, a statistical power of 0.8, and 7 linear predictors. The achieved sample size was $N = 77$ (see Table 2 for an overview of the participant flow). Demographic characteristics are detailed in Table 3.

The estimated sample size for the qualitative interviews was 8 – 10 in order to collect enough information that provides insights into lived realities of different genders, age-groups,

Figure 1

Diagram of sequential explanatory research design and mixed methods integration.



childhood trauma histories, psychopathological background, and experience with ayahuasca. This number is seen as a guideline and interviews were conducted until the researcher felt that the collected data allowed a rich analysis and contained enough redundancy that can address the research problem (Braun & Clarke, 2021). Finally, N = 11 adults participated in the online interviews. Demographic characteristics of the qualitative sample are shown in Table 11.

Recruitment and Sampling. The recruitment for this Master's thesis project occurred in two phases, even though the second recruitment drew on participants that had already participated in the initial quantitative phase of this study.

The international recruitment for the quantitative online survey utilized convenience sampling. The researcher contacted personally known persons by phone who were facilitating ayahuasca ceremonies as gatekeepers. They were asked to spread the study invitation within their networks using their authority. Besides, ayahuasca centers that have been found online were contacted by email, while only one of them responded to share the study link. Furthermore, study invitations were posted in relevant Facebook, Reddit and Telegram groups. More details are not provided here to protect contacts due to the illegal nature of ayahuasca ceremonies in most countries.

At the end of the online survey, participants were asked to provide their email address if they were willing to also participate in in-depth interviews lasting around 60 minutes. Utilizing a purposeful sampling strategy, participants who provided a contact option were then randomly selected while maintaining the percentage of heightened psychological distress based on results of the quantitative survey. Participants were invited by email to schedule an appointment for the interview. Before agreeing to participate in the interviews, the researcher presented a detailed overview of the research study with the agreement that participants were not required to speak about difficult or traumatic experiences if they feel uncomfortable. A total of 11 participants agreed to take part in the in-depth interviews.

The study was approved by the University's Institutional Review Board (N° 01008), all participants provided informed consent and no compensation was provided to participants.

Informed Consent. Informed consent of participants was obtained prior to participation in both phases of this mixed-methods study and appropriate information was provided in each phase (see Appendix E). To start the anonymous online survey, potential participants needed to provide informed consent by checking a corresponding check box. Participants who did not give informed consent were prevented from accessing the survey. For the qualitative in-depth interview, the participants were asked in the beginning of the interview for consent which was audio recorded and transcribed.

The informed consent specified that participants would remain anonymous, participation was entirely voluntary, they could refuse or withdraw from the study at any time without consequences, the purpose of the study, benefits of participating, and the approval of University's Institutional Review Board. Due to the trauma focus of this study, participants were at heightened risk of experiencing uncomfortable feelings and remembering difficult memories. To prevent potential harm, a statement of mandated reporting of adverse effects was included. In addition, a list of local and international mental health emergency numbers was provided to the participant in case of discomfort at the end of the online survey, while in the interviews the researcher informed participants to reach out in case of emotional upset.

Ethical Considerations. When embedding ayahuasca into Western contexts, it is important to acknowledge and respect the indigenous South American communities' traditional knowledge and wisdom, who have used ayahuasca ceremonially for generations. Additionally, there must be an awareness of the profound effects of Western colonization in Central and South America and the risk of cultural misappropriation (Celidwen et al., 2022; Fotiou, 2016).

Researcher Description and Reflection

The study was conducted as part of a Master's thesis in Psychology at the University of Vienna. At the time of data collection, the researcher was a Psychology student at the University of Vienna, held a PhD in Mathematics, and was a trained Gestalt therapist. He had profound experiences with shamanic practices, including ayahuasca, and had a history of adverse experiences during his childhood. He was thus a member of the group being studied.

The researcher was aware of potential therapeutic effects of ayahuasca for childhood trauma based on anecdotal evidence. At the same time, as a Gestalt therapist and Psychology student, he was aware of the challenges in overcoming the consequences of childhood trauma, recognizing that it may take time to integrate traumatic experiences and that, for some, it is difficult to find something they have never encountered in their lives, e.g., feeling safe. The researcher had a sincere interest in learning more about the therapeutic potential of ayahuasca, along with its associated risks.

Additionally, shamanic communities based on indigenous wisdom and experiential knowledge and scientific communities based on rigorous methodologies and evidence are often critical of each other. The researcher adopted an integrated stance that appreciates the unique value of each community while maintaining a general critical lense. In line with critical realism, knowledge and theories about the world can be only partial and even contradictory. Taking different perspectives helps to gain a broader understanding of phenomena.

Due to his background, participants may perceive the researcher as one of them, who

gives their experiences a voice in scientific realms. This makes access to the population of this research easier, and it supports building trust with participants but it might come with expectations that the researcher might not be able to fulfill. Furthermore, it might shape the way they share their experiences, and they might be more hesitant to share adverse experiences. At the same time the closeness to participants may inhibit the researcher from being as neutral and critical as he would be from more distance. On the other hand, his personal knowledge might support a better estimatation of shared situations and might make the interpretation of participants' experiences more meaningful.

Although every effort has been made to ensure as much objectivity as possible, these biases may shape the way the researcher views and understands the data he collects. Accordingly, reflections throughout the research process have been made and the mixed-methods design allows for cross-validation between quantitative and qualitative analysis.

Researcher–Participant Relationship

As the researcher partially used his networks to invite participants for the study, it might have been the case that he knew some of the study participants. As information about history of childhood trauma is very sensitive and intimate a collision of interest could occur between the researcher research aims and participants need for privacy.

To prevent ethical conflicts, the data of the anonymous online survey were stored separate from the provided email addresses for the qualitative interviews. In this way, participants and their provided data of the quantitative online survey remained anonymous. Furthermore, it was made sure that the researcher did not know the participants for the interviews in person by scanning of provided email addresses that were stored separate from survey data.

Data Collection

Protocols defined by the explanatory mixed-methods design of this study ensured a systematic and rigorous data collection.

Quantitative Data Collection

During the first quantitative phase, the researcher used the formr framework (Arslan et al., 2020) to create the online study and to sent a secure link to potential study participants. The survey was available for completion within a time window of three weeks, while the survey itself had no time constraints. After granting informed consent on the initial page of the survey, participants were able to participate in the online survey.

The study was accessible for German- and English-speaking adults. If translations for

used questionnaires were available, they were used. If no translations were available, they were translated appropriately.

Sociodemographic Information. The five items of this form (see Appendix B) assess the following demographic variables: participant's age, gender, nationality, residency, and level of education. Participants under the age of 18 were not able to proceed with the study.

Exclusion Criteria. To exclude participants at heightened risk from the study, the eight items of this survey (see Appendix B) briefly assess the acuteness of substance abuse, psychotic symptoms and suicidality. Participants meeting any exclusion criteria were directed to an exit page and excluded from the survey.

Childhood Trauma Questionnaire – Short Form (CTQ-SF). The CTQ-SF (Bernstein & Fink, 1998; Bernstein et al., 2003) is a 28-item measure inquiring about emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect. The CTQ-SF can be used for both clinical and non-clinical samples with, in general, strong psychometric properties, even though some studies have reported values of Cronbach's alpha less than .7 in some subscales (Georgieva et al., 2021). In the present study, internal consistency values (Cronbach's alpha) were excellent for the Sexual Abuse (α = .95) and the Emotional Neglect (α = .91) subscales, good for the Emotional Abuse subscale (α = .81) and questionable for the Physical Abuse (α = .69) and the Physical Neglect (α = .57) subscales. The overall internal consistency of the CTQ-SF was excellent (α = .9).

To classify the prevalence of childhood abuse and neglect, the cut-off scores recommended by the CTQ manual (Bernstein & Fink, 1998) were utilized. A specific category was considered present if participants had a moderate to severe score. The moderate to severe cutoff scores for each subscale are as follows: Emotional Abuse (≥ 13), Physical Abuse (≥ 10), Sexual Abuse (≥ 8), Emotional Neglect (≥ 15), and Physical Neglect (≥ 10). The CTQ-SF is available in English and in German (Klinitzke et al., 2012). Exemplary items from the CTQ-SF include statements like "People in my family called me things like 'stupid', 'lazy', or 'ugly'" (Emotional Abuse), "I didn't have enough to eat'" (Physical Neglect), and "I believe that I was sexually abused" (Sexual Abuse).

International Trauma Exposure Measure (ITEM). The ITEM (Hyland et al., 2021) measures the exposure to different traumatic life events including abuse and neglect across various stages of life (childhood, adolescence, adulthood) according to the criteria of the *International statistical classification of diseases and related health problems* (11th ed.; ICD–11; World Health Organization, 2019). In addition, it evaluates the frequency of exposure to the most severe traumatic event and identifies the primary emotion associated with it. The ITEM is

available in English and German (Meinhardt & Lueger-Schuster, 2022). Exemplary items from the ITEM include questions such as "You were exposed to a natural disaster (e.g., hurricane, tsunami, earthquake) where your life was in danger", "You were repeatedly bullied (online or offline)", and "You were sexually harassed (received other types of unwanted sexualized comments or behaviours)".

International Trauma Questionnaire (ITQ). The ITQ (Cloitre et al., 2018) is a 18-item measure designed to assess PTSD and *complex PTSD* (CPTSD) symptomatology as described in the ICD-11. PTSD is addressed by three symptom clusters (reexperiencing, avoidance, and hyperarousal), while CPTSD additionally comprises three symptom clusters related to *disturbances in self-organization* (DSO): affective dysregulation, negative self-concept, and disturbances in relationships. The scale measures reliably with good to excellent internal consistencies (Camden et al., 2023; Cloitre et al., 2021). In the present study, the ITQ had good internal consistencies for the PTSD subscale α = .86 and the DSO subscale α = .85. The ITQ is available in English and in German (Christen et al., 2021). Exemplary items from the International Trauma Questionnaire (ITQ) include statements like "Avoiding internal reminders of the experience (for example, thoughts, feelings, or physical sensations)" (PTSD) and "I feel numb or emotionally shut down" (DSO).

Psychotherapy Experience and Psychiatric Disorders. This self-made questionnaire with five items (see Appendix B) focuses on participants' experiences with psychotherapy and diagnosed mental health disorders. It includes questions on whether they have ever been in psychotherapy and if they have been diagnosed with specific psychiatric disorders. Additionally, participants are asked to rate the satisfaction and effectiveness of psychotherapy in addressing childhood trauma.

Personal Experience With Ayahuasca. This self-made questionnaire explores with 6 items participants' personal experiences with ayahuasca. It includes questions about the frequency of ayahuasca consumption, how often participants drank ayahuasca, and the year they first used it. Participants are asked about their primary intentions for using ayahuasca and the main settings in which their experiences occurred. Furthermore, participants are asked to describe how ayahuasca has influenced their lives (beneficial and/or harmful).

Ayahuasca and Childhood Trauma Questionnaire (ACTQ). This self-made questionnaire with 14 items focuses on the relevance of ayahuasca experiences in dealing with childhood trauma (see Appendix B). The ACTQ consists of three subscales Trauma Processing, Psychological Distress, and Support (see Appendix C for its analysis). The 8 items of the Trauma Processing subscale ask participants to indicate whether ayahuasca brought back traumatic

childhood memories, provided insights, helped in processing these experiences, and allowed them to gain new insights or to find a new meaning. It also explores whether ayahuasca helped them face fears, forgive, or accept difficult experiences of their childhood. The 4 items of the Psychological Distress subscale measure the occurrence of difficulties, feeling helpless, overwhelmed, or feeling traumatized during the processing of childhood trauma within ayahuasca experiences. The Support subscale asks about the adequacy of support and the possibility to share the experience after the ceremony. Finally, participants can add any additional thoughts on these topics.

Mood and Perception of Online Survey. The survey concluded with two questions on participants' current well-being and their perception of the survey itself. These questions aimed at checking participants' mood after the whole survey and reflecting on the amount and the intensity of provided items.

Qualitative Data Collection

The qualitative data were collected through one-on-one semi-structured interviews in English or German. These interviews occurred at mutually agreed-upon times online using Zoom Meetings (Zoom Video Communications, Inc., 2023). Participants confirmed they had read the provided study information and agreed to have their interviews audio recorded and transcribed. During each interview, field notes were taken to document observations, including the researcher's subjective perceptions of the interview experience.

Semi-structured interview. The semi-structured qualitative interview protocol (see Appendix D) consists of open-ended questions that assess various aspects of participants' experiences with ayahuasca in the context of childhood trauma. The main questions aimed at inviting participants to share their lived experiences rather than what they thought about them.

The interview protocol included questions about the participants' background and childhood, their reasons for participating in an ayahuasca ceremony, and their intentions. Then it explored their actual experiences with ayahuasca and whether and how trauma processing or revelations of unconscious memories occurred. Other questions asked whether adverse effects were experienced during and after the ceremon(ies), whether they had integrated their ayahuasca experience(s) into their daily lives, and whether there were any resulting changes in their self-perception and relationships. Additional questions inquired about participants' overall meaning of the ayahuasca experience and whether they would have recommended it to others. Finally, participants could share any additional thoughts or insights about their ayahuasca experience that they had not been asked about so far.

Due to the different background of participants and their experience with ayahuasca (e.g.,

one experience vs more than twenty experiences), the researcher partially adapted the structure and questions to the concrete situation while ensuring that the questions of interest were touched in the interview. Even if participants could decide if and how they wanted to answer the questions, no question was skipped.

Trustworthiness. In order to increase comparability between the interviews, a semi-structured interview protocol was used, and field notes were taken during the interviews. To establish a trustful relationship for the interviews, the researcher shared his personal background and his motivation for this research with participants. Some of the participants asked if the researcher had known the person that had invited them to this study which showed that trust was crucial to sharing openly about their experience. To get feedback from participants and to engage participants to describe their interview experience, the interviews concluded with the question "How was it for you to share your personal experiences with me?". Their answers promoted further truthfulness of their contribution during the interview.

Data Analysis

In this mixed-methods study, the researcher carefully integrated quantitative and qualitative data analyses. While rigorous measures were employed to ensure validity in the quantitative analysis, trustworthiness remained a key focus in the qualitative analysis.

Quantitative Data Analysis

In this Master's thesis study, quantitative data were analyzed using descriptive statistics and regression models. Selected quantitative measures, i.e., the CTQ-SF, ITEM and ITQ have strong psychometric properties (internal consistency, structural validity) based on the literature. The ACTQ demonstrated acceptable and good values of Cronbach's α. All statistical analyses were conducted using R Statistical Software (v4.3.1; R Core Team, 2023). In this study, statistical significance was considered to be a probability value of less than .05.

Descriptive Statistics. Descriptive statistics such as median, *interquartile range* (IQR) and frequency distributions were calculated to obtain the characteristics of interest of the sample.

Regression analysis. Analysis with multiple linear regression examined possible relationships between the conducted variables. The main interest was in the ACTQ – Trauma Processing and ACTQ – Psychological Distress subscales as dependent variables and what might influence the occurrence of processing traumatic memories (ACTQ – Trauma Processing: Memories). All meaningful relationships were assessed, while only reduced models utilizing stepwise model selection by AIC with significant associations were reported. Prior to regression analysis necessary assumption were checked using scatterplots for visual analysis of linearity, the

Shapiro-Wilk test for checking the normality of residuals, the Breusch-Pagan test to verify homoscedasticity condition, and the Durbin-Watson test to check for autocorrelation among residuals. Multicollinearity was checked with the *Variance Inflation Factor* (VIF).

Factor Analysis of ACTQ. The ACTQ was developed and introduced in this study. An exploratory factor analysis was conducted to determine whether the chosen items were measuring the therapeutic potential, psychological distress and perceived support. Additionally, internal consistencies were evaluated. The factor analysis is reported in Appendix C.

Qualitative Data Analysis

All interviews were audio-recorded and transcribed verbatim by the interviewer using MAXQDA (VERBI Software, 2024). After the transcription, the audio recordings were deleted to ensure data privacy and anonymity of participants. Additionally, as ayahuasca is illegal in most countries explicit locations and names in the transcrips were removed and replaced with generic names as they were not necessary for the research question.

Reflexive *Thematic Analysis* (TA; Braun & Clarke, 2006, 2022) was used to explore patterns of meanings across the qualitative data. Reflexive TA is a method for identifying, analyzing, interpreting, and reporting patterns (themes) within qualitative data. Reflexivity entails the practice of critical reflection on the researcher's role, as well as the research practice and process. Reflexive TA involves six key phases: 1) familiarizing oneself with the data, 2) generating initial codes, 3) searching for themes among the codes, 4) developing and reviewing of themes, 5) refining, defining and naming themes, 6) producing the final reporting. By systematically coding and categorizing data, reflexive TA aids in uncovering underlying meanings and patterns across a qualitative dataset, contributing to a deeper understanding of the research topic. At the same time, reflexive TA is a flexible approach that allows adaptation to the nature of the research project, its research questions and its theoretical framework.

TA was suitable for this mixed-methods research, as it offered the possibility of an inductively oriented experiential analysis that focused on shared patterns of meaning across the interviews while at the same time, allowing the analysis to be informed by the results of the quantitative analysis if known themes were recognized. Thus, TA's flexibility allowed for an inductive, explicit, critical realist approach, that aligned well with a data-driven and pragmatic analysis that suits the mixed-methods approach and facilitates a comparison with the quantitative results possible.

The data were analyzed with reflexive TA in the original language of each interview (German or English), while the development of codes and themes was conducted in English. Exemplary German excerpts were translated to English for this study. In the following, the

process of reflexive TA for this Master's thesis is outlined:

Phase 1: Familiarization. The engagement with data started with the transcription of the interviews. It involved listening to the audio recordings as well as writing the transcript. It was an essential process to get a feeling for each interview and notes on potential interesting points were taken during this process. As all interviews shared mostly positive experiences with ayahuasca, the researcher had an initial critical lens, looking for signs where sequelae of childhood trauma have not been resolved, such as a general mistrust in relationships. Although some signs were found, the researcher went to a more balanced position throughout the transcription process acknowledging the therapeutic work, as every participant shared a process of overcoming childhood trauma that started somewhere and got shared at the time of the interview. As all participants shared about their traumatic childhood experiences with varying degrees of details, the researcher was also revisiting his own childhood experiences in this time. At times, a break was necessary to deal with personally triggered themes for the researcher. This was taken as a sign of the authentic sharings of participants and the seriosity of data familiarization of the researcher to feel and connect with the participants sharings. After finishing the transcription process, the researcher listened to each interview in full length a last time while taking notes, before deleting the audio recordings.

Phase 2: Generating Initial Codes. After the transcription, each interview was systematically coded. Initially, each interview was read line by line and comments were made for passages that were somehow related to childhood trauma and ayahuasca and attracted interest. In total, there were around 550 comments. After that process, codes were generated based on the comments made in MAXQDA reflecting an inductive "bottom up" approach as the data was explored as it appeared. In later stages, the concepts of the ACTQ measure and the results of the quantitative analysis were used to find codes utilizing a more deductive "top down" way. In this way, the analysis can explore patterns of meaning that had not been conceptualized by the quantitative phase, while at the same time being able to better explain the quantitative results. Mostly, semantic codes were identified like "feels gratitude for ayahuasca" due to the exploratory nature of this research. After the systematic coding of each interview, around 150 codes were generated for the next phase.

Phase 3: Constructing Themes. For the development of initial themes, the codes were grouped by "clusters of meaning" to generate "tentative themes" (Braun & Clarke, 2022, p. 254). At first, themes were created that were based on the natural structure such as "Motivation", "Therapeutic potential within ayahuasca experiences", "Life changes after ayahuasca experiences", and "Adverse experiences", with corresponding subthemes that emerged from grouping of codes.

This process of developing preliminary themes was mainly explorative and inductive and close to the coded data. After a reflection with the supervisor of this Master's thesis, these themes were further developed in the next phases.

Phase 4: Developing and reviewing themes. After the reflection, also temporal structures were recognized and coded in the interviews. For example, the theme "Healing takes time" has been added, reflecting that overcoming childhood trauma needs its time and is a process and ayahuasca experiences can be a part of this process. Also, the theme "Therapeutic potential within ayahuasca experiences" was divided into two themes, "Childhood trauma processing" and "Overcoming childhood trauma", to be able to differentiate between direct trauma processing and more indirect healing aspects like "Feeling loved and connected". In addition, each interview was read again looking explicitly for adverse experiences or difficult moments to be able to capture adverse effects.

Phase 5: Refining, Defining and Naming Themes. To refine and define themes, each theme and subtheme was revisited in MAXQDA with its corresponding excerpts. During this process, the theme names were refined to better reflect the data, and additional themes were identified as the analysis progressed. The theme "Perception of Ayahuasca" was created to report on the nature of some participants' experiences with the subtheme "Ayahuasca as healing experience" taken out of "Overcoming childhood trauma" and newly created subthemes "Ayahuasca as life-changing experience", "Gratitude for ayahuasca", and "Ayahuasca as trustful relationship". After looking again at the results of the quantitative analysis, more subthemes like "Facilitates forgiving" were added to the theme "Overcoming childhood trauma" to gain a more comprehensive understanding.

Phase 6: Writing the Report. During the writing of the qualitative analysis section of this Master's thesis, the researcher noted that the theme of "Motivation" did not directly address the research question and was instead included to introduce participants background and motivation. Upon reviewing the results of the quantitative analysis, the researcher found it useful to add an additional theme "Ayahuasca vs. Psychotherapy" to capture participants background of professional mental health care. Some themes were renamed again during this process. A final discussion at this stage with the supervisor confirmed the themes and subthemes.

In total, 7 themes and 25 subthemes were developed, whereas 6 themes answer the research questions, while 2 themes were additionally identified as important regarding participants psychotherapy experience and the overall process of overcoming childhood trauma.

Mixed-Methods Integration

Mixed-Methods integration connects quantitative and qualitative data analysis (Plano Clark, 2019). In this process, the researcher examines how and to what extent qualitative findings explain, extend, or complement the initial quantitative findings (Creswell & Plano Clark, 2011) to address the research questions in an original and comprehensive way.

As it was not possible to connect participants' qualitative data directly with their quantitative data for ethical reasons, only general results of the quantitative and qualitative analyses are compared and contrasted to connect results across both methodologies. In addition, joint display of mixed-methods data (McCrudden et al., 2021) is utilized to visualize joint findings and differences, and exemplary excerpts for the ACTQ are provided.

Results

In this mixed-methods study, quantitative and qualitative data were integrated to provide a comprehensive analysis of the therapeutic potential of ayahuasca for adults with childhood trauma experiences. After providing an overview of the flow of participants throughout both study phases, quantitative and qualitative results are reported sequentially. Finally, the results are connected and contrasted side by side.

Flow of Participants

Online Survey. The online study was open for participation from October 23rd to November 13th, 2023. During this period, 116 people started the survey, and 79 completed it. Fourteen people were excluded from participation due to acute risk of substance use (n = 3), psychosis (n = 2), or suicidality (n = 11). The median completion time for the survey was 22 minutes and 10 seconds (IQR = 16 min 5 s – 31 min 18 s).

In total, 77 participants experienced childhood trauma, i.e., experiences of abuse and neglect up to the age of 18, measured by the ITEM (appropriate items were selected). Of these, 62 met the cutoff criteria of the CTQ, which is not recommended for use with populations outside of the United States (Glaesmer, 2016). Of all 77 participants, 15 participants experienced heightened psychological distress, i.e., rated as at least moderate.

Participants' mood and their perception of the online survey after completing the survey were evaluated on a discrete scale between 1 and 10. Among the 77 participants, the median rating for the current mood, measured by the question "How are you doing right now?", was 8 (IQR = 7 – 9). Similarly, the median rating for how participants felt about the survey, measured by the question "How did you feel about the survey?", was 8 (IQR = 8 – 10).

Table 2

Overview of study participation

Participants	*N*
Started survey	116
Uncomplete	23
Screened out due to exclusion criteria)	14
Complete	79
Complete with history of childhood trauma	77
Participants with heightened psychological distress	15
Open for interview	49
Open for interview with heightened psychological distress	10

In-depth Qualitative Interviews. Of the 77 participants who experienced childhood trauma, 49 were open to participating in the in-depth interviews and provided an email address.

The selection of the subsample of the qualitative phase was based on results of the quantitative analysis. In total, 15 (19.5%) participants of all participants and 10 (24.5%) potential candidates for the interviews experienced heightened psychological distress during the ayahuasca experiences (ACTQ – Psychological Distress score at least moderate, i.e. ≥ 3). To ensure that adverse experiences were not overlooked in the qualitative phase, the group was divided into participants with lower and at least moderate levels of perceived psychological distress and the subsample for the interviews was drawn randomly from both divisions.

Overall, 16 survey participants were randomly selected and invited for the interviews via email. Four participants did not respond, and two participants dropped out during the scheduling process. In total, 11 interviews were conducted from November 29th, 2023, to January 11th, 2024. The researcher reflected that these 11 interviews provided enough homogeneous and heterogenous information to address the research questions in a comprehensive manner due to the diversity of participants' experiences.

The interviews were conducted online via Zoom and lasted between 35 minutes and 49 seconds and 72 minutes and 57 seconds with a mean duration of 57 minutes and 28 seconds. The median duration for the interviews was 59 minutes and 7 seconds
(IQR = 52 min 24s – 65 min 50 s).

Quantitative Analysis

Participant Characteristics

Sociodemographic Characteristics. The sample consisted of 77 participants, with a median age of 44 years (IQR = 36 – 53). The majority of participants were female (71%) with

29% being male. Nationality-wise, 48% were from Germany, 14% from the United Kingdom, 12% from the United States, 3.9% from Austria, and 22% from other countries. In terms of residence, 44% of participants lived in Germany, 27% in the United Kingdom, 12% in Austria, 7.8% in the United States, and 9.1% in other countries. Regarding educational background, 9.1% had lower secondary education, 27% had upper secondary education, while the majority of participants, 64%, had post-secondary education. An overview of sociodemographic characteristics of the sample for the quantitative online survey is provided in Table 3.

Table 3

Sociodemographic characteristics of sample of quantitative survey

Sample Characteristics	$N = 77$[1]
Age (years)	44 (36, 53)
Gender	
Male	22 (29%)
Female	55 (71%)
Nationality	
Germany	37 (48%)
United Kingdom	11 (14%)
United States of America	9 (12%)
Austria	3 (3.9%)
Other	17 (22%)
Residence	
Germany	34 (44%)
United Kingdom	21 (27%)
Austria	9 (12%)
United States of America	6 (7.8%)
Other	7 (9.1%)
Highest educational qualification	
Lower secondary education	7 (9.1%)
Upper secondary education	21 (27%)
Post-secondary education	49 (64%)

[1]Median (IQR); n (%)

Trauma Questionnaires. Descriptive statistics for the CTQ-SF, ITEM, and ITQ measures were calculated and are presented in Table 4.

For the CTQ-SF, the prevalence rates indicated that 53% of participants experienced emotional neglect, 49% experienced emotional abuse, 44% experienced sexual abuse, 36% experienced physical neglect, and 21% experienced physical abuse.

For the ITEM scores measuring cumulative trauma exposure, participants reported a median of 4 traumatic events up to age 12 (IQR = 2–6), a median of 3 traumatic events between

ages 13–18 (IQR = 1–4), and a median of 2 traumatic events after age 18 (IQR = 1–4).

The PTSD item scores had a median of 11 (IQR = 5–18), and the DSO item scores had a median of 12 (IQR = 7–17). An evaluation of the ITQ revealed that 21% of participants met the criteria for PTSD, and 16% met the criteria for CPTSD at the time of the online survey.

Table 4

Descriptive statistics of trauma questionnaires CTQ-SF, ITEM, and ITQ

Variable	$N = 77$[1]
CTQ-SF (α = .9)	
Emotional Abuse (α = .81)	38 (49%)
Physical Abuse (α = .69)	16 (21%)
Sexual Abuse (α = .95)	34 (44%)
Emotional Neglect (α = .91)	41 (53%)
Physical Neglect (α = .57)	28 (36%)
ITEM	
Up to age 12	4 (2, 6)
Between ages 13-18	3 (1, 4)
After the age of 18	2 (1, 4)
ITQ	
PTSD item score (α = .86)	11 (5, 18)
DSO item score (α = .85)	12 (7, 17)
PTSD criteria fulfilled	16 (21%)
CPTSD criteria fulfilled	12 (16%)

[1]n (%); Median (IQR)

Psychotherapy Experience and Psychiatric Diagnoses. Descriptive statistics for participants' psychotherapy experiences and psychiatric diagnoses are presented in Table 5. Among the 77 participants, 26% reported never having been in psychotherapy, 21% had attended once, 14% twice, and 39% several times. The median number of psychiatric diagnoses was 1 (IQR = 0 – 2).

The most common psychiatric diagnoses were depression (44%), post-traumatic stress disorder (25%), and anxiety (26%). Other reported conditions included eating disorders (12%), substance abuse (7.8%), attention deficit disorder (7.8%), anger problems (5.2%), personality disorders (5.2%), bipolar/manic depressive illness (2.6%), schizophrenia (2.6%), and other mental illnesses (6.5%).

Participants who have been in psychotherapy (74%) rated their satisfaction with psychotherapy with a median score of 4.0 (IQR = 3.0 – 4.7) on a scale ranging from 1 to 5. Satisfaction with psychotherapy was measured with 3 items with good internal consistency (α = .84), see Figure 2.

Table 5

Descriptive statistics of psychotherapy experience and psychiatric diagnoses

Variable	$N = 77^1$
Psychotherapy experience	
No	20 (26%)
Once	16 (21%)
Twice	11 (14%)
Several times	30 (39%)
Number of psychiatric diagnoses	1 (0, 2)
Psychiatric diagnoses	
Depression	34 (44%)
Post-traumatic stress disorder	19 (25%)
Anxiety	20 (26%)
Eating disorder	9 (12%)
Substance abuse	6 (7.8%)
Attention deficit disorder	6 (7.8%)
Anger problems	4 (5.2%)
Personality disorder	4 (5.2%)
Bipolar/manic depressive illness	2 (2.6%)
Schizophrenia	2 (2.6%)
Other mental illness	5 (6.5%)
Psychotherapy satisfaction	4.00 (3.00, 4.67)

[1]n (%); Median (IQR)

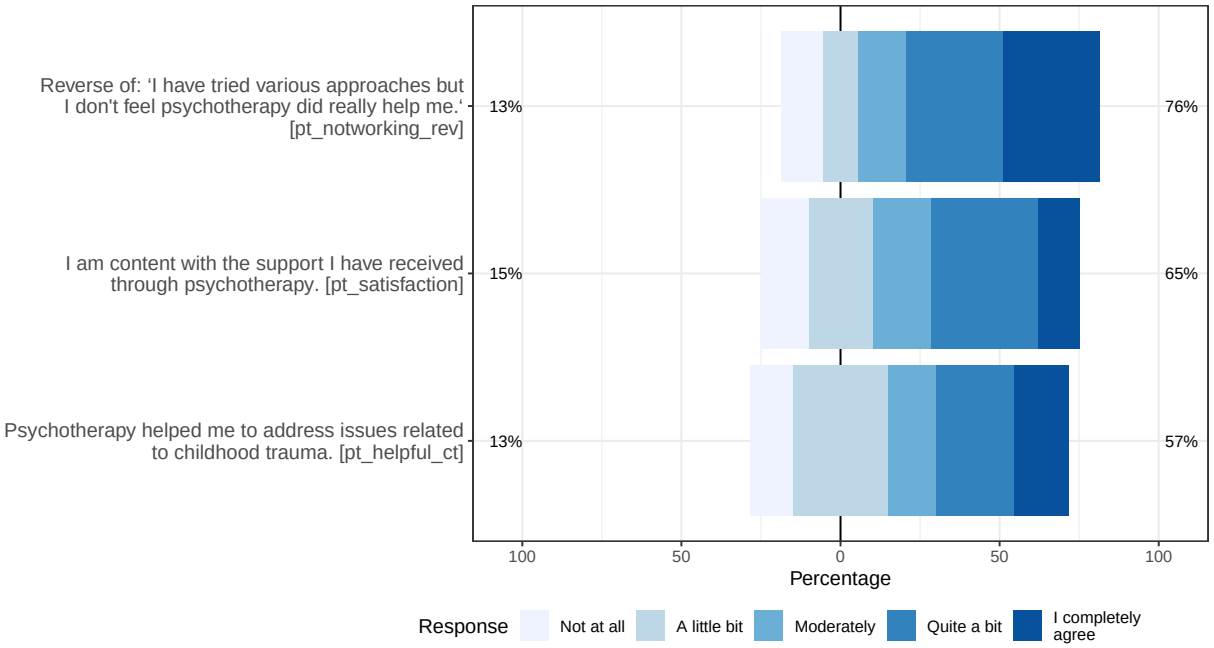
Experience With Ayahuasca. Descriptive statistics of participants' experiences with ayahuasca are detailed in Table 6. Among the 77 participants, 19% had one ayahuasca experience, 30% drank it 2 to 5 times, 17% between 6 and 10 times, 14% between 11 and 20 times, and 19% had more than 20 experiences with ayahuasca. Additionally, the frequency of seeking ayahuasca experiences varied, with 23% seeking it several times per year, 21% a few times per year, and 22% around once per year.

Most participants' main intentions for using ayahuasca were for healing or therapeutic use (84%), followed by spiritual intentions (70%). Gaining understanding (44%) and curiosity (28%) were reported less frequently. Ayahuasca experiences primarily occurred in ceremonies with shamans or healers (100%), with no instances of recreational use. A few participants had ayahuasca experiences with friends in a ceremonial setting (6.5%) and used it for individual purposes (6.5%).

Regarding the impact of ayahuasca, 92% of participants reported positive changes (healing/helpful), while 6.5% reported experiencing both healing and harmful effects. None of the participants reported their ayahuasca experience as only harmful, while one participant

Figure 2

Psychotherapy satisfaction of participants that have been in psychotherapy (74%)



reported that "ayahuasca doesn't quite work for me yet".

Ayahuasca Experiences Related to Childhood Trauma. Descriptive statistics for the ACTQ and its three subscales *Trauma Processing*, *Psychological Distress*, and *Support* are presented in Table 7. For the Trauma Processing subscale (α = 0.87), the median score was 3.9 (IQR = 3.0 – 4.5). The Psychological Distress subscale (α = 0.79) had a median score of 2.0 (IQR = 1.5 – 3.0). The Support subscale (α = 0.81) showed a median score of 4.5 (IQR = 4.0 – 5.0). An illustrative overview of its responses is provided in Figure 3. '

ACTQ – Trauma Processing Subscale. In the ACTQ – Trauma Processing subscale, participants reported significant positive effects from their ayahuasca experiences. Specifically, 75% indicated that ayahuasca helped them feel forgiveness or compassion towards those who had wronged them. Additionally, 71% of participants stated that ayahuasca supported them in accepting everything as it was, and 71% felt that it helped them face their fears. Furthermore, 66% of participants reported that ayahuasca facilitated the processing of their traumatic childhood experiences, while 64% noted that it helped them confront uncomfortable memories or feelings associated with their trauma. Similarly, 64% gained insights into their traumatic childhood experiences, and 62% found new meanings in those experiences through ayahuasca. Lastly, 38% of participants reported that ayahuasca brought back memories of their traumatic childhood experiences.

Table 6

Overview of participants experience with ayahuasca

Variable	$N = 77^1$
Quantity	
Once	15 (19%)
2 to 5 times	23 (30%)
6 to 10 times	13 (17%)
11 to 20 times	11 (14%)
More than 20 times	15 (19%)
Frequency	
More than once per month	3 (3.9%)
Around once per month	5 (6.5%)
Several times per year	18 (23%)
Few times per year	16 (21%)
Around once per year	17 (22%)
Less frequent	18 (23%)
Main intentions	
Healing or therapeutic intentions	65 (84%)
Spiritual intentions	54 (70%)
To gain understanding	34 (44%)
Curiosity	21 (27%)
Other	4 (5.2%)
Setting(s)	
Ceremony with shamans or healers	77 (100%)
Ceremony with friends	5 (6.5%)
Individual use	5 (6.5%)
Session with a therapist	1 (1.3%)
Recreational use (party, etc.)	0 (0%)
Impact	
Healing / helpful / positive change	71 (92%)
Both healing and harmful	5 (6.5%)
Other	1 (1.3%)
Harmful / damaging / negative change	0 (0%)

[1]n (%)

Table 7

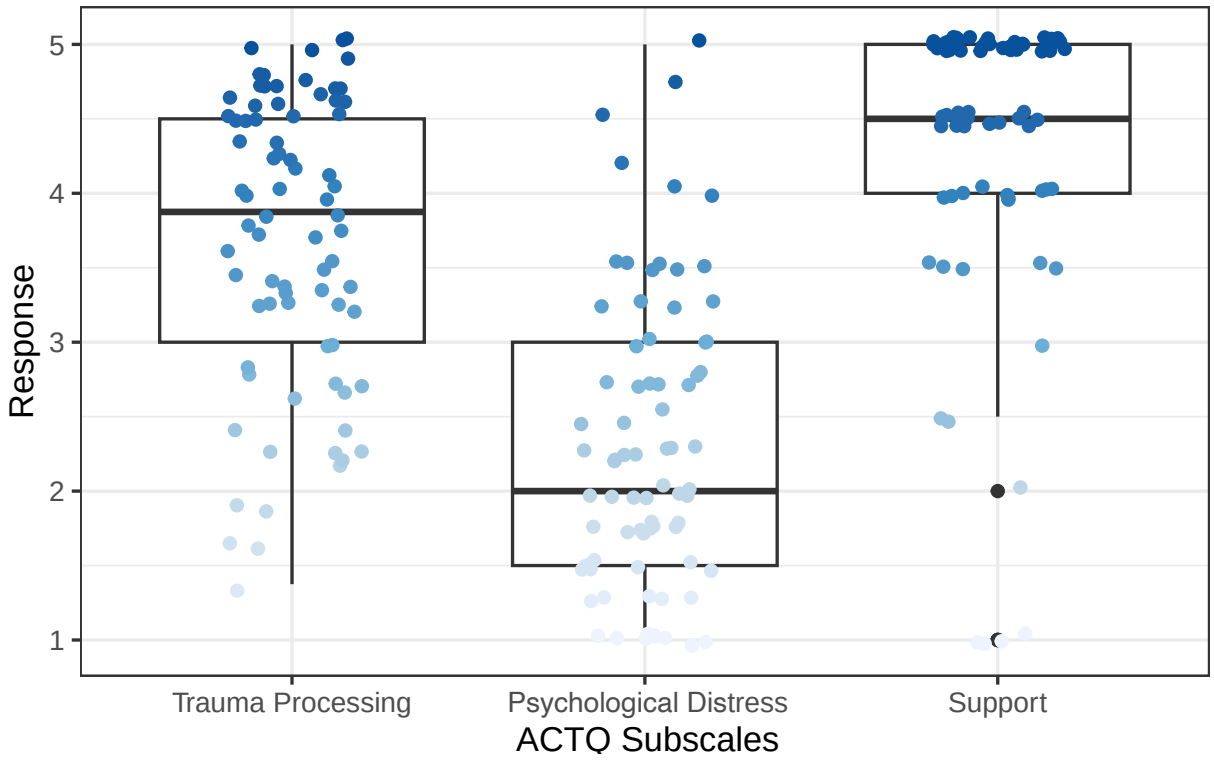
Overview of participants' ayahuasca experiences related to childhood trauma

Variable	$N = 77^1$
ACTQ – Trauma Processing (α = 0.87)	3.88 (3.00, 4.50)
ACTQ – Psychological Distress (α = 0.79)	2.00 (1.50, 3.00)
ACTQ – Support (α = 0.81)	4.50 (4.00, 5.00)

[1]Median (IQR)

Figure 3

Overview of participants ayahuasca experiences related to childhood trauma based on the three subscales of the ACTQ



ACTQ – Psychological Distress Subscale. Participants responded to the ACTQ – Psychological Distress subscale with at least "moderately" as follows (see Figure 5): 69% of participants indicated that some moments during the ayahuasca experience were really difficult for them. Additionally, 42% reported feeling overwhelmed by some feelings and/or memories, while 32% felt helpless and that they had to take care of themselves during the experience. Lastly, 6% of participants reported feeling traumatized by the ayahuasca experience to a moderate extent or more. Note that these percentages reflect those who responded to the items with at least "moderately" to be more conservative compared to the Trauma Processing and Support subscales.

ACTQ – Support Subscale. The participants responded to the ACTQ – Support subscale with at least "quite a bit" as follows (see Figure 6): 84% of participants reported that they could share about their experience(s), and equally, 84% felt supported during their ayahuasca experience(s).

Regression Analysis

Due to the exploratory nature of this study, all variables were checked as predictors for the ACTQ – Trauma Processing and the ACTQ – Psychological Distress item score. Additionally,

Figure 4

Ayahuasca experiences related to childhood trauma processing (ACTQ – Trauma Processing)

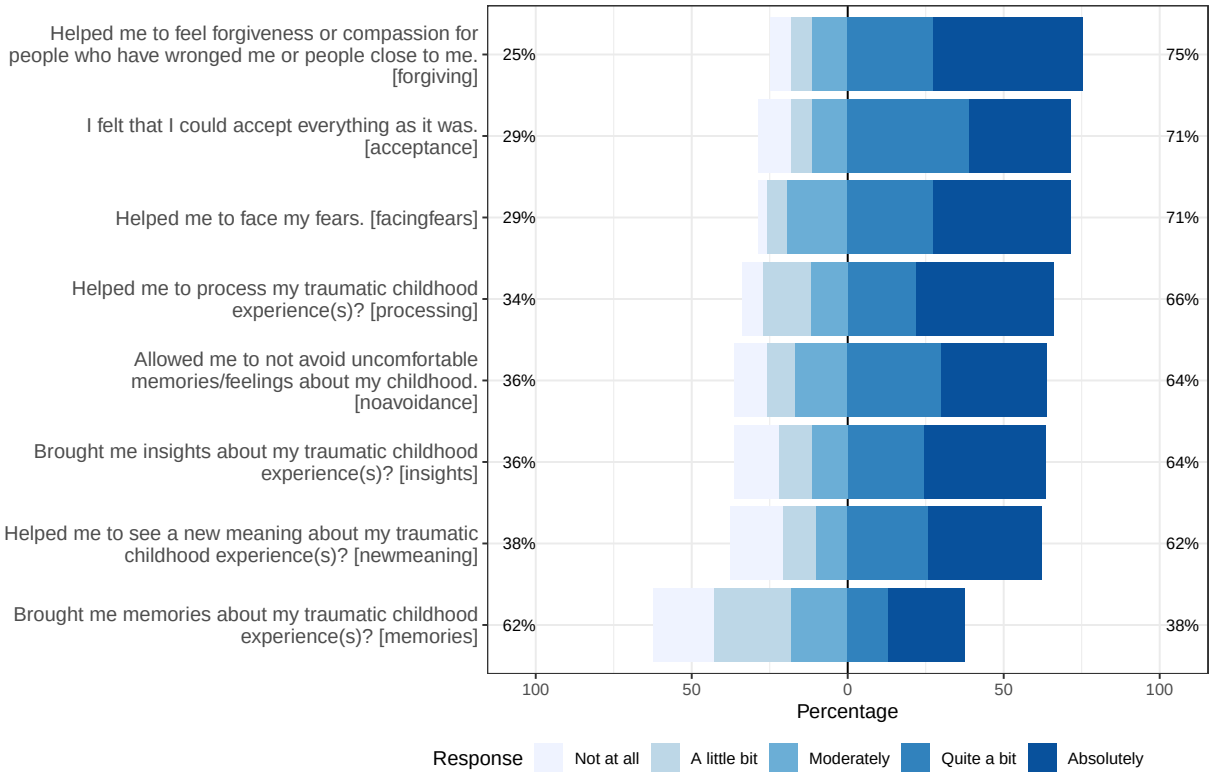


Figure 5

Ayahuasca experiences related to childhood trauma processing and psychological distress (ACTQ – Psychological Distress)

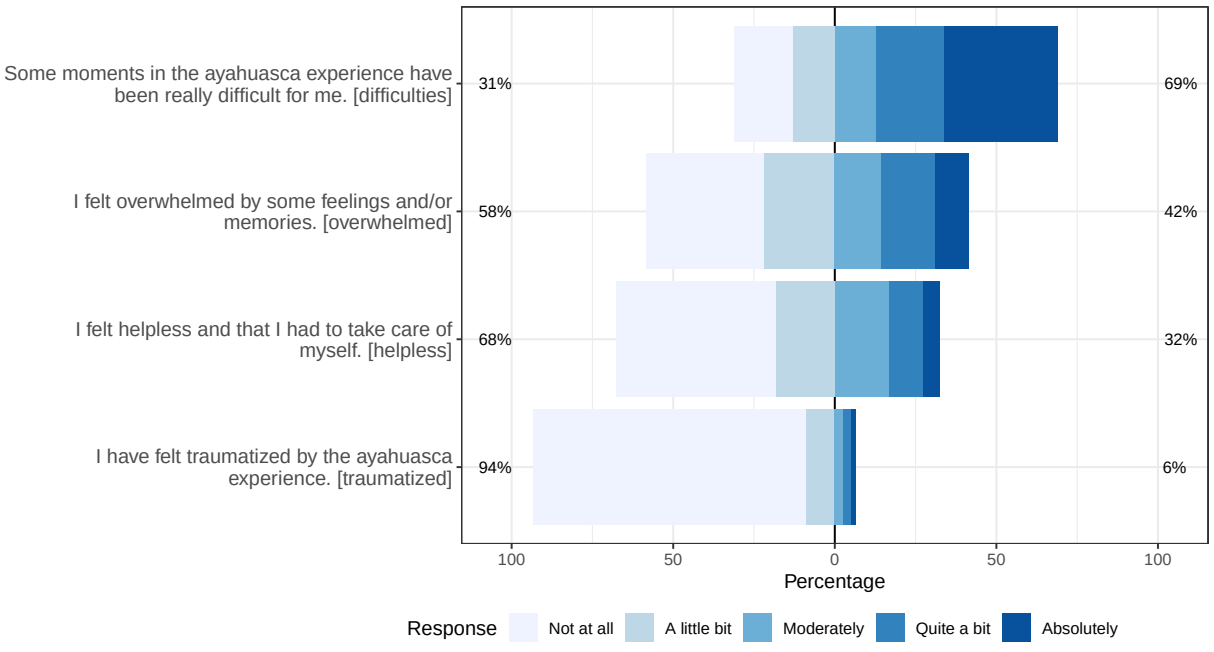
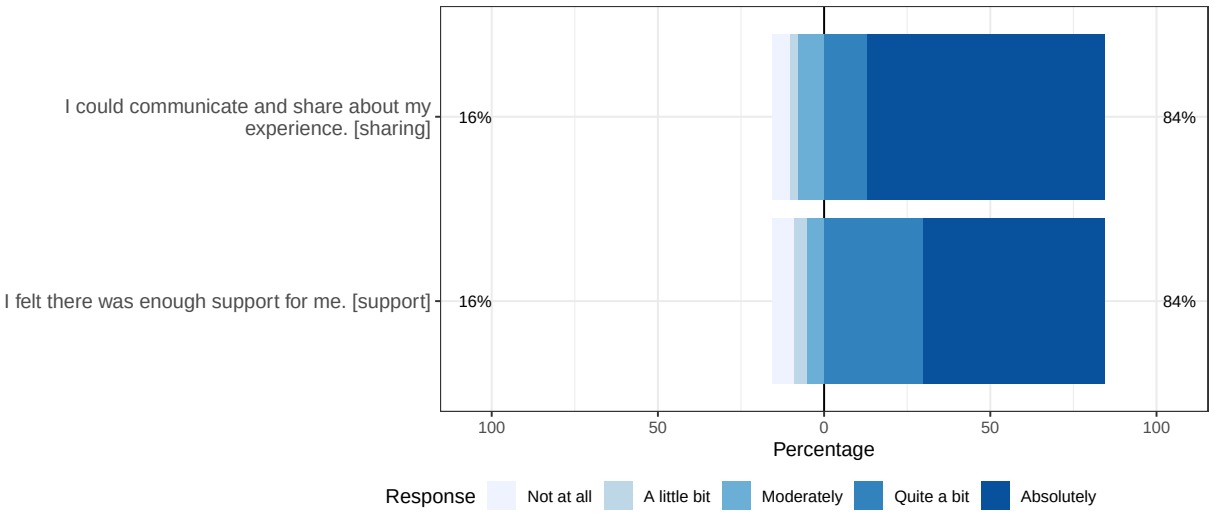


Figure 6

Ayahuasca experiences related to childhood trauma processing and perceived support (ACTQ – Support)



the trauma memory recall variable of the ACTQ – Trauma Processing subscale has been analyzed. In the following, only significant results are reported.

Predictors of Trauma Memory Recall. A multiple linear regression was conducted to predict the trauma memory recall variable of the ACTQ – Trauma Processing subscale from the prevalence of sexual abuse or the prevalence of emotional abuse of the CTQ-SF.

Assumptions Check. Scatterplots to inspect the linearity of each predictor's relationship with the dependent variable did not reveal deviations from the expected linear pattern. The data satisfied the homoscedasticity condition as confirmed by the Breusch-Pagan test ($\chi^2 = 0.31$, $p = .86$). Additionally, the Durbin-Watson statistic was 2.02, indicating no autocorrelation among residuals. Multicollinearity was not a concern, as the VIF for each predictor was close to 1. While most assumptions for the multiple linear regression model were satisfied, the normality of residuals was violated by the Shapiro-Wilk test ($W = .94$, $p = .001$). This is not considered an issue as the linear model is considered fairly robust against violation of normality (Knief & Forstmeier, 2021).

Model Summary. The overall fit of the model was statistically significant ($F(2, 74) = 6.53$, $p = .002$). The adjusted R^2 suggests that the model accounts for approximately 12.7% of the variability in the memory variable of the ACTQ – Trauma Processing subscale. An overview of the model is provided in Table 8.

The prevalence of sexual abuse, as measured by the CTQ, had a significant positive impact on trauma memory recall scores ($\beta = 0.82$, 95% CI [0.18, 1.5], $p = .013$). Conversely, the

prevalence of emotional abuse was found to have a significant negative effect on trauma memory recall scores (β = −0.94, 95% CI [-1.6, -0.31], p = .004).

Table 8

Multiple linear regression model for the trauma memory recall variable of the ACTQ – Trauma Processing subscale

Characteristic	Beta	95% CI	p-value
CTQ - Prevalence of Sexual Abuse	0.82	0.18, 1.5	0.013*
CTQ - Prevalence of Emotional Abuse	-0.94	-1.6, -0.31	0.004**

*p < .05, **p < .01, ***p < .001
R^2 = .150; R^2adjusted = .127

Predictors of Childhood Trauma Processing. A multiple regression was utilized to predict the ACTQ – Trauma Processing item score from the ACTQ – Support item score, the quantity of ayahuasca experiences, the mood after the survey, and the ITQ – PTSD score.

Assumptions Check. Scatterplots to inspect the linearity of each predictor's relationship with the dependent variable did not reveal deviations from the expected linear pattern. The Shapiro-Wilk test was used to confirm the normality of residuals (W = .98, p = .45), meeting the normality assumption. Homoscedasticity was verified using the Breusch-Pagan test (χ^2 = 1.93, p = 0.75). Additionally, the Durbin-Watson statistic was 2.068, indicating no autocorrelation among residuals and supporting the independence of errors. Multicollinearity was not a concern, as the VIF for each predictor was well below 2. Thus, all assumptions for the multiple linear regression model were satisfied.

Model Summary. The overall fit of the model was statistically significant ($F(4, 72)$ = 13.88, p < .001). The adjusted R^2 suggests that the model accounts for approximately 40% of the variability in the ACTQ – Trauma Processing variable. An overview of the model is provided in Table 9.

The ACTQ – Support item score had a significant positive impact on trauma processing scores (β = 0.46, 95% CI [0.28, 0.63], p < 0.001), the number of ayahuasca experiences was a significant positive predictor (β = 0.15, 95% CI [0.03, 0.28], p = .018), the mood of participants following the survey also significantly influenced trauma processing scores positively (β = 0.12, 95% CI [0.01, 0.22], p = .027). Finally, the PTSD item score from the ITQ was a significant predictor (β = 0.02, 95% CI [0.00, 0.05], p = .036) for the ACTQ – Trauma Processing score.

Predictors of Childhood Trauma Processing and Psychological Distress. A multiple regression was utilized to predict the ACTQ – Psychological Distress item score from healing intention and repeated psychotherapy experience.

Table 9

Multiple linear regression model for the ACTQ – Trauma Processing item score

Characteristic	Beta	95% CI	p-value
ACTQ – Support item score	0.46	0.28, 0.63	< 0.001***
Quantity of ayahuasca experiences	0.15	0.03, 0.28	0.018*
Participant's mood after survey	0.12	0.01, 0.22	0.027*
ITQ – PTSD item score	0.02	0.00, 0.05	0.036*

* $p < .05$, ** $p < .01$, *** $p < .001$
$R^2 = .435$; R^2adjusted = .404

Assumptions Check. Scatterplots to inspect the linearity of each predictor's relationship with the dependent variable did not reveal deviations from the expected linear pattern. The Shapiro-Wilk test was used to confirm the normality of residuals ($W = .97$, $p = .11$), meeting the normality assumption. Additionally, the Durbin-Watson statistic was 2.24, indicating no autocorrelation among residuals and supporting the independence of errors. Multicollinearity was not a concern, as the VIF for each predictor was below 2. Thus, the assumptions for the multiple linear regression model were satisfied. Nevertheless, the data violated the homoscedasticity condition as indicated by the Breusch-Pagan test ($\chi^2 = 9.88$, $p = .007$). To overcome this violation, robust standard errors were used in the linear model.

Model Summary. The overall fit of the model was statistically significant ($F(3, 73) = 6.87$, $p < .001$). The adjusted R^2 suggests that the model accounts for approximately 19% of the variability in the ACTQ – Trauma Processing variable. An overview of the model is provided in Table 10.

The linear model showed that intentions for healing, undergoing more than one psychotherapy, and the recall of traumatic childhood memories were significant predictors of the ACTQ – Psychological Distress score. Specifically, healing intentions for the ayahuasca experience(s) had a significant positive effect on the ACTQ – Psychological Distress item score ($\beta = 0.56$, 95% CI [0.07, 1.1], $p = .027$). Also, whether participants underwent more than one psychotherapy was a significantly predictor of the perceived psychological distress during childhood trauma processing ($\beta = 0.56$, 95% CI [0.15, 0.97], $p = .009$). Furthermore, the recall of traumatic childhood memories had a modest yet significant positive association with participants' perceived psychological distress ($\beta = 0.14$, 95% CI [0.00, 0.28], $p = .048$).

Table 10

Multiple linear regression model for the ACTQ – Psychological Distress item score

Characteristic	Beta	95% CI[1]	p-value
Intentions: Healing	0.56	0.07, 1.1	0.027*
Psychotherapy more than once	0.56	0.15, 0.97	0.009**
ACTQ – Trauma Processing: Memories	0.14	0.00, 0.28	0.048*

[1]CI = Confidence Interval
*$p < .05$, **$p < .01$, ***$p < .001$
$R^2 = .221$; R^2adjusted = 0.189

Qualitative Analysis

Before presenting the results of the reflexive TA, participants are introduced to provide a better understanding of their background and motivation for their first ayahuasca experience. Subsequently, the developed themes and subthemes of the TA are illustrated.

Participant Characteristics

To protect the privacy and anonymity of participants of the interviews, a connection between responses from the quantitative survey with interview participants was not established by ethical reasons. Instead, participants were asked about their age, gender, and residency prior to the interviews. The motivation for their first ayahuasca experience and the total amount of ayahuasca experiences were extracted from the interview data. Additionally, to ensure anonymity and due to the sensitive nature of information regarding childhood trauma and ayahuasca use, less detailed information is provided compared to the participants' characteristics in the quantitative analysis.

Demographic Characteristics and Experience with Ayahuasca. The sample for the qualitative phase consisted of 11 participants with a median age of 46 years (IQR35 – 51). Of these participants, 73% were female and 27% were male. The majority resided in Germany (55%), followed by the United Kingdom (27%), with the rest living in other locations (18%).

The most prevalent motivation for their first ayahuasca experience was healing (73%), followed by motivations related to dealing with difficult life situations, like ending of a relationship, and spirituality (36%). For 4 of the 11 participants (36%), their intentions for ayahuasca was related to their traumatic childhood experiences. Additionally, curiosity was a motivating factor (27%), while it was never a single motivation. The number of ayahuasca experiences varied within the sample: 27% participants had up to 3 experiences with ayahuasca, 46% had between 3 and 20 ayahuasca experiences, and 27% drank ayahuasca more than 20 times.

See Table 11 for an overview.

Table 11

Demographic characteristics and ayahuasca experience of sample for qualitative interviews

Sample Characteristics	$N = 11^1$
Age (years)	46 (35, 51)
Gender	
Male	3 (27%)
Female	8 (73%)
Residence	
Germany	6 (55%)
United Kingdom	3 (27%)
Other	2 (18%)
Motivation for first ayahuasca experience	
Healing	8 (73%)
Spirituality	4 (36%)
Related to childhood trauma	4 (36%)
Dealing with a difficult life situation	4 (36%)
Curiosity	3 (27%)
Amount of ayahuasca experiences	
Up to 3 times	3 (27%)
Between 3 and 20 times	5 (46%)
More than 20 times	3 (27%)

[1]Median (IQR); n (%)

Childhood Trauma Background. In the interviews, all participants shared about their traumatic experiences in their childhood. Participants reported various types of childhood trauma, including emotional abuse and neglect, physical abuse and neglect, sexual abuse, and other forms of trauma such as growing up in a war zone.

Overview of Participants. In the following, participants of interviews are introduced and their path to their first ayahuasca experience is outlined. To keep participants less identifiable, their age has been categorized into early adulthood (ages 22–34), early middle age (ages 35–44), late middle age (ages 45–64), and late adulthood (ages 65 and older). Additionally, their residency is kept anonymous.

Interview 1 was with a man in late middle age who has had one ayahuasca experience within the last year. He got curious about ayahuasca due to shared experiences from his social environment "the experience reports from my environment were very mixed, yes, but there was something that just made me curious" (P-1). For his ayahuasca experience, he had healing intentions: "In the foreground was a desire for healing however that would look like. Physically

or mentally, I was open to that. But it was a desire for healing or perhaps also a hope or expectation" (P-1).

Interview 2 was with a woman in early adulthood who has had more than twenty ayahuasca experiences over the past ten years. Before her first experience, she felt depressed, "I was just pretty depressed back then, I have to say. I just had an extremely stressful childhood" (P-2), and felt inspired by a woman that "was incredibly happy in life. So I thought, what's her secret? I want that, too" (P-2) and regularly drank ayahuasca. Her life situation encouraged her to try ayahuasca: "I just realized that I'm at a point in my life, that something has to change now. Then I'll just try it" (P-2). Her intention was linked to her childhood: "And I thought to myself, I already know what I would like to let go of […] and it was definitely my childhood" (P-2).

Interview 3 was with a woman in late adulthood who has had three ayahuasca experiences in the last years. She heard about ayahuasca many years ago due to her interest in shamanism "I have been moving in shamanic circles for about 20 years and have always heard about ayahuasca" (P-3) and found herself in a difficult life situation "I actually need a repositioning that is is decoupled from my function as a mother and also from my service as a mother. I actually want to be much more [myself]". Finally, she felt the call to seek ayahuasca: "I just sat at the desk at some point and I really don't know where it came from. Do Ayahuasca!" (P-3).

Interview 4 was with a woman in early middle age who has had between three and twenty ayahuasca experiences. At some point in her life, she met someone trustworthy that "does ayahuasca circles. I had never done, hallucinogenics ever. You know, I hadn't really ever done […] recreational drugs, ever. And, I heard that and I thought that that was interesting. And I did a little bit of research about it" (P-4) She reached a point where she was looking for another way in her life: "I think that I had always felt there has to be another way than the way that I'm living. There has to be another way. This can't be it. And I couldn't figure out how to solve it on my own" (P-4). With ayahuasca, she wanted to "try and find another way, to try and find another way of being […] because this can't be what life is. And the way that I'm trying to run my life is not sustainable" (P-4).

Interview 5 was with a woman in early adulthood who has had three ayahuasca experiences within the last year. She knew about ayahuasca already before: "I'd known about it for a while and I knew okay, at some point I'd like to try it because I was interested in the spiritual side of things. And for me ayahuasca is not a drug in that sense, but more of a a plant medicine" (P-5). After "I broke up with my boyfriend […] I had been with for a few years. And then I was alone again […] and really had time to look at myself and develop myself personally"

(P-5) and the death of her mother, she was seeking ayahuasca in order to "process it better" (P-5). Her intentions for ayahuasca were also related to "the childhood experience, the trauma, that I can really review it again. Just to have the feeling, okay, it's really done now" (P-5).

Interview 6 was with a woman in late middle age who has had more than twenty ayahuasca experiences over the past ten years. She has a spiritual background "I was always interested in spirituality. I was always, attracted to the beyond. I don't know how or when, but I was always attracted to the mystic, to the mysticism, to the magic of life" (P-6) and heard about ayahuasca from a friend that was sharing her experience: "And it was it was a mixture of curiosity and also a very familiar feeling […] when my friend was sharing her experience about ayahuasca and how it was healing for her" (P-6). She then went to a place in South America specifically "with the intention of communing with ayahuasca. Like that was one of the main purposes of going to [that place]. Yes, it's shamanism, but it was specifically the medicine [ayahuasca] invited me" (P-6).

Interview 7 was with a woman in late middle age who has had between three and twenty ayahuasca experiences in the last years. She just ended a difficult relationship "I was kind of just disengaged from a very toxic relationship" (P-7) and "I had a friend, who or who was inviting me for ayahuasca retreats" (P-7). "And then, I decided to go, and when I decide to go I just go. I don't think too much. So, that's how it went." (P-7). "My intention was […] that I was stuck and I want to understand and I think it was, that I lost love. What can I do? […] I was just hoping that whatever, just get me out of there" (P-7).

Interview 8 was with a man in late middle age who has had between three and twenty ayahuasca experiences within the last year. When he reached a point of dissatisfaction with his life "And I reached this point at the beginning of the year and thought, I can't go any further myself, my life is completely unsatisfactory" (P-8), he looked for help of ayahuasca "this finally moved me so much that I said it doesn't matter what happens now, I'm going to take this step now and entrust myself to a psychedelic medicine that can possibly help me. Although I didn't know at all what was expecting me." (P-8). He felt hopeless due to his suffering before his first ayahuasca experience: "I really went in there with the thought, I just drink it and thought, come on it doesn't matter whether you die or not. You got to that point. I don't care if I die. […] It was just a lot of suffering [crying]" (P-8).

Interview 9 was with a man in late middle age who has had more than twenty ayahuasca experiences over the past fourteen years. Before meeting ayahuasca, he was separating from his wife. Someone told him about ayahuasca: "there was a woman, the cook, who told me about it. She told me about it. And that was also the contact to this shaman, she always contacted me

because I thought, okay, now it's time" (P-9). His main intention was to find a new way for himself: "after the separation, it was very painful, because this separation was very warlike and I not only had to do without my children, but I also missed them very much. It was clear that something had to change now, I think. I was looking for my path. I think that was the intention, behind it. Not that I was aware of it, but I was searching, I don't think I knew what I was looking for" (P-9).

Interview 10 was with a woman in early middle age who has had between three and twenty ayahuasca experiences in the last years. Before ayahuasca, she was already experimenting with psychedelics for healing: "And by that time I was really working with LSD for, for like a long time, and it was going deeper and deeper into working with it. And then a friend of mine, just like, you know, we were watching documentaries on, on ayahuasca and I was like, wow, I want to do this. And then a friend of mine just said, hey, do you want to go like, I know someone, like in [Europe]? And I was like, yeah, let's go. You know, not thinking for a second like what it was going to be. Not really fully understanding" (P-10). She was going to an ayahuasca ceremony based on curiosity "[I]t was mainly just to see what it is, it was mainly just to see" (P-10). Even though she had experience with LSD, she had fears before ayahuasca due to suppressed childhood memories "I was scared as to what I was going to find, you know, and I remember [the shaman] saying to me, that all you're going to find is yourself, you know. And I was scared to know because I had all these suppressed memories" (P-10).

Interview 11 was with a woman in early adulthood who has attended one ayahuasca ceremony within the last year. She heard about ayahuasca already many years ago "I think the first time I heard about it was about ten years ago. I read a report about it […] Then I somehow heard reports from the participants […] and I found interesting what they said. There was so much enthusiasm, so much trust and so much hope" (P-11). When she was looking for her vacation, she found the opportunity to do an ayahuasca ceremony: "And then I've come across it again and again over the last ten years. […] Then, I think this year, I did some research, how I wanted to organize my vacation and found a retreat […] in [Europe] and decided to go for it. And then I saw on their website that they also offer [the retreat] with ayahuasca. And then I thought okay, maybe that's not by chance" (P-11). Her intentions for her ceremony were related to overcoming childhood trauma "And for me there was hope that I could somehow get a sense of what it might have been like if I had grown up in a healthy family. I wanted somehow to know what other people can feel or what kind of world the other people live in who grew up loved" (P-11).

Thematic Analysis

The reflexive TA was conducted to address the first three research questions (RQ 1) How does ayahuasca contribute to overcoming childhood trauma sequelae? (RQ 2) Which adverse experiences are associated with the processing of childhood trauma within ayahuasca experiences, and how are they experienced? (RQ 3) What changes occur in the lives of adults with childhood trauma following ayahuasca experiences?

In total, 7 themes and 25 subthemes have been developed in the analysis of the interviews Table 12. Research question 1 was addressed by the themes *Processing of childhood trauma* and *Overcoming childhood trauma*. *Difficult experiences* addressed research question 2. The themes *Positive life changes afterwards* and *Perception of ayahuasca* relate to the third research question. Two additional themes, *Ayahuasca vs. Psychotherapy* and *Healing childhood trauma takes time*, were developed, which are also important for understanding more about the context of the participants.

Theme: Processing of Childhood Trauma. This theme reflects situations within participants' ayahuasca experiences where their traumatic childhood was consciously processed. Different ways of processing are captured in the subthemes *Processing negative emotions*, *Rescripting or reappraisal of traumatic memories*, *Vomiting to release traumatic memories*, and *Recalling suppressed traumatic memories*. This theme and its subthemes contribute to answer the research question, how ayahuasca contributes to overcoming childhood trauma sequelae, as the processing of traumatic memories and/or their reappraisal is a crucial aspect of trauma-focused interventions (Lewis et al., 2020) and supports the (re)integration of adverse memories.

Processing or Cleansing of Negative Emotions. The processing or cleansing of negative emotions related to participants' childhood was a significant aspect of their ayahuasca experiences. Many participants described moments of intense emotional processing that left them afterwards feeling lighter, cleansed and renewed, demonstrating a cathartic effect.

Processing negative emotions linked to childhood trauma can be an intense process. Consider for example the following excerpt that highlights the intensity of processing painful emotions:

> I was reminded of what it was like as a child, that I had the feeling that my mother was unreachable. […] I don't get my mother's love. And there was this feeling of my heart is breaking. That was, I think, the greatest pain emotionally that I've experienced in my life so far, that I had this physical feeling of my heart was breaking apart and I cried a lot. (P-11)

Table 12

The seven themes and 25 subthemes of TA with their occurrence in the 11 interviews

	Theme/Subtheme	# Interviews
RQ 1	**Processing of childhood trauma**	**9 (82%)**
	Processing negative emotions	7 (64%)
	Rescripting or reappraisal of traumatic memories	5 (45%)
	Vomiting to release traumatic memories	4 (36%)
	Recalling suppressed traumatic memories	3 (27%)
RQ 1	**Overcoming childhood trauma**	**11 (100%)**
	Experiencing something that was missing or got lost	10 (91%)
	Experiencing love and connection	7 (64%)
	Facilitates acceptance	5 (45%)
	Lessons on self-care	5 (45%)
	It wasn't up to me	4 (36%)
	Insights of trauma impact for current life	4 (36%)
	Facilitates forgiving	2 (18%)
RQ 2	**Positive life changes afterwards**	**11 (100%)**
	Better relationships	10 (91%)
	More self-love or self-acceptance	10 (91%)
	More self-care and healthy lifestyle	8 (73%)
	Better handling of difficult situations	7 (64%)
	Increased trust	5 (45%)
	Better life quality	4 (36%)
	Awakened Spirituality	2 (18%)
RQ 2	**Perception of ayahuasca as potent healing agent**	**11 (100%)**
	Ayahuasca as healing experience	11 (100%)
	Ayahuasca as life-changing experience	7 (64%)
	Trustful relationship with ayahuasca	6 (54%)
RQ 3	**Difficult situations**	**5 (45%)**
	Acceptance of temporary difficult/intense moments	4 (36%)
	Integration difficulties	2 (18%)
Extra	**Ayahuasca vs. psychotherapy**	**6 (55%)**
	Complementary beneficial experience	4 (45%)
	Critical towards psychotherapy	3 (27%)
	Healing childhood trauma takes time	**11 (100%)**

> Another example demonstrates the intensity of processing deeply held emotions: And she's [ayahuasca] like, you're never going to do this to you you're never going to hold this, you're never going to keep this again. I'm going to clean this out for you. […] And it was really deep and incredibly intense, and I think I finally understood how much pain I've been in. (P-4)

It is worth noting that ayahuasca appears in this case as a "teacher" telling her "you're never

going to do this to you [...] again" (P-4), revealing that processing trauma-related emotions with ayahuasca can be linked with crucial learning processes to change maladaptive cognitions, e.g., holding back painful emotions, associated with the trauma.

After the processing of negative emotions with ayahuasca, a feeling of cleansing, liberation or renewing can occur. Consider for example: "And that [processing] was always very, very, very intense and very liberating. Also because afterwards I actually felt like a new person, yes, I felt like a new person" (P-8), or

> After all this negativity was washed away, I felt truly cleansed the next day, like a newborn baby. Completely washed clean of everything, all the heaviness and darkness that was always there in the background, which is why I was basically depressed in the end. It all just got washed away. I felt pure and new and fresh. (P-2)

Even though processing trauma related emotions with ayahuasca might be intense, it can give a feeling of renewing, leaving the traces of trauma behind. Another exemplary quote shows the extreme between intensity and the liberating effect on the person:

> This one night was probably equivalent of like three years of therapy. And on top of it, she's done work with my body. So like all the embodied emotions, they were kind of released. (P-7)

Rescripting or Reappraisal of Traumatic Memories. Some participants shared experiences in which traumatic memories were activated, followed by new, positive memories that replaced or transformed their painful childhood memories, showing similarities to Imagery Rescripting (Smucker, 2005).

To demonstrate this subtheme, one lengthy excerpt is presented as example due to its illustrative nature. After facing her difficult childhood experiences, the participant was reexperiencing herself growing up from being an embryo up to being six years old nurtured by love. She was able as adult to be there for herself as child and to give love.

> But then of course childhood came back and everything was so bad and so sad. And then there was [in] this ceremony this decision. Okay, I'm just going to give myself a new childhood. And then I had, it started with me as an embryo in utero. I remember I had one of those, there was a picture of me as, yes, as a little embryo and surrounded by plants, but very lovingly. In the uterus, so to speak, in nature's uterus and simply surrounded by plants wrapped around me and full of love, you know, that these plants have given me so much love. [...] then I somehow grew

> and and somehow I was born. […] the main part was that I was such a small child, about five or six years old. […] And then I sort of looked after this little girl and just gave her all the love she needed. […] I just hugged her, kissed her and cuddled her and told her all the time: "You you are so wonderful, you are such a great child, you are a lovely child, you are the greatest thing in the world. You are so lovable, you are so beautiful, you are so great, I love you so much". […] I was the adult me, you know, and she cuddled and hugged me a lot in a hammock and it was as if this child was simply there with me. (P-2)

This excerpt also illustrates ayahuasca's psychedelic nature with visual hallucinations that supported her in rescripting her growing up. The theme of nature as safe and embracing surrounding is crucial in this excerpt.

Also reappraisal of difficult situations can occur under the influence of ayahuasca. The following excerpt reveals exemplary, that first a difficult situation where she felt not wanted by her mother is experiences, followed by feeling the love of the mother in other situations:

> Once with ayahuasca, I experienced being embryo in the womb of my mother, and that she did not want to have me. So the environment of the womb somehow became hostile, and I wasn't feeling secure if you want or wanted or, so on. And again Ayahuasca shows me a different story or a different moment with my mother when my mother, my biological mother was all love to me. (P-6)

Vomiting to Release Traumatic Memories. The perception of vomiting as a supportive and integral part of the healing process was a recurrent theme in participants' ayahuasca experiences. Participants described this physical act, usually considered as adverse effect, as supportive for emotional release or cleansing of traumatic memories. Vomiting was seen not merely as a physical reaction but as a profound cleansing process that supported participants to get the trauma and its traces out of them.

The following excerpt demonstrates quite exemplary how a connection is made between to "swallow it down" as maladaptive reaction to hold things back and the liberated feeling of letting it out:

> Yes, for me it was, it was even a kind of relief, because I was finally able to let it out. Because otherwise I always had to swallow it down and in this way this doesn't work anymore, it has to come out. And yes, that was really good. (P-5)

Vomiting is linked to cleanse stored adverse memories:

> Sometimes, when it comes out in this biting way [vomiting], it's like traveling

> through the time tunnel, as if a lot of what you have stored would be washed out. (P-9)

Nevertheless, vomiting during ayahuasca ceremonies can be quite intense and lasting when related to traumatic experiences:

> I was just purging, whole night, I had nothing apart from purging. It was like, very visceral, like purging. Like I knew that something was inside me that I need to get rid of, and I had this, I had nothing apart from those flashes of like, sexual abuse, but I didn't know. (P-7)

Another excerpt highlights the intensity of moments before vomiting: "those are the few seconds or few moments, I don't know. Sometimes they could go for eternity before vomiting. They are difficult." (P-6).

Recalling Suppressed Traumatic Memories. Some participants described how ayahuasca helped them to recall memories of childhood trauma that had been previously repressed. This process of resurfacing hidden memories allowed individuals to confront and understand traumatic experiences that had been previously unknown. The act of remembering these events was described as emotionally intense and difficult.

One participant, for example, experienced a direct recall of her abuse that she reexperienced in this ceremony:

> And, she showed me exactly I was sexually abused, sexually assaulted when I was about eight. I was walking up the stairs to my apartment, and this man put the hand on my mouth and started to explore my body [. . .] So she just put me there. There in this situation. And I was, I was gasping for breath, I couldn't breathe and I cried. (P-7)

Other shared revelations of traumatic experiences also reveal ayahuasca's hallucinogenic nature:

> Then suddenly really deep things came up about my childhood and about my father and how he ultimately sucked all the energy out of me. It was a really tough ceremony and I really saw this darkness and blackness that I felt inside me. I often felt a black, gray slime, which I perceived very, very strongly during this ceremony. (P-2)

Revealing and processing unconscious traumatic memories can also be a process. The following excerpt demonstrates how someone got more and more aware of his abuse through several ceremonies:

> And then I was at a point where I thought, okay, now I could feel into it [abuse].

> But to do that, I just need an incredible strength and an incredible security for myself, so that I can let go from my inner self, from my inner center, you know. And that's where I was last time, a little bit in that area. (P-8)

This excerpt demonstrates also the need to feel safe to be able to process traumatic "situations that I'm very afraid of" that "would cost me an incredible amount of energy" (P-8) revealing trust towards ayahuasca.

Theme: Overcoming Childhood Trauma. Also, the theme of overcoming childhood trauma contributes in answering the first research question, to reveal ayahuasca's contribution in overcoming childhood trauma sequelae. In contrast to the previous theme that was about processing traumatic memories, this theme focuses on situations in ayahuasca experiences, that where somehow supportive to overcome childhood trauma. The following seven sub-themes are showing different mechanisms of ayahuasca experiences: *Experiencing something that was missing or got lost*, *Feeling loved and connected*, *Facilitates acceptance*, *Lessons on self-care*, *It wasn't up to me*, *Insights of trauma impact for current life*, and *Facilitates forgiving*.

Experiencing Something that was Missing or got Lost. This theme was developed based on the contrast between participants' shared childhood experiences and their healing ayahuasca experiences. Many participants reported that ayahuasca provided them with emotional experiences that they had either been missing or lost due to childhood trauma. These experiences are significant for overcoming childhood trauma because they allowed participants to experience something in an embodied manner with accessible memories they had never known or had lost due to their traumatic pasts.

Some described experiencing ayahuasca as a loving mother, for example, while others felt compassion or love for their wounded inner child. For example, one participant shares: "Ayahuasca has always always shown herself to me as a loving mother" (P-8) in contrast to his mother, where "it was actually always mainly about her own person" (P-8).

Ayahuasca also allowed participants to experience feelings of innocence or virginity after a history of abuse, as the following examples show:

> But I thought it was wonderful in retrospect, I had no fear or shame, and when I reflected on it the following days, I realized that yes, I got what I wanted. I was completely innocent. (P-3)

> I remember once she took me back to the, you know, to some of the abusive experiences. And I remembered all the stuff at the end like I felt like she healed my virginity. You know, I could feel the energy of the medicine going into my womb and restoring my virginity. (P-10)

In another example, Ayahuasca facilitated to experience feeling safe in contrast to childhood:

> I felt as sheltered as a child should feel, I think a child should actually feel safe. […] I really did feel like a child in mother's lap […] In other words [I felt] absolute security. […] I probably didn't lack it yesterday or the day before yesterday, but when I was a child. (P-1)

All these narratives illustrate the emotional impact of ayahuasca, offering participants a sense of something specific they had missed due to their traumatic childhoods.

Experiencing Love and Connection. This theme developed based on many participants' sharings of experiencing love or a feeling of connection during their ayahuasca journeys as important moments. Experiencing love and connection are supportive experiences to overcome childhood trauma, as it provides participants with a nurturing experience that can involve feeling "lovingly embraced and also seen and understood" (P-3).

Love and connection were experienced in different ways. One participant, for example, experience love in a transpersonal way:

> I actually felt the whole night as if someone was lying next to me and, it's hard to describe, giving me all the love there is to give. I was just happy. There were two of me. I wasn't sure sometimes, is it the medicine [ayahuasca]? Is it myself next to me? But that didn't really matter and I was really happy and I felt so connected the whole night. (P-1)

Another experienced love as polarity to death:

> And I just felt a lot of love. Just, you know, deep, deep love. But she showed me death and walking through the door of death. And on the other side is is love. She showed me that again and again. It was just so beautiful and so lovely. It's lovely. The words don't obviously cannot express it. It is a feeling and a love beyond words. (P-4)

All these moments have in common that participants experienced love and connection without doing something for it.

Acceptance of Difficult Childhood Experiences. One crucial step in overcoming traumatic experiences is to accept what happened. This subtheme takes in consideration ayahuasca experiences, where participants were able to accept parts of their traumatic pasts. This can happen for example, by accepting the pain that never wanted to be felt:

> You accept that it's that it is your pain that it that you are feeling it. And that

> allows for me personally, the accepting of it allows me to then move past it. She allows you to, she facilitates you in accepting the unacceptable. (P-4)

But ayahuasca also supported participants to understand and as consequence to accept difficult childhood situation:

> [I received] love, security, understanding also like understanding why my mother was not available or why not just understanding [and] accepting also like why this authority figure did this what they did or why your sister behaved in the way. (P-6)

Another participant experienced acceptance as a process of transforming hate towards love and acceptance, revealing an underlying emotional process:

> I have never been able to have any relationship with [my mom] or any compassion or any feelings towards her. It took me a long time to not hate her anymore and then once I stopped the hate, then there was just like nothing. And now to the point with the more I'm working with the medicine [ayahuasca], the more there is like some form of love and some form of acceptance. (P-10)

Lessons on Self-Care. Some participants reported that their ayahuasca experiences provided them with valuable insights into the importance of taking care of themselves and how to do it. In some ayahuasca experiences, participants received teachings from ayahuasca in a dialogue style. For example, one participant learned in this way to better love herself instead of being focused on others:

> This intelligence was, so gentle, and so compassionate and, that she she showed me how to take care of myself. So give the love, you give to this person to yourself because who is going to give it to you. And you are the most important person in your life. So like this was like a very, very profound realization. And, that was the first step to my healing. (P-7)

In another exemplary excerpt, ayahuasca told a participant that he is working too much and should make more space for joy in his life:

> And she [ayahuasca] wanted to show me that I simply work a lot and deal a lot with things in life that are perhaps not necessary and are not the things that make up being human and that make up life. Because joy is a very big part of life that is often neglected by many people. (P-8)

It Wasn't Up To Me. Four participants described experiences with ayahuasca that helped them to understand and accept that certain situations and outcomes were beyond their control –

and most important, it wasn't up to them. Realizing this facilitates a reduction in feeling guilty or that they are not wrong as a person. This subtheme is crucial in overcoming childhood trauma, as it corrects maladaptive beliefs that are out of control of people, like "I have the ability to save everyone and that it's my responsibility" (P-4) often linked with feelings of guilt. With Ayahuasca, she understood that she does not need to feel guilty because she couldn't save someone:

> I have much more ability to see it is not my fault. I think I had some stuff come up around feeling like it was my fault. And in the last ceremony I had with ayahuasca, she was just she's just like, no, it's not. (P-4)

Understanding that adverse experiences or their consequences is not their fault, can modify deep seated maladaptive beliefs "It's like once that broke in my mind that belief that changed everything" (P-10).

Another example demonstrated how, through reexperiencing a childhood situation of rejection, the participant could finally understand that it wasn't her fault but was due to her father's circumstances.

> And I really wanted to to get in touch with him [her father], but he couldn't. And that wasn't up to me. But dealing with this rejection, feeling it, understanding it, that it had nothing to do with me as a person and that I couldn't have been able to influence it any other way. And to go through this, through the pain. (P-11)

Insights of Trauma Impact for Current Life. Childhood trauma, even if experienced long ago, can significantly impact people's current lives. Gaining insights about how the current life is imprinted by these experiences raises awareness and gives people more control to change accordingly. With ayahuasca, participants experienced moments, where they gained this understanding of their trauma impacting their current life. As the other subthemes, to recognize often unconscious patterns that come from maladaptive beliefs or schemas is fundamental in overcoming childhood trauma sequelae.

For instance, ayahuasca revealed to one participant with its visual imagery how her maladaptive feelings of guilt and shame are causing her troubles in relationships:

> And it was again, it was a slideshow like this happened, you are in this bad relationship because of this what happened because you carried on the guilt and the shame and the feeling of unworthiness and so on and so on. (P-7)

Facilitates Forgiving. Forgiving is not a necessary but challenging aspect of overcoming childhood trauma. There are many things that can be blamed for traumatic events like the perpetrator(s), the situation, or even oneself. Forgiving usually means to go through a long

emotional process of pain, anger, and grief until acceptance and possibly forgiveness can arise.

This subtheme wasn't mentioned frequently, but it was still considered important, as it accounts for the personal work and emotional processes necessary for overcoming childhood trauma. Ayahuasca facilitated forgiving and supported participants in their individual healing journey: "And that's what my healing has been about, to be able to forgive" (P-10). Another participant that underwent a trauma therapy before her ayahuasca experience, revealed that she was already in the process of forgiving, while her ayahuasca experience made her realize that the trauma is finally not impacting her anymore: "This [ayahuasca experience] has helped me further, that now I know, ok, that is not in my way anymore, nothing happens anymore in order to forgive him one hundred percent" (P-5). Obviously, the theme "Childhood Trauma Processing" and the previous subthemes contribute to process past traumatic experiences emotionally, to experience healing and to move on with changing maladaptive beliefs. Forgiving happens more at the end of the process and ayahuasca is supporting it.

Theme: Positive Life Changes Afterwards. The third research question seeks to explore what changes in the lives of adults with childhood trauma occur following ayahuasca experiences. This theme is addressing this research question with its subthemes *Better relationships*, *More self-love or self-acceptance*, *More self-care and healthy lifestyle*, *Better handling of difficult situations*, *Increased trust*, *Better life quality*, and *Awakened Spirituality*.

Better Relationships. Participants often reported that their experiences with ayahuasca led to improvements in their personal relationships. Some narratives have been selected that highlight how ayahuasca facilitated these positive changes.

Participants shared positive impacts for being with their families: "It's affected my relationship ...ships. Plural. With my family, I was able to enjoy the dynamics of my family" (P-6) or "I think I've brought healing to my family through it [ayahuasca] […] and I've been able to give them space that I did not possess before" (P-4) and one participant, for example, reported that ayahuasca made her a better mother:

> I mean, in general it has changed my relationships and I would also say that ayahuasca has made me a much better mother. So I think I would just be a completely different mother to my son now if I had never drunk ayahuasca, I would just be more depressed and just like I was before or at least similar. I'm absolutely sure that I am a much better mother for him now. (P-2)

But also general relationships are affected positively:

> I'm having more meaningful relationships. Deeper friendships, you know and just things that last for longer, where I felt like I didn't have anything that lasted,

> everything just always like ended up in a disaster. (P-10)

More Self-Love or Self-Acceptance. Most participants reported an increase in self-love and self-acceptance as a result of their ayahuasca experiences. Through these experiences, they were able to develop a more positive self-image, accept themselves and feel compassion for their wounded child. For example, one participant shared that "I generally just feel loved through these many experiences and simply feel loved and valuable and have a positive self-image" (P-2). Another one stated "I like myself a lot more than I did before. […] Well, everyone has their own quirks and I can just, yes, that's just the way it is. That's okay how I am" (P-5).

Other participants shared, that ayahuasca experiences raised compassion for their wounded child which supported self-love and self-acceptance:

> This union with the inner child, to feel this clarity that arises from it, that I was simply missing something and that I could now integrate. So it's just this love for myself that I've found through it. (P-8)

More Self-Care and Healthy Lifestyle. Participants also frequently reported that their ayahuasca experiences led to significant improvements in self-care and the adoption of a healthier lifestyle. In the following are some exemplary narratives, where participants reported being more attentive to their personal needs, setting boundaries, and making dietary changes.

For example, one participant was more kind to herself and more aware of what is good for her: "I was much more kind with myself. I was much more aware of my boundaries too. […] What is good for me and what is not" (P-3). Insights of her trauma enabled one participant to take time for herself instead of feeling guilty:

> I can take my time and when it hurts and when I have have something to deal with, then I don't have to take care of others right now and I can't do that. And I'm allowed to do that, I'm allowed to take the time. I don't have to feel guilty that I'm not taking care of all the other people or being there for them, but I have to withdraw. (P-11)

Another participant that recognized with ayahuasca that he is working to much shared that "now the kids are wondering why I'm lying on the couch and having fun [laughs]" (P-8).

Participants also shared that they adopted a healthier diet after ayahuasca ceremonies. The following participant for example started to change her diet to vegan after ayahuasca:

> It made it easier for me to change my diet, for whatever reason. So ever since I took it [ayahuasca] for the first time, I've been vegan again. I was vegetarian for a while before that and it just feels completely right like that. (P-5)

Better Handling of Difficult Situations. Eight participants reported that their ayahuasca experiences led to significant improvements in their ability to handle difficult situations. They reported being able to communicate more effectively, better process intense emotions, and maintain emotional stability even in the face of challenging interpersonal dynamics. Below are some exemplary quotes provided to illustrate this subtheme.

> My grief used to feel so dangerously out of control, so dangerously. And because it was life threatening. I mean, when I was really depressed, I was suicidal. And so my grief was utterly out of control and life threatening, and I didn't. I didn't know what to do with it. And now you know I welcome it as the other side of my joy. (P-4)

Here the participant improved emotion regulation skills through ayahuasca and she was able to process her grief. Another participant shared, for example, that she is not triggered by conflicting situations anymore:

> So having a certain, discordance or for example, a violent, traumatic event between me and my father. When I experience this oneness [due to ayahuasca], when I zoom out, I'm being able in a healthy manner. And by healthy I mean it is not affecting me or escalating dramatically, out of hands. So those events, like even if my father, for example, insults me now, he continues, I'm not triggered by this anymore. (P-6)

Increased Trust. Participants also reported that their ayahuasca experiences led to an increased sense of trust, both in themselves and in their paths in life. They reported feeling more confident in their life paths, more trusting of themselves, and more capable of handling life's challenges due to inherent trust.

For example, the following excerpt relates healing with having trust in oneself:

> I would always sign that something has been put right or healed, perhaps in my child's soul or teenager soul. What happened there and yes, it has a feeling of trust, a memory of, there is also trust, there is also trust in yourself and self-love. (P-1)

Another participant expressed gained trust in his life path:

> So I no longer have to be afraid of the world or of my path, but it will resolve itself well. That's one thing, it's a rock-solid conviction by now. It's simply the path I'm on right now and, yes, a lot of trust has been built up. (P-9)

Awakened Spirituality. Some participants reported that their experiences with ayahuasca led to a profound awakening of their spirituality. The following excerpt illustrates this:

> Ayahuasca connected me to another plane. A higher power to spirit in a way that that contribution to life cannot be quantified. Cannot be said in words. […] It has utterly changed my life for the better in a way that is so vast. It is inexpressible, is what I would say. (P-4)

Theme: Difficult situations. Ayahuasca experiences and of course processing childhood trauma can evoke difficult moments. Some participants shared experiences of vomiting, processing intense emotions, processing of abuse, paralysis and panic. This theme addresses the second research question to explore adverse effects of trauma processing under the influence of ayahuasca.

Acceptance of Temporary Intense Physical or Emotional Reactions. Most difficult experiences have been integrated well even though experiences were intense, e.g., "She [ayahuasca] just granted me, granted it to me very generously, in a not very pleasant way. But, it doesn't have to be pleasant to be, to be healing" (P-7). Even after recalling sexual abuse, ayahuasca supported her in processing physical reactions:

> And, yeah that was [a] very difficult session and I could feel my, you know, like I know about, the freeze response, the tension from freeze response, from when your nervous system was getting to freeze mode. So I could feel that she [ayahuasca] is working with my body, like she was just working on releasing the tension in my body in like, very specific way. I can't really describe it, but I do have tension in my shoulders, and I started noticing slowly that it's it's releasing. And it has lasted I don't know how long, I have no idea, but when I started to warm up, like I didn't have to have, like this freeze response has been like removed. (P-7)

In interview 9, the participant reported frequent experiences of paralysis and dying experiences. They are not necessarily linked to childhood trauma but can evoke feelings of helplessness that can trigger traumatic memories:

> So the paralysis, that was, after this experience I took a break from ayahuasca for many years. But when I started again, after a few years, I guess about 4 5 6 years, the paralysis, that is, the complete inability to move was standard. I died several times, I died every time and in many different ways within the ritual. (P-9)

Nevertheless, he is convinced of ayahuasca's general healing effects "I go into these spaces, because I know that it is really healing for me" (P-9).

Integration difficulties. After processing of childhood trauma and/or getting insights in previously unconscious trauma related memories, this experience itself needs to be processed and integrated afterwards to be healing.

One participant shared, that she needed around one month to process her trauma revelations of her ayahuasca experience:

> But after going through these like difficult moments where it was just like a lot of intensity, a lot of images struggling to purging, always trying to knowing that there's all this like deep things in my body that needs to come out. I was too scared to go back, you know, so I thought, I can't, I can't take this anymore. It's like too much for me. But it wasn't. It was like a month, you know. (P-10)

One ayahuasca experience has been shared that has not been integrated well and the participant had still unresolved inner turmoil after the experience and felt that there was no person to contact. The illegality of ayahuasca in her home country has made it more difficult to reach out to someone.

> Looking back, I think I would have liked to have to have some support for a few days afterwards or a contact person or something, because it just caused me a lot of inner turmoil. And I think it's been like this up until now [. . .] about three months. I think that it's still working. (P-11)

Theme: Perception of Ayahuasca as Potent Healing Agent. Ayahuasca has been widely reported by participants to possess significant healing potential, impacting both their emotional and psychological well-being. The following subthemes, *Ayahuasca is associated with healing*, *Ayahuasca as life-changing experience*, and *Trustful relationship with ayahuasca* highlight the transformative effects of ayahuasca and the role of ayahuasca in the life of participants. This theme is not directly associated to a research question, while it is implicitly one aspect of participants' life changes after ayahuasca and reflects the therapeutic value ayahuasca had for them. Ayahuasca is often considered an important contribution to people's life. For 9 participants, ayahuasca became a valuable place in their lives.

Ayahuasca is associated with healing. Participants frequently associated their experiences with ayahuasca with profound healing. The following narratives demonstrate how ayahuasca is perceived as healing experience in people's lives.

For example, one participant attributed ayahuasca with soul healing: "I think that's what healing can feel like when something heals in the soul. So for me it was beautiful and I also had the feeling that it was exactly what I needed at that moment" (P-1). Another participant

highlights that ayahuasca can take a very important role for people's childhood trauma healing process:

> Ayahuasca was absolutely essential for my healing journey. I have also often thanked the medicine in ceremonies for coming into my life. So super important and defining for me to who I am and how well I am now. (P-2)

It is also noteworthy to see how appreciative people speak about ayahuasca and give credit to their healing:

> Just to experience something so powerful, so sovereign, so soft, so healing at the same time. It is incredible, it's for me, the healing, the way that my personal healing is with ayahuasca. (P-6)

Ayahuasca as Life-Changing Experience. Participants frequently reported that their ayahuasca experiences had a profound and transformational impact on their lives. The following narratives illustrate how life-altering ayahuasca is perceived by participants, while concrete effects got revealed in their full sharing.

For example, ayahuasca experiences can mark a before and an after: "I still say to this day: that night my old life ended and my new one began" (P-2). Or "And when I did ayahuasca that, a few months later, I did ayahuasca. And that was the time that changed my life forever" (P-4). Also other participants remark its ayahuasca's life-changing power: "It's a spirit that you invite. It does what it does. It's a powerful experience. It was life-changing for me back then" (P-9). More concrete, one participant shared about concrete healing of her sexuality, that changed her life drastically for the better:

> And just be, be more free and healed in my sexuality, you know, like not always having this guilt about who I am or feeling tied to that. It's like she [ayahuasca] completely freed me from that. So it's like two separate, it's like a past and a now, you know. (P-10)

Trustful Relationship with Ayahuasca. Participants frequently described a deep, trustful relationship with ayahuasca, characterized by mutual respect and emotional intimacy. This subtheme highlights the trustful emotional and spiritual connections formed between individuals and ayahuasca during their experiences.

One participant, for example, described a sense of mutual trust that emerged from their initial encounter:

> And my first ritual what I touched with the ayahuasca is the easiness of communication with her. Is the easiness of expressing myself. Like I felt that, I

> felt there is thrust from my side. And from her side to me. So a beautiful relationship opened up from our first communion. (P-6)

Another participant described his relationship with ayahuasca similar to a maternal bond, emphasizing the depth of emotional connection:

> So for me it is mama ayahuasca and we have confessed our love for each other. So that means mama ayahuasca has told me that she loves me and I love her. And that's a, that's a bond that will last at least as long as I live. So that means, for me it's, it's like coming home and for me it's yes, call it a mom substitute if you like, but it's just a solid love relationship. (P-8)

As especially in the context of trauma, trustful relationships are considered important for healing, the way ayahuasca is perceived by participants might be a crucial underlying mechanism for its healing potential.

Theme: Ayahuasca vs. Psychotherapy. Some participants discussed the complementary roles of ayahuasca and psychotherapy in their individual healing journeys. While some participants found psychotherapy necessary for understanding psychosocial mechanisms or to prepare for their ayahuasca experiences, others viewed ayahuasca as providing unique spiritual insights that therapy alone could not offer or shared other critical thoughts. Besides, preferences for ayahuasca have been shared. This theme does not directly address a research question, but it takes in consideration the context of participants overall healing journey and it is important for the interpretation of the healing process of participants.

Complementary Beneficial. Some participants described how the combination of ayahuasca and psychotherapy provided complementary benefits in their healing journeys.

> The following narrative highlight the synergistic effects of integrating both approaches.
>
> It was very important to note that ayahuasca somehow, it's awesome, it's great, but you know, I didn't recognize my subconscious program when it comes to relationships and my beliefs. That only came later through psychotherapy. I think that both are extremely important and complementary. (P-2)

While this participant, was starting to meet a psychotherapist after ayahuasca that complemented her healing process with ayahuasca:

> I think ayahuasca also told me that I had that first experience with ayahuasca that was quite sort of gentle. And then I think that allowed me to be able to go to therapy, which had always felt like something I couldn't do. That showed me a lot of the mechanisms that was happening, and it cleared the way for ayahuasca to

> then come with that big journey. Because I wasn't ready for that big journey the first time around. […] And the medicine provided something that the therapy alone couldn't do, which is the spiritual component. (P-4)

Critical Towards Psychotherapy. While some participants found value in combining ayahuasca with psychotherapy, others expressed critical views towards traditional psychotherapy. One participant saying "I would prefer to take ayahuasca than to do psychotherapy again" (P-5) had prior psychotherapy experience, whereas another participant was clearly against considering psychotherapy: "I don't think I could have found a therapist who could ever have delivered this to me in this form and with this consistency or with this result" (P-8).

Theme: Healing Takes Time. For all participants, ayahuasca has not been a one time magic pill that resolved all their issues related to their traumatic childhood experiences. Some participants had psychotherapy experience or used other healing instruments before and after their ayahuasca experiences that supported their healing process. Still, participants consider ayahuasca experiences even after many times a "big step" that "contributes significantly to [the] path to self-development" (P-9). The narratives of every participant revealed that overcoming childhood trauma is a process.

Participant P-1, for example, underwent a trauma-focused psychotherapy before her first ayauasca ceremony. She did not consciously process the trauma but gained certainty that she "really managed to stop letting it bother me" (P-5). Nevertheless, "since then I haven't had any more nightmares that go in that direction [of abuse]" (P-5), while before the ceremony nightmares were still impacting her. She continued to commune with ayahuasca.

Other participants showed that important memories can be revealed even after many times of communing with ayahuasca. P-2, for example, shared "It was like a year ago, by the way, and at that time I had already drunk [ayahuasca] [more than twenty times] that I really noticed it [the impact of her father on her]." (P-2) Also other participants mentioned breakthrough experiences in later sessions and not necessarily in the first ceremony. But also, the first session can be important and built upon prior experience. P-11, for example, is in a program for children of alcoholic parents and got to know in just one ayahuasca experience that "there is this feeling of connection, of love, of trust, of security, and to experience security, and to experience what that feels like" (P-11). Still, these revelations need integration, and she will continue to work on her childhood "To learn this every day at the best, to go into prayer or meditation every day, to work through my childhood experiences." (P-11)

Another thing that changes naturally over time is the intention of participants for their rituals, shaping a gradual process. P-3, for example, wanted to gain back her "childlike

innocence" in her first ayahuasca ceremony, while in her third session she wanted to experience her true inner core: "And the third time, I know that very well, I wanted to feel and see my true inner core, and I got that too" (P-3).

Overall, the journey with ayahuasca, as recounted by participants, is an ongoing discovery and healing rather than a single transformative event – even though some ayahuasca experiences can have this quality. While ayahuasca has played a significant role in alleviating the impacts of childhood trauma, continuous engagement and integration of insights are crucial for sustained healing.

Connecting Quantitative and Qualitative Results

After showing quantitative and qualitative results, quantitative and qualitative results are presented in a complementary manner in this section. Qualitative themes have been counted by occurrence (see Table C1) and will be presented side by side with quantitative results utilizing tables of joint display. Quantitative results that answer the research question, are connected with qualitative results such that confirmation, deviation or extension can be analyzed. In addition, exemplary excerpts for the ACTQ from qualitative data are provided in Table 14 that explain and illustrate the items of the questionnaire. Overall, this connection of quantitative and qualitative data provides a richer, more comprehensive understanding of the participants' experiences, whereas qualitative data better explains quantitative data.

Research Question 1: Ayahuasca for Processing of Traumatic Memories and Overcoming Childhood Trauma

To answer the first research question whether ayahuasca contributes to overcoming childhood trauma sequelae and the processing of traumatic memories, and how does it contribute to it, Table 13 is utilizing joint displays to contrast related quantitative and qualitative results. Overall, 75% of participants scored at least moderately on the ACTQ – Trauma Processing scale. This aligns with two themes, where 82% of participants narratives were interpreted with *Childhood trauma processing* (CTP) and 100% specifically shared supportive moments of *Overcoming childhood trauma* (OCT). The related subthemes provide a comprehensive explanation of how ayahuasca contributes to process traumatic memoires and to overcome childhood trauma.

Integration of ACTQ – Traum Processing Subscale and Qualitative Data. The quantitative results showed that 66% participants responded that ayahuasca supported them to process their history of childhood trauma rated at least "quite a bit". The matching main theme would be *Overcoming childhood trauma* which was interpreted in 82% of the interviews.

Moreover, the subtheme *CTP → Processing negative emotions* allows to identify the occurence of emotional processing in 64% of participants' experiences, differentiating it from other forms.

Other responses on the ACTQ – Trauma Processing subscale revealed that 38% of participants experienced ayahuasca bringing back traumatic childhood memories. The corresponding qualitative subthemes indicated that participants' narratives were related to *Rescripting or Reappraisal of Traumatic Memories* (45%) and *Recalling Unconscious Traumatic Memories* (27%). In this sense, the qualitative results provided a more comprehensive perspective on the memory variable of the ACTQ – Trauma Processing subscale.

71% or participants responded that, ayahuasca facilitated the acceptance of their traumatic childhood experiences. This was also recognized in the qualitative analysis with the subtheme *OCT → Facilitates acceptance*, identified in 45% of the interviews.

Insights about their traumatic childhood experiences have been reported by 38% of participants with at least "quite a bit". Two related qualitative subthemes were associated with insights. The subtheme *OCT → It wasn't up to me*, identified in 36% of the interviews, showed that ayahuasca facilitated insights that certain experiences were beyond participants' control accompanied with a reduction of feeling guilt or unworthy, and the subtheme *OCT → Insights of trauma impact for current life* showed that ayahuasca supported 36% participants to recognize patterns in their life linked to their childhood trauma.

While 75% of participants responded in the ACTQ, that ayahuasca helped them to feel forgiveness towards those who had wronged them, this theme has only been identified in 18% of the interviews (*OCT → Facilitates forgiving*).

The ACTQ – Trauma Processing variables Facing Fears, No avoidance and New Meaning have not been interpreted as subthemes. While Facing Fears and No avoidance was a minor aspect of some participants sharings (see Table 14 for exemplary excerpts), the theme of finding new meanings in their traumatic childhood experiences was not identified in the interviews.

Predictors of ACTQ – Traum Processing Subscale and Qualitative Data. Prevalence of sexual abuse predicts more memory revelations by quantitative analysis (Table 8. In the subtheme *TR → Recalling unconscious traumatic memories*, 2 participants reported recall of suppressed memories with sexual abuse, 1 participant reported recall of emotional abuse/neglect in contrast to negative prediction. In the subtheme *TR → Rescripting or reappraisal of traumatic memories*, 2 narratives were linked to sexual abuse and 3 to emotional abuse or neglect.

Perceived support predicts ACTQ - Trauma Processing the strongest, while the theme of support has been mentioned mainly after trauma processing. Still the importance of feeling safety and trust was highlighted in 7 interviews. Also, the quantity of ayahuasca experiences was

Table 13

Integration of ACTQ – Trauma Processing with qualitative data

Quantitative	%	Qualitative	%
ACTQ - Trauma Processing ≥ 3	75%	Childhood Trauma Processing (CTP)	82%
		Overcoming Childhood Trauma (OCR)	100%
Processing ≥ 4	66%	CTP	82%
		CTP → Processing negative emotions	64%
Memories ≥ 4	38%	CTP → Rescripting traumatic memories	45%
		CTP → Recalling unconscious traumatic memories	27%
Acceptance ≥ 4	71%	OCT → Facilitates acceptance	45%
Insights ≥ 4	64%	OCT → It wasn't up to me	36%
		OCT → Insights of trauma for current life	36%
Forgiving ≥ 4	87%	OCT → Facilitates forgiving	18%
Facing Fears ≥ 4	91%	NA	
No avoidance ≥ 4	81%	NA	
New Meaning ≥ 4	72%	NA	
ACTQ - Psychological Distress ≥ 2	60%	Difficult situations (DS)	45%
		DS → Integration difficulties	18%

associated with ACTQ - Trauma Processing. In the interviews, only 2 participants (which had up to three ayahuasca experiences) reported no occurrence of processing their childhood trauma under the influence of ayahuasca. Another participant who attended only one ayahuasca ceremony, experienced trauma processing, for example. All other participants drank ayahuasca more often and experienced some form of trauma processing.

Research Question 2: Adverse Experiences During Trauma Processing

To find out whether there were adverse experiences linked to the processing of traumatic memories within ayahuasca experiences and to explore how they were experienced, the ACTQ – Psychological Distress subscale and the main theme *Difficult Situations* (DS) and its subtheme *DS → Integration difficulties* of the qualitative analysis were utilized (see Table 13).

ACTQ – Psychological Distress Subscale and Qualitative Data. In total, 60% of participants scored at least with "a little bit" on the ACTQ – Psychological Distress subscale. In contrast, the theme *Difficult situation* has been identified in 45% of the interviews, while 18% of participants narratives revealed difficulties to integrate the experience of trauma processing afterwards. More exemplary excerpts for concrete variables are provided in Table 14.

Predictors of ACTQ – Psychological Distress Subscale and Qualitative Data. Quantitative analysis showed that healing intentions, undergoing more than one psychotherapy, and recall of traumatic memories is significantly associated with heightened psychological

distress. There is no direct relation found in the qualitative data. Participants were only asked about their motivation of their first ayahuasca ceremony and of those 4 with healing intention related to their childhood trauma, only one experienced heightened psychological distress (*DS → integration difficulties*). Besides, participants have not been asked directly about their previous psychotherapy experience. The processing of traumatic memories was often linked with intense emotional processes that have been accepted as part of the healing process.

Research Question 3: Are There Positive Life Changes After Ayahuasca Experiences?

In the following, the third research question whether ayahuasca experiences are perceived as beneficial for adults with childhood trauma and if so, how they impact their life afterwards is addressed.

Overall, 92% of the participants of the quantitative survey responded that ayahuasca was healing, helpful or created a positive change. This is reflected in the theme *Positive life changes afterwards* that has been identified in all interviews. Almost all participants reported to experience *Better relationships* and to have *More self-love or self-acceptance* after their ayahuasca experiences. Many reported to have *More self-care and healthy lifestyle*, *Better handling of difficult situations*, *Increased trust*, and *Better life quality*. A few reported *Awakened Spirituality*.

Table 14

Integration of the ACTQ questionaire with qualitative data

ACTQ	Occurence	Quotes
Forgiving	75%	And that's what my healing has been about, to be able to forgive. (P-10)
Acceptance	71%	At the moment, what I define for myself as childhood trauma, I think that, the medicine [ayahuasca] helped me, understand them, accept them, cope with them, deal with them and even in a way, use them for my own growth. (P-6)
Facing Fears	71%	I was still afraid to go into these traumas of my childhood, you know. So with the second journey. It was very relaxed. […] Just gently, like preparing me, you know, it was like, okay, see, it's not that bad, you know. […] But it's with this third journey […] and that was the first time when she took me back to some of the like, you know, abusive moments that I was experiencing as a child. (P-10)

Table 14

Continued

ACTQ	Occurence	Quotes
Processing	66%	I was reminded of what it was like as a child, that I had the feeling that my mother was unreachable. […] I don't get my mother's love. And there was this feeling of my heart is breaking […] and I cried a lot. (P-11)
No Avoidance	64%	I go into these spaces because I know that it is really healing for me, to access things that I can't reach with my intellect, with my understanding, with my intuition. That is like, I can't reach it, it's like a locked room for me. And ayahuasca goes in there. And she don't seem to care that it's locked. She just goes in there. (P-9)
Insights	64%	I sort of was like, well, nothing happened to me. And it wasn't until years later that I kind of understood, oh no, something did also happen to me. And that's recently. Through working with aya[huasca] and other medicines I came to the understanding of actually how traumatic that time was for me. (P-4)
New Meaning	62%	NA
Memories	28%	And, she showed me exactly like I was sexually abused, sexually assaulted when I was like about eight. (P-7)
Difficulties	69%	So for me, it's about like, at that stage [processing trauma] it was like, almost like I had to take that much medicine so that she could just do her work, that I didn't have all this resistance when I was going through it. It was like a lot, you know, it was like very, very, physical. I was shaking a lot. I was having a lot of purging. (P-10)

Table 14

Continued

ACTQ	Occurence	Quotes
Overwhelmed	42%	And I was, I was gasping for breath, I couldn't breathe, so and I cried. And during this session, I think it was like most of the session was me trying to get some air, because he had his hand on my mouth [trauma recall] and crying. And, yeah that was that was, that was very difficult session and I could feel my then, you know, like I know about, the freeze response from the from the tension from freeze response from when your nervous system was getting to freeze mode. (P-7)
Helpless	32%	NA
Traumatized	6%	NA
Sharing	84%	And it's not just the ayahuasca ritual. I know rituals that are, that are followed up by sharing the experience. So that means the step to share afterwards what you have experienced and to be interpreted that is, I don't know if it's half of it, but it's a big part of it. (P-9)
Support	84%	And at that [difficult] moment, there was also support and a really very loving ceremony leader, who somehow put his hand […] on the chest area at the bottom of the back, and a bit of incense, and through that I came back into this kind of love. (P-11)

Additional Results: Ayahuasca Experiences and Psychotherapy

Although it is not directly related to a research question, to better understand the context of participants it seems crucial to also address their background of psychotherapy and how that relates to their ayahuasca experiences.

In the quantitative analysis, 74% of participants were in psychotherapy, and 53% even more than once. Their satisfaction with psychotherapy has been reported with a median score of 4.00, i.e. "quite a bit", see Figure 2. Also in the interviews, 4 participants shared how psychotherapy supported them complementary to their ayahuasca experiences *Complementary beneficial experience*. P-2 shared, for example, after many ayahuasca experiences: "I didn't recognize my subconscious program when it comes to relationships and my beliefs. That only came later through psychotherapy. I think that both are extremely important and

complementary". On the other side, there are also critical views. Three participants spoke critical towards psychotherapy in contrast to their ayahuasca experience, e.g., "I would prefer to take ayahuasca than to do psychotherapy again" (P-5).

Discussion

This mixed-methods research explored the therapeutic potential of ayahuasca for adults with a history of childhood trauma. Employing both quantitative and qualitative approaches, the study sought to understand if and how ayahuasca experiences contribute to processing traumatic childhood experiences and overcoming their sequelae and whether adverse events occur specific to trauma processing. While the latter is of clinical relevance as participants may experience psychological harm due to trauma exposure under adverse conditions, the former might demonstrate a therapeutic potential for trauma-focused psychedelic treatment.

Following an explanatory sequential research design, quantitative data were collected initially from 77 participants, and qualitative data were collected afterwards through semi-structured in-depth interviews with 11 selected participants from the total sample. In the following, results will be discussed and related to existing research.

Research shows that around 16% percent of ayahuasca drinkers state healing of childhood trauma as motivation for their ayahuasca experiences (Perkins et al., 2021). The current study indicates that ayahuasca in fact facilitates trauma processing and evokes experiences that support participants in overcoming trauma sequelae. Adverse effects like intense emotions or vomiting are frequently reported but accepted as part of the healing process. Nevertheless, some participants mentioned difficulties after ayahuasca ceremonies in integrating experiences related to processing of childhood trauma.

Study Participants

Quantitative and qualitative results are linked to the background of participants. To gain a comprehensive context of participants, the researcher collected sociodemographic information, history of childhood trauma and cumulative trauma exposure, current PTSD or CPTSD symptoms according to ICD-11, personal experience in psychotherapy and psychiatric diagnoses, and finally, previous experience with ayahuasca.

While emotional abuse and neglect were reported most often with 53% and 49% respectively, 44% of participants suffered sexual abuse, 36% suffered physical neglect and 21% physical abuse. Moreover, 50% percent of participants reported a trauma exposure of 4 or higher, which is high compared with other research counting around 30% (McLaughlin et al., 2013). Childhood trauma is associated with an increased risk for mental-health issues in adulthood

(Hanlon et al., 2020). This is reflected in reported PTSD and CPTSD symptoms, psychiatric diagnoses and experience with psychotherapy. At the time of the survey, 21% fulfilled criteria for PTSD, and 16% for CPTSD. A history of depression was frequently reported (44%), as well as PTSD (25%), and anxiety disorder (26%). Around 8% participants reported a history of substance abuse. Not surprisingly, 74% of participants have personal experience with psychotherapy and 53% even more than once. This might be due to higher symptom complexity that is associated with cumulative childhood trauma (Cloitre et al., 2009).

Participants' background with ayahuasca experiences varied, where 19% drank ayahuasca only once, 30% up to 5 times, while 19% made more than twenty experiences with ayahuasca. The setting of their ayahuasca experiences is mainly a ceremonial context, while 6.5% reported individual use, and one participant reported a therapeutic setting. Most participants (92%) perceived ayahuasca as healing or helpful, while 6.5% reported both healing and harmful impact. This is in line with other findings, reporting that around 12% sought professional support to due adverse mental health effects (Bouso et al., 2022).

Therapeutic Potential of Ayahuasca Experiences for Childhood Trauma

Results from the quantitative analysis of the ACTQ indicate that 75% of participants dealt with their traumatic past in some form and 66% of participants processed their history of childhood trauma within ayahuasca experiences. Regression analysis indicates that more ayahuasca experiences related to childhood trauma are associated with support, i.e, perceived support during ayahuasca ceremony/session and the possibility of sharing after the ayahuasca experience. Besides, having drunk ayahuasca more often was also associated with a higher ACTQ – Trauma Processing score. This result is expected, as there is no guarantee that trauma processing occurs in a specific ayahuasca ceremony/session and more ceremonies/sessions increase its likelihood. A surprising result was that participants' mood after survey was associated with higher ACTQ – Trauma Processing scores. Nevertheless, this may be explained as participants that could deal with their childhood trauma with ayahuasca might get more positive feelings than those who could not. With a very small influence, the ITQ – PTSD item score was positively correlated with the ACTQ – Trauma Processing scores. This could indicate that the occurrence of PTSD symptoms might increase the probability to evoke trauma-related ayahuasca experiences. Furthermore, 92% of participants rated ayahuasca to have a positive impact in their life, while 8% reported both healing and harmful effects. In the following, quantitative and qualitative results are discussed and related to existing literature.

Trauma Processing

Results from both, quantitative and qualitative data, suggest that ayahuasca facilitates the processing of traumatic memories. Quantitative results indicate that around 40% of participants were directly processing past traumatic memories. This relates with another study that found a prevalence rate of 42% for reexperiencing adverse life events in ayahuasca ceremonies (Weiss et al., 2023b). Further results indicate that memory recall might occur more often in participants that suffered sexual abuse in their childhood, and less in participants that suffered emotional abuse, which might be due higher memorability of single events. The current study does not provide evidence that women experience more frequent trauma memory recall as found in Weiss et al. (2023b).

The narratives of in-depth interviews confirm these quantitative findings and enrich them with deep insights of participants' ayahuasca experiences. *Processing childhood trauma* occurred in most interviews. Developed themes and subthemes indicate that this happened often through *Processing negative emotions* and *Rescripting or reappraisal of traumatic memories*, often evoked by hallucinogenic imagery. Participants narratives also indicate, that *Vomiting to release traumatic memories* might be supportive in trauma processing.

Most participants experienced intense emotional processing related to their childhood trauma while being under the influence of ayahuasca. This underlines findings where reexperiencing adverse life events was rated with high intensity (Weiss et al., 2023b). Processing trauma-related emotions is a central therapeutic target for trauma survivors. Difficulties in regulating negative emotions is a known maladaptive mechanism after adverse childhood experiences and often linked with an increased avoidance of negative emotions in response to stress (Compas et al., 2017; Dvir et al., 2014; Gruhn & Compas, 2020). Moreover, dysfunctional emotion regulation is also associated with other psychopathologies such as depression and anxiety, which are often prevalent in adults with a history of childhood trauma (Sheppes et al., 2015).

Ayahuasca appears to facilitate the overcoming of avoidance. Quantitative results of the ACTQ suggest that ayahuasca supports overcoming avoidance (81% of respondents) and supports in facing fears (91% of respondents). In fact, ayahuasca might facilitate the processing of intense trauma-related emotions. Psychedelic research indicates that experiencing emotional release or "emotional breakthrough" (Roseman et al., 2019) during a psychedelic session is linked to enhanced psychological flexibility (Close et al., 2020; Hayes et al., 2006). Promoting psychological flexibility specifically reduces emotional avoidance, enhances emotional coping, and consequently may improve various health outcomes (Gloster et al., 2017). In the context of

PTSD, for example, psychological flexibility has been shown to mediate the relationship between symptom severity and quality of life, as well as to decrease externalizing behaviors among trauma-exposed war survivors and veterans (Dutra & Sadeh, 2018; Kashdan et al., 2009). This aligns with other findings which suggest that general therapeutic effects of psychedelics are linked to a shift from experiential avoidance to greater acceptance (Wolff et al., 2022).

Other narratives of participants suggest *Rescripting or reappraisal of traumatic memories* as therapeutic mechanisms. In rescripting, participants first remembered childhood trauma, followed by correcting experiences through hallucinogenic imagery of ayahuasca. These mechanisms seem to be similar to Imagery Rescripting, where the reactivation of traumatic memories followed by corrected and nurturing experiences supports changing maladaptive beliefs and schemas (e.g., feeling unlovable) (Smucker, 2005). Additionally, reappraisal of traumatic experiences was identified in interview narratives, where adverse memories were given a new positive meaning or embedded in another contexts such that maladaptive beliefs about self and/or others could be reframed. This is supported by other findings that show that ayahuasca may facilitate reappraisal of psychologically difficult content (Agin-Liebes et al., 2022; Weiss et al., 2023b). A related known mechanism might be cognitive reappraisal (Gross, 1998; Sheppes & Gross, 2011), which is seen as emotion regulation strategy that first involves engagement with adverse emotional content, followed by a reinterpretation of it in a way that reduces its emotional impact and modifies its meaning. Cognitive reappraisal, for instance, has been suggested as transdiagnostic therapy-enhancing mechanism in treatments for PTSD (Gallagher, 2017).

In addition, thematic analysis indicates that another therapeutic mechanism might be *Vomiting to release traumatic memories*. Several participants reported that vomiting supported them to release adverse experiences and linked emotions, which made them to feel purified and renewed. In general, vomiting is frequently experienced with ayahuasca. In the Global Ayahuasca Project study 47% of participants with single ayahuasca use reported the occurrence of vomiting or nausea (Bouso et al., 2022). In shamanic or traditional indigenous contexts, vomiting is not perceived as adverse side effect but considered as part of its potential therapeutic effects (Fotiou & Gearin, 2019; Politi et al., 2022).

Qualitative results also indicate that participants may be confronted with previously unknown traumatic memories (*CTP → Recalling suppressed traumatic memories*), which can have a significant impact onto people's perception of themselves and their life. Experiencing previously unknown childhood trauma might be particularly associated with high levels of psychological distress. Furthermore, this comes with issues of how to validate this "experienced information". Uncritically accepting these memories may cause severe harm. It is known that

both, recovered memories (i.e., memories of actual events that are not accessible for some time and later recalled) and false memories, seem to exist in clinical and experimental settings (Gleaves et al., 2004). Ethical issues that can arise due to psychedelic-induced biographical insights due to heightened suggestibility (Carhart-Harris et al., 2015) have been discussed in the literature and a coping framework to understand issues of validation is outlined (Timmermann et al., 2022). In cases, where autobiographical insights create psychological distress, further integration with an experienced person is crucial.

Overcoming Childhood Trauma

In addition to its potential for trauma processing, ayahuasca seems to support people in overcoming childhood trauma. Quantitative results indicate that ayahuasca supports people in accepting traumatic experiences (71%), gaining new insights (64%), finding new meaning (72%), and facilitating forgiveness (87%). While finding new meaning was not identified in interview narratives, quantitative results were confirmed by matching themes (*Facilitates Acceptance* and *Facilitates forgiving*). Another study found that ayahuasca improves acceptance of potentially distressing thoughts and emotions in a small number of ayahuasca sessions (Soler et al., 2018), while forgiving has been identified as a significant theme in psilocybin-assisted psychotherapy (Belser et al., 2017).

The occurrence of gaining new insights was explained more nuanced by the two themes *It wasn't up to me* and *Insights of trauma for current life*. The first theme, identified in 36% of interviews, represents insights in ayahuasca experiences, where participants recognized that traumatic events were not their fault. The liberation from misattributed guilt or feelings of unworthiness are important aspects of overcoming childhood trauma and ayahuasca supported some participants to realize this in an experiential way. Research shows that shame and guilt are often found in childhood trauma survivors (Mojallal et al., 2021) and modifying such posttraumatic cognitions are associated with reduced PTSD symptoms (Schumm et al., 2015). The subtheme *Insights of trauma for current life* indicates that ayahuasca might induce insights of the impact of adverse experiences for the current life, like recognizing maladaptive patterns in relationships. The ability of ayahuasca to bring such unconscious patterns to conscious awareness highlights its potential to overcome childhood trauma. While not specific to childhood trauma, a study on psilocybin reported wisdom lessons (Belser et al., 2017). A recent article discusses the ethical implications of these experiences (Timmermann et al., 2022). Another subtheme revealed that ayahuasca seems to provide *OCT → Lessons on self-care*. Some participants indicated that their ayahuasca experiences offered valuable insights into the

importance of self-care and the methods to achieve it.

In addition to quantitative analysis, thematic analysis of qualitative data indicates that ayahuasca evokes experiences where participants meet deep unmet needs of their childhood, e.g., a mother that is embracing, to feel safe or accepted, or to gain back a feeling of purity or virginity (*OCT → Experiencing something that was missing or got lost*). Sometimes, this was linked to rescripting or reappraisal experiences, as discussed earlier, but often participants simply encountered something in their ayahuasca experiences that they had missed during childhood. Ayahuasca appears to address deep seated needs and emotions of individuals in a transpersonal manner. This is further supported by the subtheme *OCT → Experiencing love or connection*, where participants reported of intense feelings of love or connection, often in a universal manner, which is similar to findings of a psilocybin study (Belser et al., 2017). This might be linked to so called *mystical experiences*, where a strong sense of unity is involved, usually accompanied by a sense of reverence and truthfulness of the experience (Johnson et al., 2019). In this way, experiencing love and connection becomes a felt truth for the individual, addressing maladaptive schemas related to unmet needs for belonging, safety and emotional nurturance (Pilkington et al., 2021; Young et al., 2003). This is surprising, as one would assume that this can only happen in interpersonal interactions with other human beings or possibly animals.

Ayahuasca and PTSD Interventions

Ayahuasca experiences seem to utilize mechanisms that are common in evidence-based trauma-focused interventions like *Cognitive Processing Therapy* (CPT; Asmundson et al., 2019; Resick & Schnicke, 1992), *Eye Movement Desensitization and Reprocessing* (EMDR; Shapiro, 2001, 2014) or *Prolonged Exposure* (PE; Foa et al., 2008; McLean et al., 2022). Common aspects focus on the processing of traumatic memories and their related cognitions and emotions, as well as in reducing experiential avoidance (Forbes, 2020; Schnyder et al., 2015). Utilizing similar mechanisms, ayahuasca might have a therapeutic potential for PTSD as recent research shows (Ceman & Klass, 2019; Nielson & Megler, 2014; Weiss et al., 2023a). It is important to note that the change of maladaptive trauma appraisals into balanced, adaptive beliefs seems to be achieved through experiential learning under the influence of ayahuasca, similar to PE. Nevertheless, it is unclear whether trauma processing occurs in a specific ayahuasca ceremony/session, while it might be possible to increase its likelihood by addressing it before the ceremony. In contrast, therapists of trauma-focused interventions can decide when to engage with traumatic memories and how.

Life Changes After Ayahuasca Experiences

Findings of this mixed-methods study indicate that ayahuasca positively impacts the life of adults with childhood trauma. Moreover, ayahuasca can become a sought-after healing modality due to positive and impactful experiences.

Positive Life Changes

Information about concrete life changes was not collected in the quantitative survey, but results showed that all participants reported healing or positive effects of which 8% reported both healing and harmful effects. Qualitative analysis reveals significant changes in individuals' lives that was attributed to their ayahuasca experiences. In all interviews, participants reported on *Positive life changes afterwards (PLC)*.

A general theme was to have *PLC → Better relationships*, which was identified in 10 interviews. Participants reported to be more kind, to be able to give more space to others, to be more empathic and understanding, to be a better mother, to live better friendships, etc. This is surprising, as adults with a history of childhood trauma often have interpersonal difficulties (Fares-Otero et al., 2023; McNeil & Rehman, 2024; Paradis & Boucher, 2010) and a transpersonal psychedelic induced experience supported them to live better social interactions. This result is similar to findings of a qualitative psilocybin study that also reported improved relationships after treatment (Belser et al., 2017).

Another general theme was to experience *PLC → More self-love or self-acceptance*. Some participants shared this as a direct consequence of *OCT → Experiencing love and connection* with ayahuasca. Participants' narratives indicate that ayahuasca improved their ability to accept themselves as they are, to love themselves or to develop self-compassion for their wounded inner child. Taken together, this increases self-esteem, which seems to mediate the relationship between traumatic childhood experiences and the development of depression and anxiety in adulthood (Gathier et al., 2024; Panagou & MacBeth, 2022; Zhao et al., 2022). Findings from another study indicate an inverse relationship between self-compassion, negative trauma appraisals and emotion regulation difficulties (Barlow et al., 2017).

Other frequently mentioned narratives indicate that ayahuasca fosters *PLC → More self-care and healthy lifestyle*. Participants were better able to take care of their needs, be kind to themselves, and set healthy boundaries. Besides, they often changed to a healthier diet or adopted a healthier lifestyle such as getting enough sleep, exercising or allowing time to relax. Both self-care and a healthy lifestyle can improve health and quality of life and prolong life expectancy (Barbaresko et al., 2018; Huston, 2022; Li et al., 2018; Marquez et al., 2020).

Many participants (7 of 11) reported a *PLC → Better handling of difficult situations* after ayahuasca experiences. They developed more adaptive beliefs, such as taking less responsibilities, knowing that they can deal with life difficulties without breaking, or to reframe difficult situations. Improved emotion regulation was also reported. Participants, for instance, were able to feel grief without getting overwhelmed or stay calm in situations of conflict. Interview narratives also revealed that participants sought ayahuasca experiences in difficult situations for support.

Another subtheme shows that ayahuasca might support to have *PLC → More trust*. Participants reported that they found trust in themselves, in life, and in hope. It is known, for instance, that cumulative childhood trauma exposure is inversely associated with hope (Baxter et al., 2017) and can be seen as important targeted outcome for interventions for survivors of childhood trauma (Munoz et al., 2020). The subtheme *PLC → Better life quality* identified participants' narratives, that reflected an overall improvement of their life quality after ayahuasca experiences. For example, two participants shared that ayahuasca helped them to get out of their depression and finally, experiencing joy. Another participant mentioned that nightmares linked to childhood trauma stopped after her ayahuasca ceremony. Lastly, participants experienced *PLC → Awakened Spirituality* after ayahuasca ceremonies/sessions, which might occur after mystical experiences (Cole-Turner, 2022). Similarly, other findings report on spiritual awakenings (Trichter, 2010) and changes in personal spirituality due to ayahuasca (Trichter et al., 2009). A study reports that 98% of spontaneous spiritual awakenings were considered as positive in the long-term by affected individuals (Corneille & Luke, 2021).

Perception of Ayahuasca as Potent Healing Agent

Due to the positive impact of ayahuasca experiences, the participants' perception of ayahuasca changed as a consequence of their healing. All 11 interview participants remarked *Ayahuasca as healing experience* and 7 of them perceived *Ayahuasca as life-changing experience*. Some ayahuasca ceremonies/sessions marked a before-and-after in their lives. For instance, participants came out of depression, reconnected with themselves, felt alive for the first time, or overcame difficulties with sexuality. Some participants even started a spiritual life journey with ayahuasca. These narratives suggest that ayahuasca experiences can have a transformational positive impact on the healing process of adults with childhood trauma. This is consistent with results from psilocybin follow-up studies, which show that more than half of the participants considered their psychedelic experience as one of the top five most meaningful and spiritually significant events in their lives (Griffiths et al., 2008; Johnson et al., 2017). A related concept

might be *quantum change* that refers to sudden and drastic shifts in individuals' core beliefs and behaviors, characterized by a profound sense of benevolence and meaning (W. R. Miller & C'de Baca, 2001). These transformative experiences often result in a marked and lasting improvement in the person's life, facilitating deep personal growth and significant positive changes. Two subtypes of "quantum change" experiences were identified: mystical experiences and insightful experiences, which emphasize sudden and profound insights into personal life problems or circumstances. The different nature of participants' narratives accounts for both types, mystical and insightful experiences supporting them in overcoming childhood trauma. Moreover, research indicates that both mystical experiences and psychological insights during psychedelic sessions can alleviate symptoms of depression, anxiety, and addiction (Belser et al., 2017; Daldegan-Bueno et al., 2022; Davis et al., 2020; Ko et al., 2022; Sheth et al., 2024).

In addition to healing and life-transforming qualities, some participants experienced a *Trustful relationship with ayahuasca*. This is again a surprising transpersonal phenomenon, as usually, trust is a component of interpersonal relationships. Developing a relationship with ayahuasca based on mutual trust is remarkable for a psychedelic agent. Nevertheless, trust can be a therapeutic target for the therapeutic alliances of trauma survivors (Chouliara, 2024). Psychotherapy research shows that that a therapeutic alliance is crucial to the outcome (Flückiger et al., 2018). Similarly, it seems that the perception of a trustful relationship with ayahuasca supports the healing process.

Difficulties within and after Ayahuasca Experiences

Ayahuasca and processing of traumatic events can be accompanied with difficult situations. In this mixed-methods study, 8% of participants reported both healing and harming effects of ayahuasca. Results of the ACTQ – Psychological Distress subscale indicate that 60% experienced stressful situations at least "a little bit" and 26% at least "moderately". The results indicate that 69% experienced at least moderate difficulties, 42% felt overwhelmed at least moderately, 32% experienced feeling helpless at least moderately, and 6% of participants felt even traumatized to a moderate extent or more. Quantitative analysis also indicates that healing intentions, having underwent more than one psychotherapy, and the recall of traumatic memories are associated with heightened psychological distress. While the latter effect was very small, healing intentions seem to lead to more psychological distress. This might signal that stressful or intense moments are part of healing processes. In addition, having underwent more than one psychotherapy is associated with higher reported psychological distress. The reasons behind this might be symptom complexity, more psychic insights and tools to work with difficult

experiences or both. While it is known that cumulative childhood and adult trauma lead to higher symptom complexity (Cloitre et al., 2009), these findings were not found in the present study. Taken together, results clearly state that ayahuasca experiences are often linked with psychological distress and can create physical and mental discomfort depending on set, i.e., the mindset and biopsychosocial background of the person seeking ayahuasca, and the setting, i.e. the context of the ayahuasca experience (Bouso et al., 2022).

Qualitative analysis found *Difficult situations* (DS) in 45% of participants that are linked to trauma processing. Participants reported feeling panic, experiencing paralysis, feeling helpless, vomiting or intense emotional or physical processes. While 36% of participants reported *DS → Acceptance of temporary difficult/intense moments*, 18% of participants experienced integration difficulties after an ayahuasca ceremony related to trauma processing. One participant continued to experience significant inner turmoil and struggled to find adequate support due to the illegal nature of her ayahuasca experience, which complicated seeking professional help.

These results show that ayahuasca experiences should not be taken lightly, especially with a background of childhood trauma. Besides, integration is a necessity to consider after ayahuasca experiences. Ayahuasca is not a "one-time magic pill", as outlined in the theme *Healing childhood trauma takes time*. Integration difficulties were reported also in psilocybin studies (Lutkajtis & Evans, 2023; Marie, 2024). A current review provides an overview of psychedelic integration including a comprehensive summary of various integration practices (Bathje et al., 2022). However, these methods are not yet evidence-based, highlighting a critical research aim for the future to establish their effectiveness (Greń et al., 2024).

Additional Perspectives

Some additional results were found in the qualitative analysis that do not address a research question but seem useful to report in order to understand the context of participants and the impact of ayahuasca experiences.

Ayahuasca and Psychotherapy

Ayahuasca and psychotherapy can go hand in hand and enhance each other, offering different perspectives. Quantitative analysis shows that 74% of participants underwent psychotherapy and around 50% did so more than once. Participants that went to psychotherapy reported their satisfaction with "quite a bit", showing that in general psychotherapy is perceived as helpful and does not create conflict with ayahuasca. In fact, 4 interview participants – without being explicitly asked – shared how psychotherapy supported them complementarily to their ayahuasca experiences (*Complementary beneficial experience*). Some participants found

psychotherapy necessary for understanding psychosocial mechanisms that could not be learned from ayahuasca experiences. Others found psychotherapy useful to prepare for deeper ayahuasca experiences. On the other hand, participants shared that ayahuasca can provide unique spiritual insights that psychotherapy could not offer them. However, three participants shared a critical perspective on psychotherapy in contrast to their experience with ayahuasca or expressed a preference for ayahuasca.

These mixed perspectives highlight the dichotomous relationship between traditional psychotherapy and ayahuasca experiences. While many participants value the complementary benefits of both approaches, others perceive ayahuasca as a more profound and preferable healing modality. This dichotomy suggests a potential for an integrated therapeutic framework that combines the strengths of both ayahuasca and psychotherapy. Although ayahuasca seems to promote improved relationships, psychotherapy still provides a unique safe environment for clients to explore the fundamental human conflict between the need for emotional safety and the desire for authentic intimate connections with other human beings. Nevertheless, results of this study demonstrate that ayahuasca experiences by themselves can be healing and positively impact adults with childhood trauma, offering embodied corrective experiences that psychotherapy may not always be able to offer.

Another risk of seeking ayahuasca experiences is spiritual bypassing (Picciotto & Fox, 2018; Picciotto et al., 2018), where individuals seek to deal with their issues through escaping to spiritual realms. Also in these cases, psychotherapy can be a supportive complement as it supports to address *unfinished business*.

Healing Childhood Trauma Takes Time

Finally, employing a critical realist stance, results of this study have to be interpreted in their specific context. Even though results are promising, and all participants reported healing experiences with a positive impact to their lives, each participant had a unique position and a unique background in life before the first ceremony/session with ayahuasca. Most participants drank ayahuasca more than once with varying pauses in between. Furthermore, 75% of participants reported at least one diagnosed mental health disorder, and 25% did not undergo psychotherapy. Finally, the context of ayahuasca experiences differed among participants (mostly ceremony setting with shamans or healers) and was also biased by convenience sampling method. Considering that set and setting is crucial for ayahuasca experiences (Perkins et al., 2021; Pontual et al., 2022; Uthaug et al., 2021), the results of this study are true within the context of the set and setting of participants.

While a life course perspective was not addressed in the quantitative phase, findings indicate that a higher quantity of ayahuasca experiences is associated with more ayahuasca experiences that involve childhood trauma processing. More specifically, the theme *Healing Childhood Trauma Takes Time* adds a time perspective to participants' healing processes. All of participants' narratives revealed that overcoming childhood trauma is a process. Even though a single dose of ayahuasca can provide profound healing, such as reducing depressive symptoms (Sanches et al., 2016), overcoming childhood trauma and its sequelae is complex, where healing can be seen as a learning process that often involves emotion regulation and interpersonal skills. Moreover, ayahuasca experiences require time for integration which can be intense by itself.

Strengths and Limitations

One of the primary strengths of this study lies in its mixed-methods design, which integrates both quantitative and qualitative approaches to provide a comprehensive understanding of the therapeutic potential of ayahuasca for adults with childhood trauma. The explanatory sequential design ensures that the findings from the quantitative phase are enriched and elaborated upon by the qualitative data, offering a broad view of participants' experiences with ayahuasca and their changes in life. Other strengths include a representative sample size (N = 77 for the quantitative phase and N = 11 for the qualitative phase), an international population and the inclusion of ayahuasca drinkers with different histories of childhood trauma and psychopathology. Furthermore, the study addresses a crucial gap in the literature by focusing on the use of ayahuasca for trauma processing in a population with childhood trauma histories. This focus provides valuable insights into the potential of psychedelic-assisted therapies, particularly for populations that are often underrepresented or not identified by adequate measures in research.

Despite its strengths, the study has several limitations that must be considered. The use of a non-random, self-selected sample and the lack of a control group limit the generalizability of the findings. Specifically, it risks selection bias toward participants who had positive ayahuasca experiences and were more motivated to complete the survey, compared to those with negative or neutral experiences who may be less inclined to participate. Furthermore, the data collection relied entirely on self-reported, retrospective assessments. However, the truthful narratives of the qualitative data helped confirm quantitative findings. Another limitation is the cross-sectional study design that does not allow to measure a baseline mental health status prior to their first ayahuasca experience. To address this issue, the study used the number of lifetime psychiatric diagnoses and the number of sought psychotherapies as proxies for mental well-being to control

for such effects. Nonetheless, this approach may not fully address the concern. Additional limitations are due to the unknown context of participants' ayahuasca ceremonies/sessions. The facilitators' expertise and specific methods are unknown, which might influence participants' experiences. Additionally, the composition and dosage of the consumed ayahuasca are not specified, potentially affecting the outcomes. It is expected that higher doses would correlate with more intense subjective spiritual experiences. Additionally, the study excluded individuals with acute suicidality, substance abuse, or psychotic disorders and effects on this populations remain unknown. Finally, as all participants of this sample perceived ayahuasca as healing, the sample might not be representative for all adults with childhood trauma that sought ayahuasca, potentially limiting the study of adverse effects.

Ethical considerations regarding the legality and safety of ayahuasca use pose additional challenges for future research. The illegal status of ayahuasca in many countries limits the ability to conduct controlled studies and may discourage participants from fully disclosing their experiences. Other ethical issues arise from the researcher potentially knowing participants of the study by utilizing convenience sampling. To overcome this issue, quantitative and qualitative data were only connected to select participants for the interviews, and the researcher made sure that he did not know the interviewed participants. Still, some participants might have responded socially desirable. Moreover, the study could have provided even more insights utilizing a direct connection of quantitative and qualitative data.

Future Research

Future research should aim to address these limitations by employing more rigorous study designs, including prospective studies, randomized controlled trials and longitudinal studies that address childhood trauma sequelae. To be able to study related effects, future research studies on ayahuasca should include up-to-date questionnaires like the ITEM to identify adults with childhood trauma as vulnerable population. Results of this study suggest that ayahuasca might be a potential candidate for PTSD (Ceman & Klass, 2019; Weiss et al., 2023a) and CPTSD due to its facilitation of trauma processing. Ayahuasca might be especially useful due to its transdiagnostic potential for treating comorbid depression, anxiety or SUD (Gonçalves et al., 2023; Maia et al., 2023; Ruffell et al., 2023). It might never become a recommended standard intervention, but it might provide an option to consider for treatment-resistent populations.

Besides, investigating the role of setting, approach of facilitation, and integration practices will be essential to gain more understanding of contributing factors. As shown by

integration difficulties, there is a need for evidence-based psychedelic integration methods (Greń et al., 2024). As research indicates that 16% percent of ayahuasca drinkers aim to address childhood trauma in their ayahuasca ceremonies/sessions (Perkins et al., 2021), future research could provide insights about specific needs of this populations and whether specific adverse effects occur more often in this population. Future research could provide trauma-informed evidence-based guidelines for safety that might be supportive for facilitators of ayahuasca ceremonies/sessions.

Another interesting point for future research is to study the transpersonal relationship between individuals and ayahuasca and its implications for healing experiences. There is evidence that a therapeutic alliance is crucial for psychotherapy outcomes (Flückiger et al., 2018). Utilizing a transpersonal relationship for therapeutic use might be in particular supportive for trauma survivors that might avoid relationships for staying emotionally safe.

Additionally, future research could explore the potential for combining ayahuasca with other therapeutic modalities including trauma-focused interventions, which could provide insights of possible benefits of ayahuasca-assisted psychotherapy while ensuring safety and efficacy.

Conclusion

This mixed-methods study generated evidence for the therapeutic potential of ayahuasca for adults with childhood trauma and its sequelae, as suggested by Perkins and Sarris (2021). The study provides evidence that ayahuasca facilitates trauma processing and provides hallucinogenic experiences that support individuals in overcoming childhood trauma. Furthermore, quantitative and qualitative results highlight the positive impact of ayahuasca on individuals' lives. Adverse effects can occur but are usually accepted as part of the healing process. Due to trauma processing, integration difficulties can occur and should be addressed by proper psychedelic integration practices. While promising, the findings underscore the need for further research to establish evidence-based guidelines and address ethical and safety concerns. With continued investigation, ayahuasca could become a valuable tool for the trauma recovery of adverse childhood experiences.

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Appendix A

Abstract

Ayahuasca, a traditional Amazonian psychoactive brew, has shown therapeutic benefits for mental health disorders common in adults with childhood trauma. This mixed-methods study investigates ayahuasca's therapeutic potential for this specific population. Using an explanatory sequential design, quantitative data were collected from 77 participants and followed by semi-structured in-depth interviews with 11 selected participants. Measures included the *Childhood Trauma Questionnaire* (CTQ), *International Trauma Exposure Measure* (ITEM), *International Trauma Questionnaire* (ITQ), and the newly developed *Ayahuasca and Childhood Trauma Questionnaire* (ACTQ). Data were analyzed using descriptive and regression analysis for quantitative data and reflexive thematic analysis for qualitative data. Quantitative results showed that 75% of participants reported moderate to high levels of trauma processing, with 38% experiencing trauma-related memories. Perceived support positively impacted trauma processing, and 26% reported moderate to high levels of stress during ayahuasca experiences related to childhood trauma. Qualitative analysis identified seven themes and 25 subthemes, including *Processing of childhood trauma*, *Overcoming childhood trauma*, *Positive life changes afterwards*, and *Perception of ayahuasca as a potent healing agent*. Adverse experiences were generally accepted as part of the healing process. This study provides evidence for ayahuasca's therapeutic potential in processing traumatic memories and addressing childhood trauma sequelae. However, integration difficulties may arise and should be addressed with proper practices. Further research is needed to establish evidence-based guidelines and address ethical and safety concerns for individuals with childhood trauma.

Kurzfassung

Ayahuasca, ein traditioneller psychoaktiver Pflanzensud aus dem Amazonas, hat therapeutische Potential für psychische Störungen gezeigt, die bei Erwachsenen mit Kindheitstrauma häufig auftreten. Diese Mixed-Methods-Studie untersucht das therapeutische Potenzial von Ayahuasca für diese Population. Mit einem explanatorischen sequenziellen Design wurden zunächst quantitative Daten von 77 Teilnehmern erhoben, gefolgt von halbstrukturierten Tiefeninterviews mit 11 ausgewählten Teilnehmer*innen. Die Messinstrumente umfassten den *Childhood Trauma Questionnaire* (CTQ), *International Trauma Exposure Measure* (ITEM), *International Trauma Questionnaire* (ITQ) und den neu entwickelten *Ayahuasca and Childhood Trauma Questionnaire* (ACTQ). Die Daten wurden mittels deskriptiver und Regressionsanalyse für quantitative Daten und reflexiver thematischer Analyse für qualitative Daten ausgewertet. Die quantitativen Ergebnisse zeigten, dass 75% der Teilnehmer moderate bis hohe Traumaverarbeitung berichteten, wobei 38% traumaassoziierte Erinnerungen erlebten. Wahrgenommene Unterstützung wirkte sich positiv auf die Traumaverarbeitung aus, und 26% berichteten von moderatem bis hohem Stress während der Ayahuasca-Erfahrungen im Zusammenhang mit Kindheitstrauma. Die qualitative Analyse identifizierte sieben Themen und 25 Subthemen, darunter *Verarbeitung von Kindheitstrauma*, *Überwindung von Kindheitstrauma*, *Positive Lebensveränderungen danach* und *Wahrnehmung von Ayahuasca als potentes Heilmittel*. Schwierige Erfahrungen wurden im Allgemeinen als Teil des Heilungsprozesses akzeptiert. Diese Studie liefert Hinweise auf das therapeutische Potenzial von Ayahuasca bei der Verarbeitung traumatischer Erinnerungen und der Bewältigung von Kindheitstraumafolgen. Allerdings können Integrationsschwierigkeiten auftreten, die mit geeigneten Methoden abgefangen werden sollten. Weitere Forschung ist notwendig, um evidenzbasierte Richtlinien für einen sicheren Nutzen zu erstellen und ethische Bedenken bei Personen mit Kindheitstrauma zu adressieren.

Appendix B

Self-made Quantitative Measures

Sociodemographic Information

1. Please enter your age. _____ years
2. Please indicate your gender.
   - Female
   - Male
   - Other: _____
3. In which country where you born? _____
4. In which country do you (mainly) live? _____
5. What is your highest educational qualification?
   - Less than a secondary school leaving certificate
   - Secondary school leaving certificate without access to university or technical college
   - Secondary school leaving certificate with university or technical college entrance qualification
   - University degree (e.g., Bachelor, Master, Magister, Diplom, Staatsexamen)
   - Doctorate (e.g., Ph.D.)
   - Other: _____

Exclusion Criteria

The following questions are assessing some mental health issues that may lead to an exit of this study.

1. How many times in the past three month have you used:
   a) 4 or more drinks containing alcohol in one day
   (*One standard drink is about 1 small glass of wine (5 oz), 1 beer (12 oz), or 1 single shot of liquor.*)
   b) prescribed medication for non-medical reasons
   c) cannabis
   d) hallucinogens (ayahuasca, mescaline, LSD, mushrooms, ecstasy, etc.)
   e) other illegal drugs

   Possible Answers:
   - Never
   - Once or Twice
   - Weekly

- Daily or Almost Daily

2. In the past three month, did you see things that others can't or don't see? (*beyond a spiritual sense*)
    - Yes
    - No
3. In the past three month, have you ever felt that someone was playing with your mind?
    - Yes
    - No
4. In the past few weeks, have you wished you were dead or have you been having thoughts about killing yourself?
    - Yes
    - No

Psychotherapy Experience and Psychiatric Diagnoses

The next questions are related to your experience with psychotherapy and diagnosed mental health disorders. Please answer each question and select the answers that are most suitable.

1. Have you ever been in psychotherapy?
    - No
    - Once
    - Twice
    - Several times
2. Have you ever been diagnosed with any of the following psychiatric disorders (*check all that apply*):
    - Depression
    - Bipolar/manic depressive illness
    - Anxiety
    - Schizophrenia
    - Substance abuse
    - Eating disorder
    - Attention deficit disorder
    - Anger problems
    - Post-traumatic stress disorder

- Personality disorder
- Other mental illness _____

The following questions are visible only if the participant has psychotherapy experience:

Rate the following statements from "not at all" to "I completely agree".

3. Psychotherapy helped me to address issues related to childhood trauma.
4. I am content with the support I have received through psychotherapy.
5. I have tried various approaches but I don't feel psychotherapy did help me.

Possible Answers:

- Not applicable
- Not at all
- A little bit
- Moderately
- Quite a bit
- I completely agree.

Personal Experience With Ayahuasca

The following questions will ask you about your personal experience with ayahuasca. Please answer each item.

1. How often did you drink ayahuasca?
    - one
    - 2 to 5
    - 6 to 10
    - 11 to 20
    - more than 20
2. How often did you seek ayahuasca experiences?
    - more than once per month
    - around once per month
    - several times per year
    - few times per year
    - around once per year
    - less frequent

3. In which year was your first ayahuasca experience? _____
4. What are you main intentions for your ayahuasca experience(s)?
   Multiple answers are possible.
   - Curiosity
   - To gain understanding
   - Healing or therapeutic intentions
   - Spiritual intentions
   - Other: _____
5. In which setting(s) did your ayahuasca experience(s) take place?
   (*Multiple answers are possible*)
   - Individual use
   - Recreational use (party, etc.)
   - Ceremony/ritual with friends
   - Ceremony/ritual with shamans
   - Session with a therapist
   - Other: _____
6. Related to my life, I experienced ayahuasca as
   - healing / helpful / positive change
   - harmful / damaging / negative change
   - both healing and harmful
   - no perceived change
   - other: _____

The Ayahuasca Childhood Trauma Questionnaire (ACTQ)

Now you will be asked about how relevant the ayahuasca experience for dealing with childhood trauma or its sequelae and how you felt within the experience. Please answer each item.

The items are to be rated on a 5-point Likert scale ranging from "Not at all", "A little bit", "Moderately", "Quite a bit", to "Absolutely".

The ayahuasca experience(s):

1. Brought me memories about my traumatic childhood experience(s)?
2. Brought me insights about my traumatic childhood experience(s)?
3. Helped me to process my traumatic childhood experience(s)?

4. Helped me to see a new meaning about my traumatic childhood experience(s)?
5. Allowed me to not avoid uncomfortable memories/feelings about my childhood.
6. Helped me to feel forgiveness or compassion for people who have wronged me or people close to me.
7. Helped me to face my fears.

How do the following statements characterize your ayahuasca experience(s) that have been related to your traumatic childhood experience(s) (memories, feelings, reexperiencing, ...)?

1. I felt that I could accept everything as it was.
2. Some moments in the ayahuasca experience have been really difficult for me.
3. I felt helpless and that I had to take care of myself.
4. I felt overwhelmed by some feelings and/or memories.
5. I have felt traumatized by the ayahuasca experience.
6. I felt there was enough support for me.
7. I could communicate and share about my experience.

Finally, there is space for you if you would like to add something about these topics.

Appendix C

Exploratory Factor Analysis of the ACTQ Scale

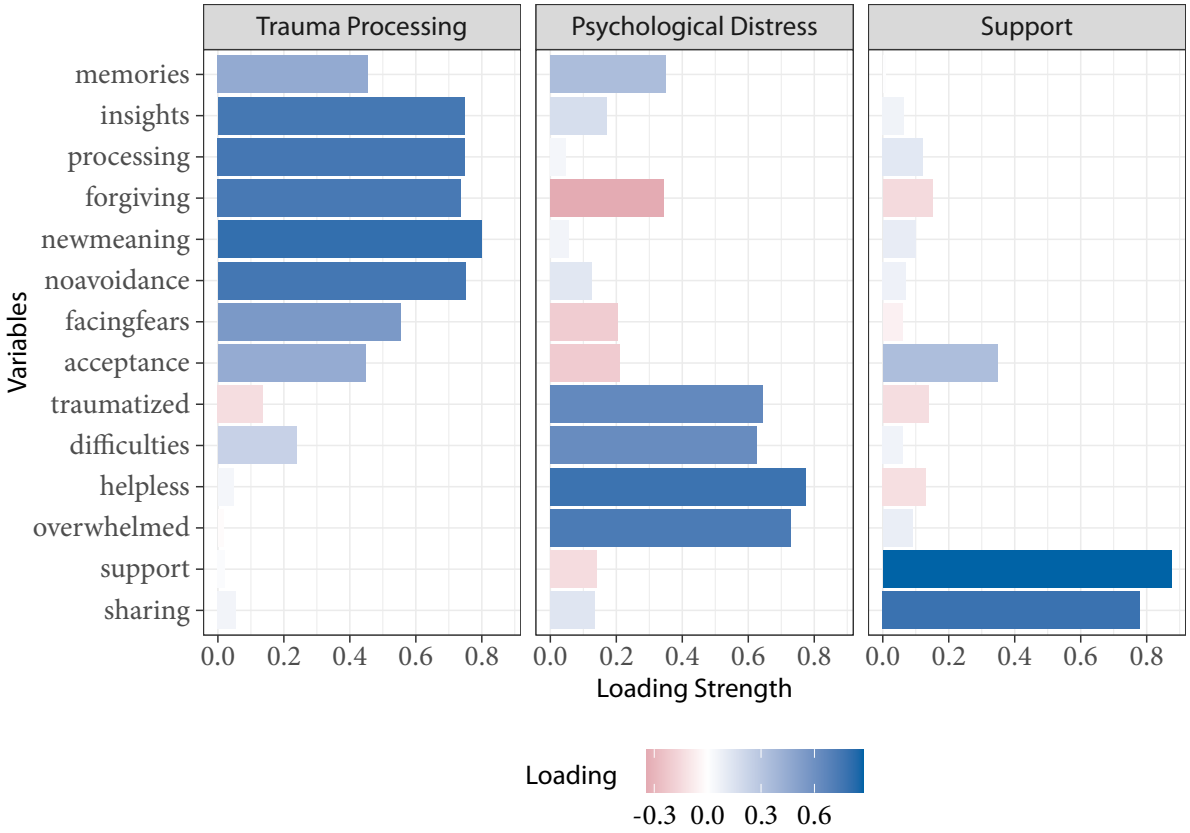
To examine the structure of the ACTQ Scale, an exploratory factor analysis has been conducted for all 14 items using principal axis factoring with an oblique rotation (oblimin).

Prior to the analysis, the factorability of the 14 ACTQ items was examined. The Kaiser-Meyer-Olkin test revealed an overall measure of sampling adequacy (*MSA*) of 0.79 with most MSA coefficient above 0.7. Besides, Bartlett's test of sphericity was significant (χ^2 = 587.88, p < .001) and the squared multiple correlations of each variable with all others are at least .3. Altogether, this indicates that the ACTQ is adequate for a factor analysis.

While parallel analysis of scree plots suggested a two-factor structure, visual analysis suggested to extract three factors. Thus, factor analyses with two and three factors have been conducted and analyzed. Results revealed that the three-factor structure is more interpretable and seems to better reflect the meaning of the items. Figure C1 shows an illustrative plot of the factor loadings, Table C1 provides concrete numbers.

Figure C1

Factor loadings based on a factor analysis with oblimin rotation for 14 items of the ACTQ (N = 77)



Factor 1 consists of 8 items on a 5-point Likert scale and was labeled *Trauma processing* due to the high loadings of the variables *memories*, *insights*, *forgiving*, *newmeaning*, *noavoidance*, *facingfears*, and *acceptance*. Factors 1 explains 27.62% of the variance with factor loadings ranging from .447 to .798. Note that the variable *memories* loads with 0.351 and the variable *forgiving* loads with −0.343 onto the second Factor. The variable *acceptance* loads with 0.347 onto Factor 3. Cronbach's alpha for the Trauma Processing subscale yields α = .875, 95% CI [.826, .910], McDonald's Omega is ω = .885, 95% CI [.833, .917].

Factor 2 comprises 3 items on a 5-point Likert scale and was labelled *Stress* due to the high loadings of the variables *difficulties*, *helpless*, *overwhelmed*, and *traumatized*. Factor 2 explains 16.83% of the variance with loadings of .625 and .774. Cronbach's alpha for the Stress subscale is α = .775, 95% CI [.670, .846], McDonald's Omega is ω = .791, 95% CI [.683, .854].

Factor 3 consists of 2 items on a 5-point Likert scale and was labelled *Support* due to the high loadings of the variables *support* and *sharing*. Factor 2 explains 12.93% of the variance with loadings of .780 and .875. Cronbach's alpha for the Support subscale is α = .810, 95% CI [.590, .917], McDonald's Omega is ω = .811, 95% CI [.614, .921].

Table C1

Factor loadings and communalities based on a pca with oblimin rotation for 14 items of the ACTQ (N = 77) with a cutoff value of 0.3

	Factor loading			
ACTQ Variable	Trauma Processing	Stress	Support	Communality
memories	0.455	0.351		0.347
insights	0.748			0.656
processing	0.749			0.680
forgiving	0.737	-0.343		0.537
newmeaning	0.798			0.741
noavoidance	0.751			0.650
facingfears	0.552			0.305
acceptance	0.447		0.347	0.532
support			0.875	0.814
sharing			0.780	0.670
traumatized		0.643		0.470
difficulties		0.625		0.477
helpless		0.774		0.621
overwhelmed		0.729		0.533

Appendix D

Semi-structured Interview Protocol

1. Can you tell me something about yourself and your background?
   Possible prompts:
   a) As the study is exploring more on Ayahuasca in the context of childhood trauma, can you tell me something about your childhood? You don't need to answer this questions if it feels to personal.
2. Tell me, how did you come to participate in an experience with ayahuasca?
   Possible prompts: a) How did you find out about the place and their rituals? b) How was the location of importance? c) How were the facilitators of importance? d) To wich extent was *trust* of importance?
3. Tell me about your intentions for the ayahuasca experience.
   Possible prompts: a) What has been most important for you? b) Looking back, did you had realistic expectations?
4. Tell me about your ayahuasca experience(s) that are related to your childhood trauma.
   Possible prompts: a) How would you describe key moments? b) How did you feel in the experience(s)? c) Have there been moments, were ayahuasca has helped you to overcome difficult situations?
5. Can you tell me if memories have been revealed in the experience and how you have felt with it?
   Possible prompts: a) Which emotions were linked to it? b) Did you feel like it was ok or in some way too much to handle? c) Did you have the feeling that you could stopped if you wanted?
6. Can you tell me how you felt the days after the experience?
   Possible prompts: a) How did you feel physically? b) How did you feel emotionally? c) How did you feel with study/work? d) Did you have specific adverse effects?
7. Can you tell me how it was to process the experience afterwards?
   Possible prompts: a) Did you had someone to share the experience? b) Do you feel you could integrate the experience?
8. Has something in your life changed due to this experience? If so can you tell me about?
   Possible prompts: a) How are you perceiving yourself in the world? b) How do you see your relationship with yourself? c) How do you see your relationships with others?
9. How do you view this experience / these experiences in your life when you look at the big

picture?

Possible prompts: a) Would you choose to do it again? Explain. b) Would you recommend it to others and why or why not?

10. Finally, is there anything else that you couldn't say and you want to share about your ayahuasca experience(s) in the context of childhood trauma?
11. How was it for you to share your personal experiences with me?

Appendix E

Information for Participants and Declaration of Consent

Dear participant,

We would like to invite you to participate in the study mentioned above. For this purpose, we would like to ask for your consent for the related processing of your personal data.

Your participation in this study is voluntary. You can refuse to participate at any time, without having to give a reason, or also withdraw your agreement to participate once the study has already started. There will be no negative consequences for you if you refuse to participate or if you withdraw from this study early.

This kind of study is necessary to gain new, reliable academic research results. However, your consent to participate in the study is an indispensable prerequisite for us to conduct this study. Depending on which parts of the study you participate in, this will be done online via clicks or in writing. Please take time to read the following information carefully and do not hesitate to ask questions.

Please only give your consent for this study

- if you have fully understood the type and procedure of the study,
- if you are willing to give your consent to participate, and
- if you are aware of your rights as a participant in this study.

What is the purpose of this study?

The planned study aims to find out more about a possible therapeutic potential (opportunities and risks) of ayahuasca experiences for adults with childhood trauma.

More specifically, the motivation for the ayahuasca experience, the quality of the ayahuasca experience in relation to traumatic memory(s), and the impact of the ayahuasca experience on the lives of the participants will be explored. In addition, connections between traumatic childhood experiences (presence, type, and frequency), possible symptoms of trauma sequelae, and specific factors of the ayahuasca experience will be investigated.

What is the procedure of the study?

The study is divided into two parts. The first part is an online survey, which will take about 20 minutes to complete. All you need to participate is access to an electronic device (smartphone, PC, tablet, etc.) and an internet connection. You will be asked to answer questions about your socio-demographic background, nature of your traumatic childhood experiences, any symptoms of trauma sequelae, your previous psychotherapeutic diagnoses and psychotherapy experience. Finally, you will be asked about various characteristics of your

ayahuasca experience and how it relates to your traumatic childhood experiences.

If you only want to participate in this first part, the data collection will be exclusively anonymous.

The second part is an interview will take place online 3-7 weeks after the online survey. If you are willing to participate in the second part of the survey, you will be asked to provide a contact information at the end of the online questionnaire. Based on the evaluation of the first part, you may be invited for an interview. However, the study coordinators will also inform you if you are not selected for the interview.

The interview will take approximately 60 minutes. You will be asked to answer questions regarding your motivation, the quality of the experience, any processing of traumatic childhood experiences, and possible effects of the ayahuasca experience on your life. For this purpose, an audio recording of the interview will be made to transcribe the interview in an anonymous written form and to evaluate it subsequently.

What are the benefits of participating in the study?

The results of this study will help to better assess the extent to which ayahuasca can be considered as a potential therapeutical agent for the treatment of trauma sequelae. The participants contribute with their personal experience to the scientific knowledge. Depending on their individual experience, they contribute to better understand and assess the risks and opportunities of ayahuasca experiences.

What are the possible risks of taking part this study? Could participants experience any discomfort or other side effects?

During the study, potentially upsetting topics are addressed (including traumatic childhood experiences, contents of the ayahuasca experience). Under normal circumstances, there are no unwanted after-effects.

You can only participate in the study if the following two items apply to you:

- Traumatic childhood experience, i.e., sexual, physical, and/or emotional abuse, or emotional and/or physical neglect experienced by yourself or as a witness.
- At least one experience with ayahuasca.

You <u>cannot</u> participate in the study if you have acute suicidality, acute substance abuse, or acute psychotic disorder.

Does participating in the study have any other effects on participants' lifestyle? What are the obligations resulting from participating?

Participation has no significant impact on lifestyle and there are no obligations. Your participation in the study can be discontinued at any time without any consequences for you.

What should participants do if they experience symptoms of complaints, unwanted side effects and/or injuries?

If you experience any form of psychological discomfort due to the interview, please contact the study coordinators. If you need urgent psychological help, you can find corresponding emergency numbers online:

- For Austria: https://www.psychologen.at/notfaelle
- For Germany: https://seelenchaos.de/selbsthilfe-und-psyche/notfallnummern-psyche
- Internationally:
  - https://www.helpguide.org/find-help.htm
  - https://checkpointorg.com/global/

However, please contact the study coordinators in any case.

In what cases is it necessary that participants withdraw from the study early?

Under certain circumstances, it is possible that the scientific research project may be terminated prematurely, e.g., for organizational reasons. In addition, the study coordinators may decide to terminate the participation of individuals in the study prematurely. Possible reasons for this could be, for example, that the participant does not meet the requirements of the study.

If important new information becomes known during the implementation of the scientific research project, which could affect your decision about the continuation of your participation in this scientific research project, you will be informed about it.

How will the data collected in this study be used?

Depending on your type of participation in this study, your data will be used differently.

If you only participate in the first part of the study and have not specified a contact option, all data will be collected and analysed anonymously. This means that it is not possible to assign the data to your person. Please note that a subsequent deletion of your data is not possible due to the anonymous data collection.

If you are also willing to participate in the second part of the study and have indicated a contact option, your data will be subject to data protection (see Art 4(5) General Data Protection

Regulation). In this case, your data will also be evaluated anonymously, but can be assigned to your person based on your contact option. Therefore, your contact data will be provided with an identifier for your project data and stored separately from the project data in different locations to which only authorized employees of the scientific research project and authorized scientists have access.

The study coordinators will only use this contact option to invite you for the interview after the anonymous evaluation.

Your personal data will not be used for any other purpose. Three weeks after the interview or if you are not selected for the interview, your contact data will be automatically deleted. After that, your provided data is completely anonymized, and a subsequent deletion of your data is impossible.

If you participate in an interview, the produced data, i.e., the original audio recording of your interview, will be evaluated exclusively by project members. During the analysis, transcripts are created in which all information that could lead to an identification of your person (e.g., names) and other references are changed, abstracted or removed from the transcripts.

The anonymized transcripts will be kept for 1,5 years after the end of the study for a possible publication and will be deleted thereafter. *The tape recording is deleted immediately after transcription*. The transcripts are evaluated anonymously.

Up to three weeks after the interview, you can revoke your participation in the study and request the deletion of your personal data and the audio recording. To do so, please contact the study coordinators (see point 10 in this document).

Only the persons participating in the research project have access to the collected data and are subject to the obligation of confidentiality. The data will only be passed on for statistical purposes and anonymously. Also, in any publications of the data of this study, no conclusions can be drawn about the participants.

Will there be any costs for the participants? Will they receive reimbursement or remuneration?

You will not incur any costs by participating in this scientific research project.

No remuneration or expense allowance will be paid for your participation in the scientific research project.

Possibility to discuss further questions

If you have any questions in connection with the study, please do not hesitate to contact the study coordinators. We will do our best to answer you as quickly as possible. Of course,

questions concerning your rights as a participant in the study will also be answered.

Declaration of consent

I agree to participate in the study "*Therapeutic Potential of Ayahuasca for Childhood Trauma*". Consent will be asked in the beginning of the interview.

The student coordinator provided me with clear and detailed information about the objectives, significance and scope of the study, as well as about the requirements resulting from my participation in the study. In addition, I have read this information text for participants and the declaration of consent, especially section 4 (regarding risks, discomforts or side effects). The study coordinator answered all my questions sufficiently and in a comprehensible manner. I had enough time to decide whether I would like to participate in this study. At the moment, I have no further questions.

I will follow the instructions that are necessary for conducting this study. However, I reserve the right to end my voluntary participation at any time, without this being to my disadvantage. If I want to withdraw from the study, I can do so at any time by contacting the study coordinators either in writing or verbally.

At the same time, I agree that my data collected in this study are recorded and analysed.

I agree that my data are permanently saved electronically in anonymised. Data that have not yet been anonymised or pseudonymised data are stored in a form that is only accessible to the project management and are secured in accordance with current standards. As soon as pseudonymization is no longer necessary for the study purposes, i.e. no later than three weeks after the interviews, the data will be completely anonymized. From this point on, deletion of the data is no longer possible.

If I have indicated a contact option and should I wish to have my data deleted at a later date, I can request this in writing or by telephone without giving reasons up to three weeks after I have been informed that I am not eligible for an interview, or up to three weeks after the interview has been made.

Should I participate in an interview for the second part of the study, I consent to the audio recording of the interview

I have read and understood the information for participants. I had the opportunity to ask all the questions I was interested in. My questions were answered fully and in a comprehensible manner.

I have received a copy of this information for participants and declaration of consent.