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Ayahuasca ceremonies: set and setting features across Italy and Colombia

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Abstract

Purpose. Ayahuasca ceremonies are currently practiced all over the world. This study investigates ayahuasca ceremonies in Colombia (where ayahuasca use is culturally entrenched) and Italy (where ayahuasca use has only recently spread).

Design/methodology/approach. 32 Italian (53% males; 47% females) and 28 Colombian (79% males; 21% females) ayahuasca ceremony participants completed an online survey. Ceremonial setting and set (motivations for ayahuasca use, ayahuasca perceived effects, and features of participants, i.e., drug use and problematic use, interpersonal dependency, spiritual orientation, quality of life) were investigated. Mann-Whitney U test, Pearson's χ^2 test and Fisher's exact test were used to compare the Italian and the Colombian sample.

Findings. No differences emerged in the ceremonial setting. Slight differences were observed in motivations for ayahuasca intake and religious beliefs, but not in the preparation for ceremonies, quality of life, interpersonal dependence, and spiritual orientation. Italians showed greater use of other psychoactive substances and more drug use problems.

Practical implications. Prevention regarding safer practices of consumption should be promoted to avoid improper uses.

Originality. Few studies have explored ayahuasca ceremonies (set and setting characteristics) in countries with different traditions on ayahuasca consumption. The results highlight that the use and experience of ayahuasca can take on different meanings depending on the cultural context.

Introduction

The contemporary literature refers to the term *ayahuasca* as meaning a psychoactive brew composed of *Banisteriopsis caapi* in combination with *Psychotria viridis* (*chacruna*) or *Diplopterys cabrerana* (*chagropanga*) (this latter combination is also known as *yajé*). Traditionally, ayahuasca is used by various indigenous groups in the Amazon area for heterogeneous purposes such as getting in touch with the spiritual and natural world, divination, witchcraft, understanding the etiology of diseases, and healing (Luna 2011).

The first European contacts with ayahuasca date back to the last half of the nineteenth century (McKenna 2006). However, foreigners had limited access to the brew until the twentieth century. From this period on, contacts with indigenous cultures increased because of the rubber boom, resulting in heterogeneous ayahuasca consumption contexts (Shanon 2002): i.e., Brazilian ayahuasca religions of Santo Daime, União do Vegetal and Barquinha (Labate et al. 2009), psychonautic uses in non-structured contexts (Ott 2011) and the ceremonial uses within the cross-cultural *vegetalismo*

(Tupper 2009). The Peruvian Spanish term *vegetalismo* refers to healing rituals involving the use of local plants, practiced by healers who are of mixed indigenous and non-indigenous heritage (*mestizo*) in Peruvian Amazonian communities (Tupper 2011). Cross-cultural *vegetalismo*, to which we refer to in this study, draws upon the tradition of *vegetalismo*. The term "cross-cultural *vegetalismo*" is employed here as defined by Tupper (2009; 2011) to denote "indigenous-style ayahuasca healing ceremonies conducted in an often overtly commodified way for non-indigenous clients both in the Amazon and abroad" (Tupper 2009, p. 119). In the so-called ayahuasca 'ceremonies' (de Mori 2021), ayahuasca is consumed in long group ayahuasca-drinking sessions led by a shaman and several facilitators.

Many studies have largely explored the effects of ayahuasca ceremonies on mental health (for a review, see Hamill et al. 2019) and have already highlighted ayahuasca's promising antidepressant, anxiolytic and antiaddictive properties (dos Santos et al. 2016; Nunes et al. 2016).

The literature has also highlighted that two non-pharmacological factors, namely the set (the individual characteristics of participants) and the setting (the physical, social and cultural context), can play an important role in the experience with psychedelics such as ayahuasca (Hartogsohn, 2016; Pontual et al. 2021; Uthaug et al. 2021). Set and setting have already been examined within specific ayahuasca intake contexts, such as the Santo Daime and União do Vegetal religious groups (Barbosa et al. 2009; Hartogsohn, 2021). Few studies (Perkins et al., 2021) have analyzed the set and setting of ayahuasca comparing Latin American countries with other countries.

The present research explores the ceremonial uses of ayahuasca in the context of cross-cultural *vegetalismo*. The aim is to investigate the setting and the features of ayahuasca ceremony participants across Colombia, where ayahuasca use is part of the Amazonian cultural heritage, and Italy, a country where ayahuasca use has only recently begun to spread.

Some cultural issues

Over the last decades of the twentieth century, many individuals from Western countries traveled to ayahuasca healing centers, often seeking spiritual enlightenment or alternative psychological or psychiatric interventions, that could resolve symptoms that exhibited a lack of response with Western therapeutic approaches (Winkelman 2005; Weiss et al. 2021). Progressively, ayahuasca use and ceremonies have expanded beyond the Amazon, towards Europe, America and Asia (Sánchez Aviléz and Bouso 2015), resulting in a mixing of indigenous and Western practices and uses which are still in evolution. The so-called 'globalization of ayahuasca' (Tupper 2008) has certainly facilitated worldwide knowledge of ayahuasca, but it has also led to some problematic implications. For instance, anthropological studies have well highlighted how indigenous knowledge and practices related to ayahuasca have recently been misrepresented and transformed (Fotiou 2016). Ayahuasca, indeed, is often presented in Western cultures in

a simplistic and stereotypical way, that is, as a panacea, essential for healthy and ecological living together (de Mori 2011). However, this view overlooks that, for example, the indigenous use of ayahuasca in specific sub-cultures (e.g., Peruvian Shipibo-Konibo, de Mori 2021) is ontologically different from the more recent Neo-shamanic uses of ayahuasca. Indeed, the former relies much more on the healer's abilities (who is the only one to drink ayahuasca) and considers ayahuasca as a tool for reaching the spirit world; the latter, on the other hand, have attributed a new meaning to the plant, which is consumed in communal ceremonies and is considered sacred and intrinsically therapeutic (de Mori 2021).

Furthermore, the globalization of ayahuasca has generated several forms of commercialization, business, and entrepreneurship around the ayahuasca brew and ceremonies (Peluso 2016). Concern has emerged about some ill-trained or manipulative healers, both in Amazon and abroad, who, underestimating the potential harms due to the careless administration of ayahuasca, attempt to make financial profits by exploiting ayahuasca ceremonies at the expense of naïve users (Dobkin de Rios 2005). The abuse of power within ayahuasca community has, in some cases, taken the form of sexual harassment and abuse, primarily involving female participants and male shamans from diverse cultures, as documented by a growing number of contributions from the literature (Fernández 2018; Peluso 2014; Peluso et al. 2020).

The globalization of ayahuasca has also prompted concern in many Western governments which have associated ayahuasca with drug use, often without distinguishing between recreational and religious uses (Rohde and Sander 2011) and reacting with reluctance or with prohibitionist laws (Labate and Feeney 2012). This is also the case in Italy, where ayahuasca has been illegal since the 14th of March 2022. Reports from qualitative studies suggest that participants in ayahuasca ceremonies from Western cultures see a clear differentiation between ceremonial use of plant medicines and recreational drug use (Dorsen et al. 2019). However, to date, current drug use and problematic use have never been examined among ceremony participants in Italy. Furthermore, it remains to be ascertained whether ayahuasca users from indigenous and Western cultures exhibit differences in current alcohol and drug use and problematic uses.

Ayahuasca experience, set and setting

The phenomenology of the ayahuasca experience is reported as involving visions, hallucinations, receiving meaningful messages (e.g., from entities, relatives or 'mother ayahuasca'), strong emotions (e.g., euphoria, anguish), visceral bodily sensations and physical reactions (e.g., vomiting, nausea, diarrhea) (Fotiou and Gearin 2019).

Several evidences suggest that the ritual use of ayahuasca may act as a catalyst for psychological changes or psychic processes (Schmid 2011; Renelli et al. 2020). Ayahuasca users themselves often report that ayahuasca catalyzes changes in their beliefs (Bathje et al. 2021). However, the effects of ayahuasca do not seem to be fully

explained by its pharmacological mechanisms (Re et al. 2016). In this regard, in the 1980's, Zinberg (1984) widely discussed how the understanding of the total effect of a drug is possible considering not only the pharmacology of the drug, but also another two factors: the set and the setting in which it is used. The 'set' is influenced by individual features and includes personal expectations about the drug effect for the individual, whereas the 'setting' comprehends the whole physical and social environment within which the drug is taken. To date, both set and setting are known to greatly impact personal experience with entheogens (Blainey 2015).

Within an ayahuasca ceremony, elements of the set may be psychological variables such as personality features, motives related to ayahuasca use, preparation for the experience (which often involves setting an intention, undergoing preparatory psychotherapy, adhering to dietary regimens and discontinuing various medications), mood state, psychopathology and suggestibility (Loizaga-Velder and Verres 2014; Breeksema et al. 2020; Callon et al. 2021). With respect to the setting, the effects of ayahuasca ceremonies may be influenced by sensory experience (e.g., the experience of traditional Amazonian songs, namely *icaros*; whistles; smoke blowing), being alone or in a group, the quality of containment and guidance during the experience (Hartogsohn 2017; Uthaug et al. 2021). Additionally, a significant aspect of the setting can be integration, which may involve various post-ceremony practices (e.g., group sharing, artistic expression, meditation) aimed at attributing a sense to ceremonial experiences and applying the insights gained to facilitate meaningful changes in one's physical and psychological condition (Callon et al. 2021). Moreover, according to Grob (2006), ayahuasca effects may also differ greatly depending upon the cultural context, which may range from traditional native Amazonian rituals to *mestizo* healing ceremonies, syncretic religions' rituals and psychonautic uses.

However, despite the evidence that the combination of set, ceremonial setting, and cultural context may play an important role within the ayahuasca experience, few studies have compared these aspects all together across different cultural contexts. The present study, therefore, investigates the experience of the ceremonial setting, the motives related to ayahuasca intake, the perceived effects of ayahuasca, the current use of other psychoactive substances, drug problematic use, interpersonal dependency, spirituality, and quality of life among Italian and Colombian ceremony participants.

Material and methods

Procedures

This cross-sectional study involves "seldom heard" groups. Therefore, respondents were recruited using target sampling (Remy et al. 2014), a non-probabilistic sampling method which has proved effective as a recruitment technique to seek out members of the target population. The target population was then enrolled through direct connections of a non-indigenous shaman who contributed to spread the online

survey within ayahuasca ceremony contexts pertaining to the cross-cultural *vegetalismo*, both in Italy and in Colombia. Participants were sent out an email, were asked to complete an anonymous self-administered online survey (in Google Forms with the provided URL) about ayahuasca use and to spread it among their networks of other ayahuasca ceremony participants. Participants were voluntary. Eligible individuals had to: 1) be at least 18 years old; 2) have consumed ayahuasca at least once in their lifetime in a ceremonial context.

Each participant provided his/her informed consent before starting the survey. Data was collected from the 5th of January to the 4th of February 2022. This research was conducted in accordance with the Helsinki Declaration and was approved by the Bioethical Committee of the University of Bologna, Prot. n. 69843, 25/03/2022. The data collection occurred prior to the 14th of March 2022, the date on which ayahuasca became illegal in Italy.

Measures

The survey was applied in Spanish (translated by a Spanish native speaker) and Italian language for respective countries (see the Supplementary Material for survey items and response options). The research tools stemmed from a literature review on ayahuasca ceremonies and a discussion with experts (two ayahuasca ceremonies attendees and two researchers in New Psychoactive Substances (NPS).

Sociodemographic characteristics

Participants were asked about their age, sex, romantic status, region of residence, educational attainment, and occupational status.

Ayahuasca consumption

We collected information on the age at the first ayahuasca use, information sources related to the ceremonies attended, frequency of ayahuasca ceremonies attended during the previous year (from 0 = "Never" to 4 = "Daily or almost") and days passed since the last ayahuasca drinking. Participants were also asked if they generally consume ayahuasca administered by an indigenous shaman (*taita*), by a non-indigenous person trained as a shaman with a formal apprenticeship or if they generally consume ayahuasca in a non-ceremonial context.

Individual preparation for the ceremonies

Participants were asked if they generally practice a preparation before ayahuasca consumption, named as *dieta* (e.g., refraining from specific food, alcohol, drugs and sex) and how much time before the ayahuasca drinking they start the preparation.

Motives related to ayahuasca intake

For what concerns motives related to ayahuasca use, we asked how much participants agree to sentences exploring the use of ayahuasca for research or anthropological studies reasons, sensation seeking, self-awareness or self-exploration, spiritual reasons, physical and psychological issues, drug addiction issues.

Ceremonial setting

The ceremonies' setting structure and its perceived utility was examined with items like "How much were *icaros* used in the ceremonies in which you participated?", "How useful do you think the *icaros* have been for you?" or "How much did you feel understood, respected, and non-judged about your experience during the integration?".

Phenomenology of the ayahuasca experience

Participants were asked how much, during the ceremony(s), they had experienced specific physical reactions (e.g., vomit or diarrhea), visions and changes of body perception (e.g., dissolution of perceived body boundaries, visions) and emotions (e.g., fear, gratitude).

Perceived impact of ayahuasca use during the weeks following the ayahuasca experience

For what concerns the perceived impact of ayahuasca use, participants were asked to what extent they had experienced, in the two weeks following the ayahuasca consumption ceremony(s), pleasant and unpleasant feelings. Furthermore, they were asked how much they agreed to sentences such as "After ayahuasca use, I share my experience with beloved people", "After ayahuasca use, I wish to repeat the experience", "After ayahuasca use, I am more empathetic and sociable".

Current drug use

The other substances' use was explored by asking participants how often, during the previous year, they had used other plant medicine (e.g., San Pedro, Iboga, Psilocybin mushrooms etc.) and psychoactive substances (e.g., alcohol, hashish/marijuana, cocaine etc.). Response options were: 0 = Never, 1 = Rarely (once-twice during the past year), 2 = Occasionally (maximum 5 times during the past year), 3 = Sometimes (once-twice a month), 4 = Often (3-4 times a month), 5 = Very often (2-3 times a week), 6 = Always (daily).

Drug problematic use

The *Drug Abuse Screening Test* (Skinner 1982), which includes 10 binary items ("Yes" / "No"), was used to assess drug problematic use. To measure internal consistency of the Italian and Spanish scales, we used the Cronbach's alpha, whose values were .67 and .88

for the Italian and the Spanish versions, respectively. Considering the indications of Netemeyer and colleagues (2003) about the ways to interpret Cronbach's alpha values, we deem the internal consistency value of the Spanish version to be good and that of the Italian version to be acceptable.

Interpersonal Dependency

The *6-item Interpersonal Dependency Inventory* (McClintock et al. 2017) was used to assess interpersonal dependency, whose core dimensions are emotional dependency and functional dependency. Individuals with high "functional dependency" have the tendency to rely on some other strong person since they tend not to feel competent enough to care of themselves in a practical sense. Individuals with high "emotional dependency" have the same need to rely on someone else, but not because of a lack of self-sufficiency in practical matters; rather, because the absence of such a connection makes them experience deep loneliness and a sense of emptiness (Arntz, 2005). Participants were asked to rate six sentences from 1 = "Not characteristic of me" to 4 = "Very characteristic of me". We considered the Cronbach's alpha values good for the Spanish version (.77) and acceptable for the Italian version (.69) (Netemeyer et al. 2003).

Spirituality

Participants were asked information about their religious/spiritual belief and were asked how often, during the past year, they had attended meditative and spiritual practices (e.g., Yoga, meditation, chanting mantra / saying prayers). Response options were: 0 = Never, 1 = Rarely (once-twice during the past year), 2 = Occasionally (maximum 5 times during the past year), 3 = Sometimes (once-twice a month), 4 = Often (3-4 times a month), 5 = Very often (2-3 times a week), 6 = Always (daily).

The *6-item Spirituality Self-Rating Scale* (Galanter et al. 2007), which includes 6 sentences on a 5-point Likert scale (from 1 = "Strongly disagree" to 5 = "Strongly agree") was used as a global measure of spiritual orientation to life. The Cronbach's alpha values (.77 and .73 for the Italian and the Spanish, respectively) indicated a good internal consistency (Netemeyer et al. 2003).

Quality of life

The *World Health Organization Quality of Life – Brief Version* (WHOQOL-BREF, (Skevington et al. 2004), a 26-item self-report questionnaire on a 5-point Likert scale, was used to examine the quality of life, intended as individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. The Cronbach's alpha values (.81 and .93 for the Italian and the Spanish versions, respectively) showed a high internal consistency (Netemeyer et al. 2003).

Data analysis

Data analysis was performed using SPSS 20.0 (IBM Corp. 2011). There was no missing data in the dataset. Descriptive statistics on sociodemographics were calculated. Mann-Whitney *U* tests, Pearson's χ^2 test, and Fisher's exact test were used to compare the Italian and Colombian sample in continuous, categorical and dichotomic variables, respectively.

Results

Participants

A total of 62 individuals completed the survey. Two respondents were excluded since they did not fulfill the inclusion criteria. The final sample involved a total of 60 participants who have taken part in an ayahuasca ceremony at least once in their lifetime.

The Italian sample was comprised of 32 individuals coming from the North of Italy: Emilia-Romagna ($n = 3$), Friuli Venezia Giulia ($n = 3$), Lombardy ($n = 5$), Piedmont ($n = 3$), Tuscany ($n = 7$), Trentino-Alto Adige ($n = 1$) and Veneto ($n = 10$).

The Colombian sample consisted of 28 individuals, mostly resident in the region of Putumayo ($n = 18$). The other Colombian participants came from the region of Amazonas ($n = 1$), Atlántico ($n = 1$), Caldas ($n = 1$), Cundinamarca ($n = 1$), Huila ($n = 1$), Magdalena ($n = 2$), Nariño ($n = 1$) and Tolima ($n = 2$).

Details on the Italian and Colombian sample are shown in Table 1.

[-----Insert Table 1 approximately here-----]

Ayahuasca consumption

Colombian respondents reported to have started drinking ayahuasca significantly earlier than Italian respondents ($p = .003$) (see Table 2). The Italian sample reported to have learned about ayahuasca ceremonies mainly through word of mouth, whereas the Colombian sample tended to report direct connections with the ayahuasca context or with curanderos or facilitators ($p = .015$). Moreover, most of the Colombian participants stated that they generally receive ayahuasca from an indigenous shaman, while most of the Italians said they consumed ayahuasca from a non-indigenous person trained as a shaman with a formal apprenticeship ($p < .001$).

[-----Insert Table 2 approximately here-----]

Individual preparation for the ceremonies

Fisher's exact test did not find any statistically significant differences in the individual preparation for the ceremonies (see Table 3). Participants of both samples are similarly used to refraining from drinking alcohol, taking psychoactive drugs, practicing

sexual abstinence and refraining from eating specific food. Considering only participants who generally practice a preparation before attending ayahuasca ceremonies, details on their preparation time are shown in detail in Figure 1.

[-----Insert Figure 1 approximately here-----]

Motives related to the ayahuasca intake

In both samples, some of the main motives for using ayahuasca were to acquire a deeper self-awareness and / or self-exploration, reasons connected to spirituality and the wish to solve psychological problems (see Figure 2). Additionally, Colombians reported taking ayahuasca to access an interesting and/or exciting experience more frequently than Italians ($p = .005$) and to solve physical issues ($p = .031$) (see Table 3).

[-----Insert Figure 2 approximately here-----]

[-----Insert Table 3 approximately here-----]

Ceremonial setting

The Mann-Whitney test did not find any statistically significant differences between Italian and Colombian participants' evaluation of the ceremonial setting, except for the perception of having received enough information on how to prepare for the ceremony and how to deal with possible difficulties during the ayahuasca consumption ($p = .010$), which was higher in the Italian sample compared to the Colombian sample (see Figure 3 and Table 4).

[-----Insert Figure 3 approximately here-----]

[-----Insert Table 4 approximately here-----]

Phenomenology of the ayahuasca experience

We found statistically significant differences between the Italian and the Colombian sample with respect to the occurrence of physical reactions ($p < .001$), the sensation of dissolution of perceived body boundaries ($p = .021$) and the perception of being part of a whole ($p = .029$), which were on average experienced more frequently by Italian participants compared to Colombians (see Figure 4 and Table 5).

[-----Insert Figure 4 approximately here-----]

[-----Insert Table 5 approximately here-----]

Perceived impact of ayahuasca use

During the two weeks following the ayahuasca intake, Italians experienced pleasant feelings, such as gratitude and love more frequently than Colombians ($p = .005$). No other statistically significant differences were found in the perceived impact of ayahuasca use (See Figure 5 and Table 6).

[-----Insert Figure 5 approximately here-----]

[-----Insert Table 6 approximately here-----]

Current drug use

Italian participants reported to have consumed more frequently than Colombians plant medicine such as San Pedro ($p = .002$) and Psilocybin mushrooms ($p < .001$) during the previous year (see Figure 6 and Table 7).

[-----Insert Figure 6 approximately here-----]

Furthermore, Italians reported to have consumed alcohol ($p < .001$), hashish / marijuana ($p < .001$), cocaine ($p = .037$) and MDMA / ecstasy ($p = .010$) more frequently than Colombians during the previous year (see Figure 7 and Table 7).

[-----Insert Figure 7 approximately here-----]

[-----Insert Table 7 approximately here-----]

Drug abuse and individual features

The Mann-Whitney test found a statistically significant difference between Italian and Colombian participants in the DAST-10 ($p < .001$), showing that Italian participants exhibit a higher level of problems related to drug abuse compared to Colombian respondents (see Table 8).

No statistically significant differences between Italian and Colombian respondents were found with respect to the quality of life, interpersonal dependency and levels of spiritual orientation. However, Italians reported to have practiced yoga ($p = .011$) and meditation ($p = .006$) more frequently than Colombians during the previous year. Regarding their religious or spiritual beliefs, while most Colombian participants reported more frequently a Christian religious belief, most Italian participants reported to believe in 'Other' creeds, which were not identifiable among the major religious groups ($p < .001$).

[-----Insert Table 8 approximately here-----]

Discussion

The present study aimed to investigate the individual characteristics of ayahuasca ceremony participants, ayahuasca experience and ceremonial setting among ayahuasca users coming from Italy and Colombia, two countries with a different history and tradition regarding the use of ayahuasca. Although the use of ayahuasca is traditionally anchored to Colombian cultural roots, comparing the Italian and the Colombian samples, the individual preparation for the ceremonies and the ceremonial setting proved quite similar. However, significant differences between the Italian and Colombian participants were observed regarding the motives related to the ayahuasca intake, the phenomenology of the ayahuasca experience, the use of other plant medicine and current drug use and abuse.

Regarding drugs, previous literature had already shown that drinking ayahuasca within naturalistic settings is associated with lower current alcohol and drug use than taking ayahuasca within other contexts (Perkins et al. 2022). In our study we found that, during the previous year, Italian participants used San Pedro, Psilocybin mushrooms, alcohol, hashish / marijuana, Cocaine, MDMA / ecstasy more frequently than Colombians. Furthermore, compared to Colombian respondents, Italian participants showed more severe problems related to drug abuse.

One explanation for this finding may be linked to the motivation that led our Italian respondents to participate in ayahuasca ceremonies. Consistently with previous studies (e.g., Winkelman 2005; Gearin 2016), our participants, both Italians and Colombians, reported the enhancement of self-awareness and self-care as the major motivations to take ayahuasca. However, around 25% of Italian participants also reported taking ayahuasca to solve addiction problems. Since ayahuasca became famous in Western countries as a self-care practice (Bouso and Sánchez Aviléz 2020), especially for individuals whose symptoms showed recidivism with Western addiction treatments (Weiss et al. 2021), it is possible that part of our Italian sample reflects this trend.

Another explanation for our finding of a more prominent drug use and abuse among Italian participants may be related to the cultural context. Firstly, it should be considered that the drug market may differ from Italy to Colombia and, thus, our participants may have had a different accessibility to diverse psychoactive substances. Additionally, in Italy, there is a widespread consumption of caffeine, nicotine (Gracia-Lor et al. 2020) and alcohol, with alcohol being the most commonly used psychoactive substance within the culture (Mäkelä 1983). However, over the past decade, Italy has observed a growing trend in polysubstance use, which also includes the consumption of psychoactive substances not traditionally associated with Italian culture (Zambon et al. 2017). Given the significant physical and psychological impact that may result from the use of ayahuasca, the use of which is not part of Italian culture, it is conceivable that our Italian respondents who have experienced ayahuasca may also have experimented with other psychoactive substances.

In Amazonia, instead, ayahuasca use is part of a cultural heritage (Antunes 2019). Indeed, in the present study, among Colombians, we found an earlier age at the first ayahuasca intake; a higher percentage of individuals reporting direct connections with the ayahuasca context; and ayahuasca being generally administered by an indigenous shaman rather than a non-indigenous person trained as a shaman. Colombians, compared to Italians, also reported greater a tendency to drink ayahuasca to solve physical problems, probably due to the common use of plant medicine for such purposes in the Amazon basin (Sanz-Biset et al. 2009).

Individual preparation for ceremonies was found to be practiced similarly by both samples. However, as much as our results indicate similarities at the quantitative level, it should be nevertheless noted that different meanings can be attributed to the dietary regimes preceding ayahuasca intake, as well as to other set and setting aspects, depending on whether they are pertaining to Amazonian *vegetalismo* or to Western contexts of ayahuasca consumption (Gearin and Labate 2018).

The phenomenology of the ayahuasca experience and its perceived effects during the following weeks are reported as more intense by Italian participants. During the ceremonies, they experienced more frequently the perception of dissolution of body boundaries, the sensation of being part of a whole, and physical reactions such as diarrhea and nausea; they also reported more frequently to have experienced positive feelings during the weeks following the ayahuasca intake. It can be hypothesized that since Italian respondents have been ayahuasca consumers for a shorter time, they tend to experience the effect of ayahuasca with more intensity than Colombians or, alternatively, they tend to pay more attention to the effects of ayahuasca and, consequently, report them to a greater extent. This explanatory hypothesis, however, finds only partial support in the existing literature. Regarding the perception of dissolution of body boundaries, an earlier study (Uthaug et al., 2018) including participants from Colombia and the Netherlands did not find differences in levels of ego dissolution (measured before the ceremony, the next day and 4 weeks later the ceremony using the Ego Dissolution Inventory) of first-time and experienced ayahuasca users. With regard to physical reactions, Bouso and colleagues (2022) found that general symptoms (such as vomiting/nausea) were more likely in ayahuasca users with a higher age at the time of first ayahuasca use. Nevertheless, it should be noted that other factors could contribute to the explanation of our findings. For example, different dosages, strength and quality of the brew, different environmental settings or differences in some individual set features (e.g., attention, intention, expectations) may influence the experience with ayahuasca (Callaway et al., 1999).

Previous research warned about how the powerful experiences of ayahuasca drinkers may be hard to contextualize and to integrate by Westerners as incongruent with their normative value system (Lewis 2008). This issue elevates the importance of specific setting features such as the trust in the leader or in facilitators, the perception of physical safeness and emotional support from others, the integration, and the availability of a

time span aimed at expressing gratitude, emotions, doubts and thoughts, all aspects that have been rated as adequately experienced by our respondents (both Italians and Colombians) and which previous evidence had already identified as relevant within the ayahuasca experience (Lafrance et al. 2017).

With respect to other individual differences, the Italian and Colombian samples showed no differences in levels of quality of life and interpersonal dependency. Although no statistically significant differences emerged in the spirituality scale, among Italian participants we observed a greater tendency to believe in 'other creeds' which are not ascribable to the major religious groups. Moreover, Italians had practiced yoga and meditation more frequently than Colombians during the previous year. These features seem to reflect the recent Western spiritual turn towards 'do-it-yourself-religion' (Baerveldt 1996), which consists in a tendency to combine traditions and beliefs into 'idiosyncratic packages', resulting in a fragmented spirituality (Houtman and Aupers 2007).

With regards to demographic characteristics, it should be noted that the results we discussed reflect two samples of adult participants, with medium to high education, predominantly unmarried and in employment. Regarding gender, a consideration is needed. The gender imbalance we found in our Colombian sample seems to reflect certain dynamics of traditional Amazonian shamanism. For example, among various indigenous groups, ayahuasca usually was consumed by shamans (who were mostly men) and by male members of the community (Fotiou 2014). Shepard (2014) noted that women of Matsigenka indigenous group (Southeastern Peru) are reluctant to consume ayahuasca. In the Siona culture, pregnant and menstruating women are not allowed to enter the yajé session ritual space (*maloca*) (Fernández 2014). Furthermore, among the Tukano Indians of the Vaupés in northwestern Amazonia (Colombia), only adult males are yajé healers and are allowed to drink yajé (Reichel-Dolmatoff 1970).

Limits and Conclusions

It is important to note some limitations of the present study. In particular, the target sampling method and the small samples only allowed for exploratory comparisons between the two settings, and the results cannot be generalized. Reporting and recall biases may have been introduced because of the self-reported online measures, often involving retrospective assessments. Furthermore, we lack information on the composition and dosage of the ayahuasca consumed by respondents, which may have influenced their experiences.

However, the present study also has the merit of having analyzed the ayahuasca experience considering together the individual set, the ceremonial setting and the cultural context. Furthermore, it contributes to filling the gap in the literature on ayahuasca ceremonies in Italy and the current drug use and abuse in ayahuasca ceremony participants coming from both an indigenous-based and a Western culture.

Previous evidence had already warned that moving ayahuasca away from a medical or spiritual context may entail some dangers, such as, for example, an increased risk of intoxication in recreational uses involving the consumption of N,N-dimethyltryptamine (one of the main active constituents of ayahuasca) through smoking or inhalation (Lanaro et al. 2015). Other improper ayahuasca uses may include experimenting ayahuasca in ceremonial settings lacking proper supervision by experienced shamans; consuming ayahuasca while taking other psychoactive substances that could lead to medical complications; experiencing ayahuasca without a spiritual or therapeutic intent; attempting to prepare and/or consume alone ayahuasca, without thorough knowledge of its preparation and consumption (Trichter 2010). Based on our results, considering the greater current drug use and the more severe problems related to addiction found in the Italian sample, it cannot be excluded that cultural contexts where ayahuasca is not rooted may be at higher risk of improper uses. Future studies should employ in-depth qualitative interviews to explore the meanings underlying Italian ayahuasca uses. Furthermore, additional research should examine the ayahuasca experience and effects, comparing various ayahuasca uses (e.g., ceremonial, medical, psychonautic) within different cultural contexts (e.g., indigenous-based vs. Western cultures). A deepened understanding of the diverse meanings attributed by users in different cultural contexts and consumption settings could contribute to the enhancement of prevention policies, which are crucial to mitigate risks, especially in Western cultures, where ayahuasca use lacks historical and cultural roots.

Declarations

Conflict of interest

On behalf of all authors, the corresponding author states that there is no conflict of interest.

Ethics approval

The present research was performed in line with the principles of the Declaration of Helsinki and was approved by the Bioethical Committee of the University of Bologna (Prot. n. 69843, 25/03/2022).

Consent to participate

Informed consent was obtained from all individual participants included in the study.

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Tables

Table 1. Sociodemographic characteristics of the Italian and Colombian samples.

	<i>Italy (n = 32)</i>	<i>Colombia (n = 28)</i>
Sex <i>n</i> (%)		
<i>Females</i>	15 (47)	6 (21)
<i>Males</i>	17 (53)	22 (79)
<i>Other (Non-binary)</i>	0 (0)	0 (0)
Age mean (SD) [range]		
	37.4 (9.0) [26-57]	32.8 (9.2) [21-56]
Educational Attainment <i>n</i> (%)		
<i>Lower-secondary education</i>	1 (3)	5 (18)
<i>Upper-secondary education</i>	18 (56)	5 (18)
<i>Undergraduate degree</i>	2 (6)	13 (46)
<i>Graduate degree</i>	6 (19)	5 (18)
<i>Post-graduate</i>	5 (16)	0 (0)
Romantic status <i>n</i> (%)		
<i>Single</i>	12 (38)	12 (43)
<i>In a relationship</i>	11 (34)	5 (18)
<i>In a cohabitation</i>	7 (22)	6 (21)
<i>Married</i>	2 (6)	4 (14)
<i>Separated / Divorced</i>	0 (0)	1 (4)
Occupational status <i>n</i> (%)		
<i>Student</i>	2 (6)	2 (7)
<i>Labourer</i>	1 (3)	1 (4)
<i>Clerk</i>	0 (0)	1 (4)
<i>Artisan / Merchant</i>	4 (13)	6 (21)
<i>Teacher</i>	3 (9)	0 (0)
<i>Employed</i>	5 (16)	6 (21)
<i>Physician / Lawyer / Entrepreneur</i>	2 (6)	4 (14)
<i>Executive</i>	0 (0)	4 (14)

<i>Other</i>	12 (38)	2 (7)
<i>Unemployed jobseekers</i>	1 (3)	2 (7)
<i>Without a job and not seeking one</i>	2 (6)	0 (0)

Table 2. Differences between the Italian and Colombian sample in ayahuasca consumption.

	<i>Italy</i>	<i>Colombia</i>	<i>Statistics</i>	
	<i>Mdn (Q1-Q3), Mean Rank</i>		<i>U, Z</i>	<i>p</i>
<i>Age at first ayahuasca drinking</i>	30.0 (25.0-41.0), 36.8	22.5 (12.0-31.5), 23.3	245.0, -3.0	.003**
<i>Ayahuasca ceremonies during the previous year</i>	1.0 (1.0-2.0), 26.7	2.0 (1.0-2.0), 34.9	325.0, -1.9	.052
<i>Days passed since the last ayahuasca consumption^a</i>	4.0 (4.0-4.0), 36.7	4.0 (3.0-4.0), 26.9	347.0, -1.9	.054
	<i>n (%)</i>		χ^2	<i>p</i>
<i>Source of information on ayahuasca ceremonies</i>				
<i>Newsletter</i>	0 (0)	1 (4)	14.171	.015*
<i>Social media</i>	3 (9)	2 (7)		
<i>Word of mouth</i>	20 (63)	6 (21)		
<i>Direct connections</i>	8 (25)	14 (50)		
<i>Family/relatives</i>	0 (0)	4 (14)		
<i>Other</i>	1 (3)	1 (4)		
<i>Ayahuasca administrator</i>				
<i>An indigenous shaman</i>	11 (34)	25 (89)	19.994	< .001***
<i>A non-indigenous person trained as a shaman</i>	20 (63)	2 (7)		
<i>Non-ceremonial</i>	1 (3)	1 (4)		

^a Measured on a 6-point scale: 0 = never; 1 = rarely (1-2 times per year); 2 = sometimes (maximum 6 times within the year); 3 = often (about 1 time per month); 4 = very often (3-4 times per month); 5 = always (daily or almost daily). ^b Measured on a 4-point scale: 1 = one day; 2 = less than one week; 3 = less than one month; 4 = more than one month. ***p < 0.001; **p < 0.01; *p < 0.05

Table 3. Differences between the Italian and Colombian sample in individual preparation and motives related to the ayahuasca intake

	<i>Italy</i>	<i>Colombia</i>	<i>Statistics</i>	
	<i>Yes n (%)</i>	<i>Yes n (%)</i>	<i>Fisher's Exact test</i>	<i>p</i>
<i>Individual preparation ^a</i>				
<i>Refraining from eating specific food</i>	22 (68.8)	18 (64.3)		.787
<i>Refraining from drinking alcohol</i>	30 (93.8)	26 (92.9)		1.000
<i>Refraining from taking psychoactive drugs</i>	26 (81.3)	23 (82.1)		1.000
<i>Sexual abstinence</i>	23 (71.9)	18 (64.3)		.586
	<i>Mdn (Q1-Q3), Mean Rank</i>		<i>U, Z</i>	<i>p</i>
<i>Motives related to the ayahuasca intake ^b</i>				
<i>Research or anthropological study</i>	2.0 (1.0-3.0), 33.1	1.5 (.0-2.8), 27.5	365.0, -1.3	.207
<i>To access to an interesting/exciting experience</i>	2.0 (1.0-3.0), 24.8	3.0 (2.0-4.0), 37.1	264.5, 2.8	.005**
<i>Self-awareness / self-exploration</i>	4.0 (3.3-4.0), 33.1	4.0 (3.0-4.0), 27.6	366.0, -1.5	.141
<i>Spiritual purposes</i>	4.0 (3.0-4.0), 29.4	4.0 (3.0-4.0), 31.8	412.0, -.6	.551
<i>To solve physical issues</i>	2.0 (1.0-3.0), 26.1	3.0 (2.0-4.0), 35.6	306.0, -2.2	.031*
<i>To solve psychological problems</i>	3.0 (2.3-4.0), 29.8	3.0 (3.0-4.0), 31.3	425.0, -.4	.716
<i>To solve addiction problems</i>	2.0 (.3-2.8), 27.6	3.0 (.0-4.0), 33.8	355.5, -1.4	.161

^a Measured on a dichotomic scale: 0 = no; 1 = yes; ^b Measured on a 5-point scale: 0 = Completely disagree; 1 = In disagree; 2 = Neither agree, neither in disagree; 3 = Agree; 4 = Completely agree. ***p < 0.001; **p < 0.01; *p < 0.05

Table 4. Differences between the Italian and Colombian sample in ceremonial setting

	<i>Italy</i>	<i>Colombia</i>	<i>Statistics</i>	
	<i>Mdn (Q1-Q3), Mean Rank</i>		<i>U, Z</i>	<i>p</i>
<i>Ceremonial setting ^a</i>				
<i>Information on how to prepare for the ceremony and how to face possible difficulties</i>	3.0 (2.0-4.0), 35.7	2.0 (2.0-3.0), 24.6	283.0, -2.6	.010*
<i>Use of icaros</i>	3.0 (2.0-4.0), 32.7	3.0 (2.0-3.0), 28.0	378.5, -1.1	.277
<i>Utility of icaros</i>	3.0 (3.0-4.0), 32.1	3.0 (2.0-4.0), 28.7	398.0, -.8	.432
<i>Use of other sensorial experiences of support (e.g., smoke blowing, rapè)</i>	3.0 (2.0-3.0), 29.3	3.0 (2.3-3.8), 31.8	410.5, -.6	.545
<i>Utility of other sensorial experiences of support</i>	3.0 (2.0-3.0), 29.7	3.0 (2.0-3.0), 31.4	422.0, -.4	.681
<i>Physical safeness</i>	3.0 (2.0-4.0), 34.0	3.0 (2.0-3.0), 26.5	336.5, -1.7	.082
<i>Trust in the leader and facilitators</i>	3.0 (3.0-4.0), 32.0	3.0 (3.0-4.0) 28.8	400.5, -.8	.446
<i>Physical and emotional support from others</i>	3.0 (2.3-4.0), 32.1	3.0 (3.0-3.0), 28.7	398.0, -.8	.416
<i>Time span to express gratitude, emotions, doubts and thoughts</i>	3.5 (3.0-4.0), 33.8	3.0 (2.3-3.0), 26.7	341.0, -1.7	.091
<i>Feeling of comprehension, respect and absence of judgement during the integration</i>	4-0 (3.0-4.0), 31.5	3.0 (3.0-4.0), 29.4	416.5, -.5	.611

^a Measured on a 5-point scale: 0 = not at all; 1 = a little; 2 = quite; 3 = much; 4 = completely. ***p < 0.001; **p < 0.01; *p < 0.05

Table 5. Differences between the Italian and Colombian sample in phenomenology of the ayahuasca experience

	<i>Italy</i>	<i>Colombia</i>	<i>Statistics</i>	
	<i>Mdn (Q1-Q3), Mean Rank</i>		<i>U, Z</i>	<i>p</i>
<i>Phenomenology of the ayahuasca experience ^a</i>				
<i>Physical</i>				
<i>symptoms (e.g., vomiting, diarrhea)</i>	2.0 (2.0-3.0), 38.0	1.0 (1.0-2.0), 21.9	207.0, -3.8	.000***
<i>Dissolution of</i>				
<i>perceived body boundaries</i>	2.0 (1.0-3.0), 35.2	1.0 (1.0-2.0), 25.2	298.5, -2.3	.021*
<i>Perception of</i>				
<i>being part of a whole</i>	3.0 (2.0-3.0), 34.9	2.0 (1.0-3.0), 25.5	306.5, -2.2	.029*
<i>Crying and</i>				
<i>laughter almost at the same time</i>	1.0 (1.0-3.0), 32.9	1.0 (.3-2.0), 27.7	370.0, -1.2	.224
<i>Fear</i>				
	2.0 (1.0-3.0), 34.4	1.0 (.3-1.8), 26.0	322.0, -1.9	.052
<i>Gratitude</i>				
	3.0 (3.0-4.0), 34.2	3.0 (2.0-3.8), 26.3	330.5, -1.8	.065
<i>Visions of</i>				
<i>painful past experiences</i>	1.0 (1.0-3.0), 32.2	1.0 (.0-2.8), 28.6	395.0, -.8	.419
<i>Visions of</i>				
<i>removed experiences</i>	1.0 (.0-1.0), 27.2	1.0 (1.0-2.0), 34.2	343.5, -1.6	.104
<i>Presence of</i>				
<i>'pinta' (strong visions)</i>	3.0 (2.0-4.0), 32.1	2.0 (1.0-3.8), 28.7	398.0, -.8	.447
<i>Sensation of</i>				
<i>having received messages from the plant</i>	3.0 (2.0-4.0), 33.2	2.0 (1.0-4.0), 27.4	360.5, -1.3	.181

^a Measured on a 5-point scale: 0 = not at all; 1 = a little; 2 = quite; 3 = much; 4 = for all the time. ***p < 0.001; **p < 0.01; *p < 0.05

Table 6. Differences between the Italian and Colombian sample in perceived effect of ayahuasca intake

	<i>Italy</i>	<i>Colombia</i>	<i>Statistics</i>	
	<i>Mdn (Q1-Q3), Mean Rank</i>		<i>U, Z</i>	<i>p</i>
<i>In the two weeks following ayahuasca intake...^a</i>				
...I experience pleasant feelings (gratitude, love)	3.0 (3.0-4.0), 36.0	3.0 (2.0-3.0), 24.3	273.5, -2.8	.005**
...I experience unpleasant feelings (anxiety, fear)	1.0 (.0-1.0), 32.4	.0 (.0-1.0), 28.3	387.0, -1.0	.325
<i>After ayahuasca use...^b</i>				
...I share my experience with beloved people	3.0 (2.0-4.0), 27.3	4.0 (2.0-5.0), 34.2	344.0, -1.6	.115
...I wish to repeat the experience	3.0 (2.0-5.0), 27.4	4.0 (3.0-5.0), 34.1	348.5, -1.5	.130
...Spiritually I consider myself more active or curious	3.5 (2.0-4.0), 28.3	4.0 (3.0-5.0), 33.1	376.5, -1.1	.275
...I feel more clear-headed and present to myself	3.5 (2.0-4.0), 28.1	4.0 (3.0-5.0), 33.3	370.0, -1.2	.234
...I am more empathetic and sociable	3.0 (2.0-4.0), 29.1	4.0 (2.0-5.0), 32.1	404.0, -.7	.503
...I am more willing to forgive the injustices I have suffered	3.0 (2.0-4.0), 28.1	4.0 (2.0-5.0), 33.2	371.5, -1.2	.246
...I am more confident in myself and in others	3.0 (3.0-4.0), 29.4	4.0 (2.0-5.0), 31.7	413.5, -.5	.599
...I am more positive	3.0 (2.3-4.0), 27.5	4.0 (3.0-5.0), 33.9	353.0, -1.5	.146

^a Measured on a 5-point scale: 0 = Not at all; 1 = A little; 2 = Quite; 3 = Much; 4 = Very much.

^b Measured on a 6-point scale: 0 = Not at all; 1 = A little; 2 = Quite; 3 = Much; 4 = Very much; 5 = Completely. ***p < 0.001;

**p < 0.01; *p < 0.05

Table 7. Differences between the Italian and Colombian sample in the use of other plant medicine and psychoactive substances

	<i>Italy</i>	<i>Colombia</i>	<i>Statistics</i>	
	<i>Mdn (Q1-Q3), Mean Rank</i>		<i>U, Z</i>	<i>p</i>
<i>Use of plant medicine during the previous year ^a</i>				
<i>San Pedro</i>	.0 (.0-1.0), 35.1	.0 (.0-.0), 25.2	300.5, -3.0	.002**
<i>Iboga</i>	.0 (.0-.0), 31.4	.0 (.0-.0), 29.5	420.0, -1.3	.182
<i>Datura</i>	.0 (.0-.0), 30.9	.0 (.0-.0), 30.0	434.0, -.9	.350
<i>Peyote</i>	1.0 (.0-1.8), 30.4	.0 (.0-.0), 30.6	446.0, -.1	.924
<i>Psilocybin mushrooms</i>	4.0 (2.3-5.0), 37.2	.0 (.0-.0), 22.9	234.0, -3.9	< .001***
<i>Use of psychoactive substances during the previous year ^a</i>				
<i>Alcohol</i>	4.0 (2.3-5.0), 40.2	1.0 (.0-2.0), 19.4	136.5, -4.7	< .001***
<i>Hashish / Marijuana</i>	4-0 (1.0-6.0), 40.2	.0 (.0-.0), 19.4	137.0, -4.9	< .001***
<i>Cocaine</i>	.0 (.0-.0), 33.1	.0 (.0-.0), 27.5	365.0, -2.1	.037*
<i>Heroin</i>	.0 (.0-.0), 30.9	.0 (.0-.0), 30.0	434.0, -.9	.350
<i>MDMA / Ecstasy</i>	.0 (.0-1.0), 34.0	.0 (.0-.0), 26.5	336.0, -2.6	.010*
<i>Psychotropic medication</i>	.0 (.0-.0), 31.4	.0 (.0-.0), 29.5	420.0, -1.3	.182

^a Measured on a 7-point scale: 0 = Never; 1 = Rarely (1-2 times per year); 2 = Occasionally (maximum 5 times within the year); 3 = Sometimes (1-2 times per month); 4 = Often (3-4 times per month); 5 = Very often (2- 3 times a week); 6 = Always (daily or almost daily) *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Table 8. Differences between the Italian and Colombian sample in drug abuse, quality of life, interpersonal dependency and spirituality.

	<i>Italy</i>	<i>Colombia</i>	<i>Statistics</i>	
	<i>Mdn (Q1-Q3), Mean Rank</i>		<i>U, Z</i>	<i>p</i>
<i>DAST-10</i>	3.0 (2.0-4.0), 38.6	1.0 (.0-1.0), 21.3	190.0; -3.89	< .001***
<i>WHOQOL-BREF</i>	96.5 (90.5-103.8), 30.2	100.0 (87.8-108.5), 30.9	438.0; -.15	.882
<i>6-item Interpersonal Dependency Inventory</i>	13.0 (9.0-15.8), 29.8	12.0 (9.3-15.8), 31.3	425.0; -.34	.732
<i>6-item Spirituality Self-Rating Scale</i>	24.0 (19.25-27.0), 26.8	26.0 (24.0-28.8), 34.7	329.5; -1.76	.078
<i>Spiritual / Meditative practices</i>				
<i>Yoga</i>	2.0 (.0-5.0), 35.6	.0 (.0-2.0), 24.7	285.0; -2.53	.011*
<i>Meditation</i>	5.0 (2.0-5.0), 36.1	1.0 (.0-4.0), 24.1	267.5; -2.73	.006**
<i>Saying prayers / Chanting mantras</i>	2.5 (.0-5.0), 31.7	1.5 (.0-5.0), 29.1	409.0; -.60	.550
	<i>n (%)</i>		χ^2	<i>p</i>
<i>Religious / spiritual beliefs</i>				
<i>Atheism</i>	4 (13)	1 (4)		
<i>Agnosticism</i>	3 (9)	4 (14)		
<i>Christianity</i>	6 (19)	16 (57)	17,69	< .001***
<i>Buddhism</i>	3 (9)	5 (18)		
<i>Other</i>	16 (50)	2 (7)		

DAST-10, Drug Abuse Screening Test; WHOQOL-BREF, World Health Organization

*Quality of Life – Brief Version. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$*

Figures

Figure 1. Beginning of the preparation practices before ayahuasca ceremonies

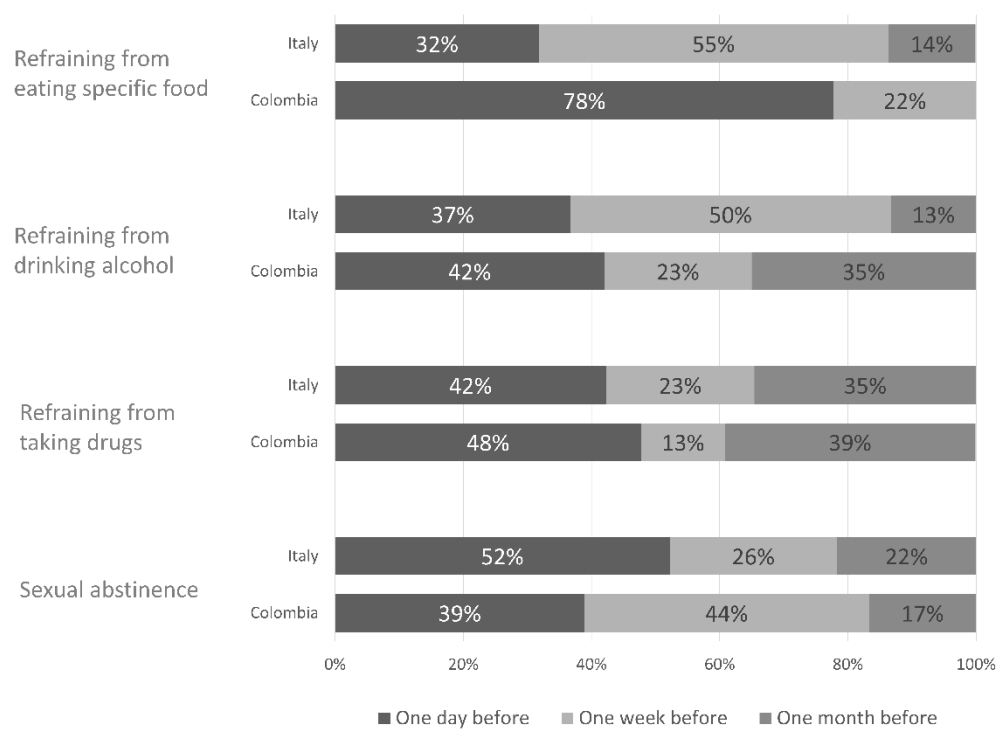


Figure 2. Motives related to the ayahuasca intake

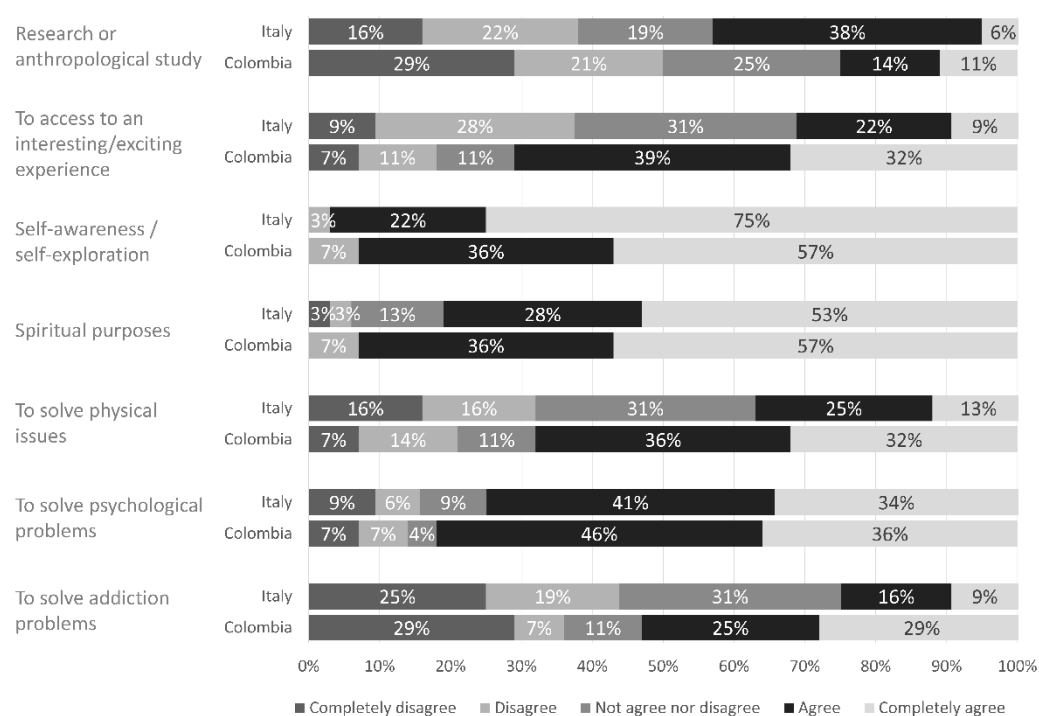


Figure 3. Evaluation of the ceremonial setting features

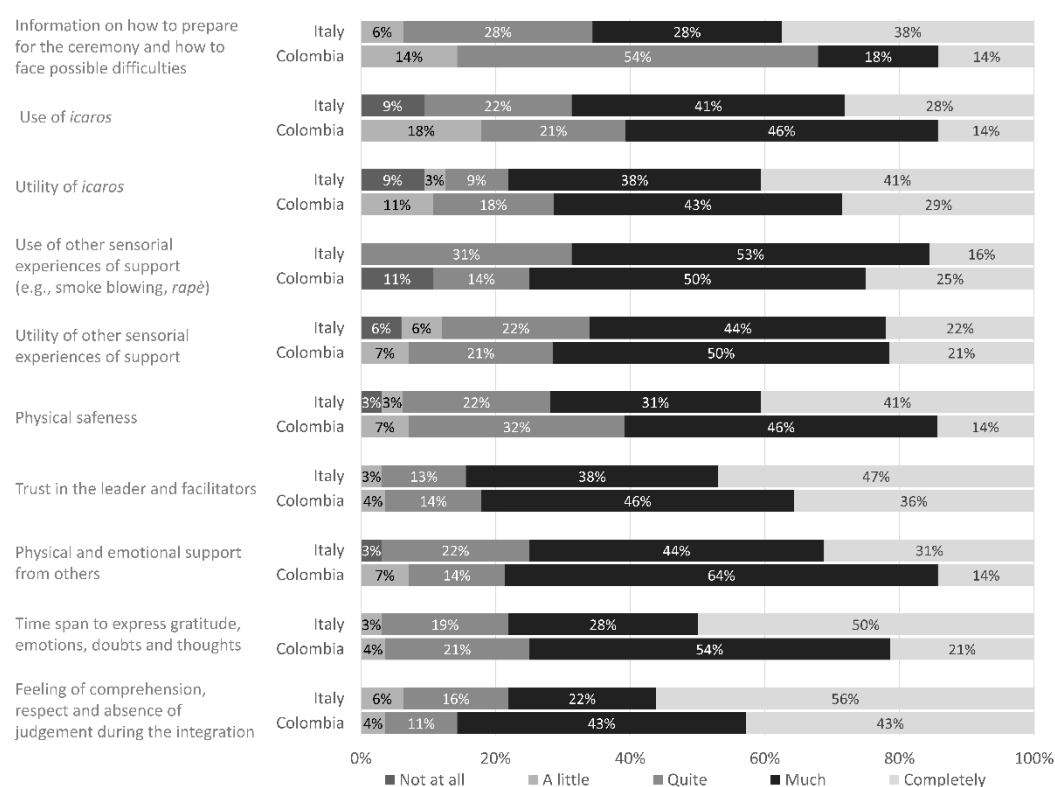


Figure 4. Phenomenology of the ayahuasca experience

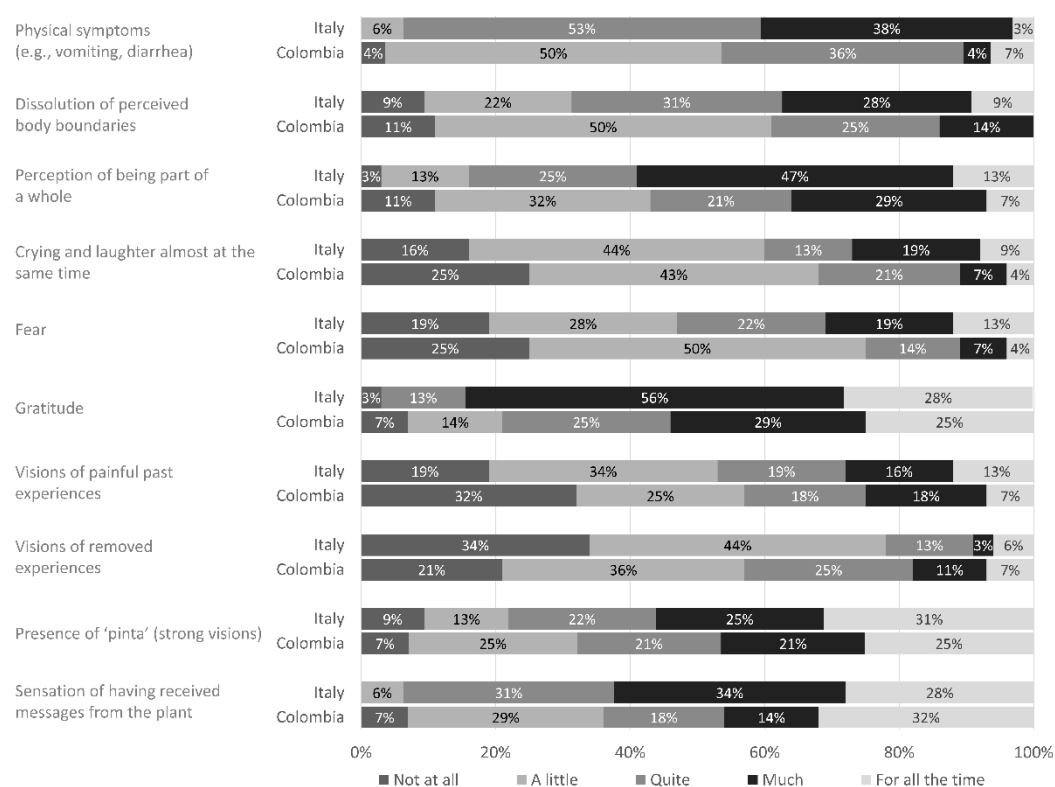
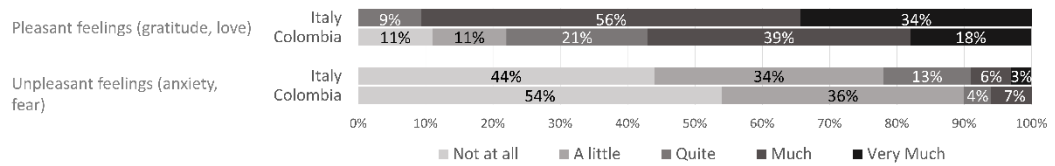


Figure 5. Perceived impact of ayahuasca intake

Feelings during the two weeks following the ayahuasca consumption



After ayahuasca use...

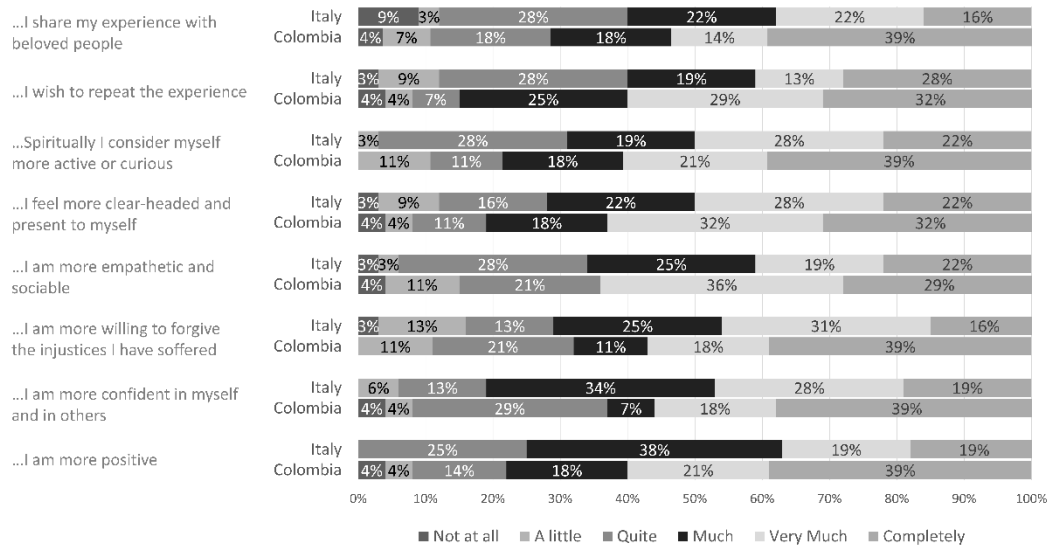


Figure 6. Use of plant medicine during the previous year

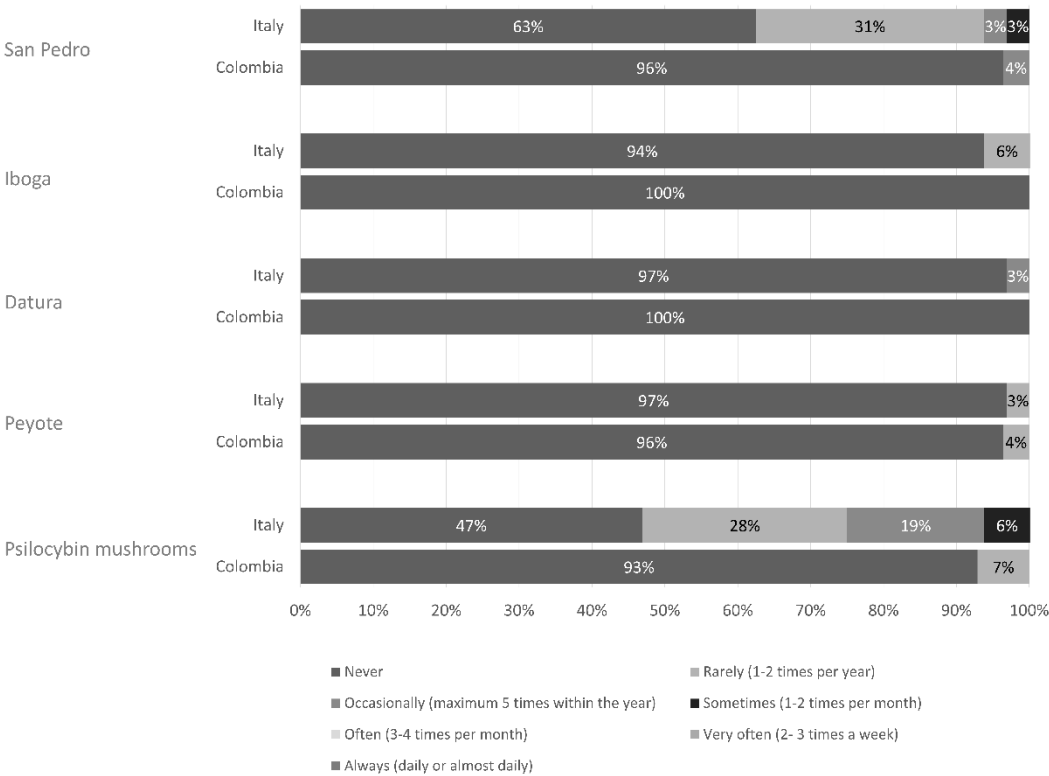
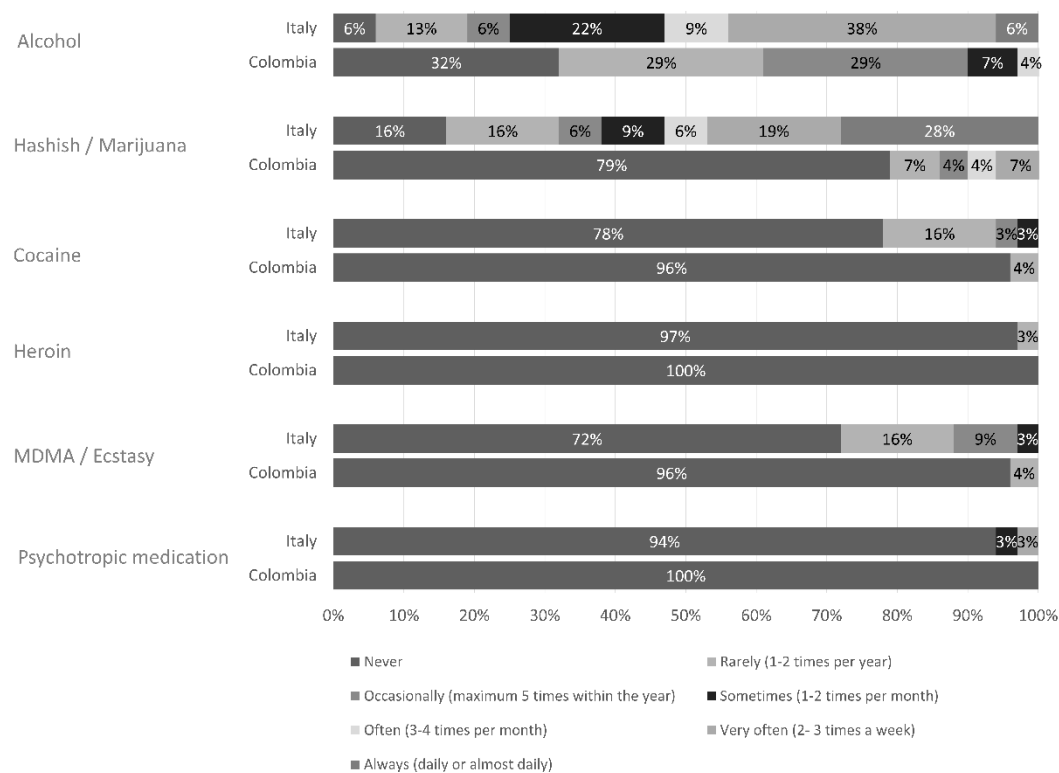


Table 7. Differences between the Italian and Colombian samples in the use of other plant medicine and psychoactive substances



Supplementary Material

English translation of the survey

Survey question	Available response options
<i>Sociodemographic characteristics</i>	
Age	[Number]
Sex	Male Female Other (non-binary)
Educational attainment	No educational qualification Primary education Lower-secondary education Upper-secondary education Undergraduate degree Graduate degree Post-graduate
What is your romantic status?	Single In a relationship In a cohabitation Married Separated / Divorced Widowed
Occupational status	Without a job and not seeking one Unemployed jobseekers Farmer Labourer Clerk Artisan / Merchant Teacher Employed Physician / Lawyer / Entrepreneur Executive Other (<i>specify</i>)
Region of residence	[The respondent could choose his/her Region of residence among all the Regions of Italy and Colombia, in the Italian and Colombian survey, respectively]
<i>Ayahwasca consumption</i>	
At what age did you begin taking ayahuasca?	[Number]
How did you learn about the ceremony(s) you attended?	Newsletter Social media Word of mouth Direct connections with curanderos, context, facilitators Other (<i>specify</i>)
How often have you participated in an ayahuasca ceremony in the past year?	0 = Never 1 = Rarely (1-2 times per year) 2 = Sometimes (maximum 6 times within the year) 3 = Often (about 1 time per month) 4 = Very often (3-4 times per month) 5 = Always (daily or almost daily)
How many days have passed since the last intake?	1 = One day 2 = Less than one week 3 = Less than one month 4 = More than one month
Generally, who administers ayahuasca to you?	An indigenous shaman A non-indigenous person trained as a shaman Non-ceremonial
<i>Individual preparation for the ceremonies</i>	

Before taking ayahuasca...	0 = No 1 = Yes
▪ Did you start a food diet?	
▪ Did you abstain from drinking alcohol?	<i>If yes:</i> 1 = Yes, starting the day before
▪ Did you abstain from taking drugs (including cannabis)?	2 = Yes, starting from the week before 3 = Yes, starting from the month before
▪ Have you practiced sexual abstinence?	

Motives related to the ayahuasca intake

Indicate how much you agree with the following statements:	0 = Completely disagree 1 = In disagree 2 = Neither agree, neither in disagree 3 = Agree 4 = Completely agree
▪ I take ayahuasca for reasons of research, study, and anthropological insight	
▪ I take ayahuasca to access an interesting or exciting experience	
▪ I take ayahuasca to gain self-awareness and/or to explore my self	
▪ I take ayahuasca for spiritual reasons	
▪ I take ayahuasca to solve some physical problems	
▪ I take ayahuasca to solve some psychological problems (e.g., anxiety, depression, emotional blocks)	
▪ I take ayahuasca to solve some substance addiction problems (e.g., alcohol, drugs)	

Ceremonial setting

▪ Do you feel that you received enough information about how to prepare for the ceremony and what to do in case of any difficulties during intake?	0 = Not at all 1 = A little 2 = Quite 3 = Much 4 = Completely
▪ How much were <i>icaros</i> used in the ceremonies in which you participated?	
▪ How useful do you think the <i>icaros</i> have been for you?	
▪ How much were supportive tools (e.g., smoke blowing, rapè) used in the ceremonies in which you participated?	
▪ How useful do you think the supportive tools have been to you?	
▪ How physically safe did you feel during the ceremonies in which you participated?	
▪ How much did you feel you could rely on those	

- who led and supported the ceremonies?
- How much could you rely on the emotional support of others during the ceremonies?
- How much space was given to you to express gratitude, emotions, doubts, and thoughts at various times during the ceremonies?
- How much did you feel understood, respected, and non-judged about your experience during the integration?

Phenomenology of the ayahuasca experience

- | | |
|---|---|
| Thinking about your experience during the ceremony(s) in which you took ayahuasca, to what extent did you experience: | 0 = Not at all
1 = A little
2 = Quite
3 = Much
4 = For all the time |
| ▪ Unpleasant physical symptoms (vomiting, diarrhea) | |
| ▪ Sensation of dissolution of perceived body boundaries | |
| ▪ Perception of being part of a whole | |
| ▪ Crying and laughter almost at the same time | |
| ▪ Sensation of fear | |
| ▪ Sensation of gratitude | |
| ▪ Visions of painful past experiences | |
| ▪ Visions of removed experiences | |
| ▪ Presence of 'pinta' (strong visions) | |
| ▪ Sensation of having received messages from the plant | |

Perceived impact of ayahuasca use

- | | |
|--|--|
| In the two weeks following ayahuasca intake: | 0 = Not at all
1 = A little
2 = Quite
3 = Much
4 = Very much |
| ▪ I experience pleasant feelings (gratitude, love) | |
| ▪ I experience unpleasant feelings (anxiety, fear) | |
-
- | | |
|--|--|
| After the ayahuasca use... | 0 = Not at all
1 = A little
2 = Quite
3 = Much
4 = Very much
5 = Completely |
| ▪ I share my experience with beloved people | |
| ▪ I wish to repeat the experience | |
| ▪ Spiritually I consider myself more active or curious | |
| ▪ I feel more clear-headed and present to myself | |

- I am more empathetic and sociable
- I am more willing to forgive the injustices I have suffered
- I am more confident in myself and in others
- I am more positive

Current drug use

How often have you taken any of the following medicinal plants in the past year?	0 = Never 1 = Rarely (1-2 times per year) 2 = Occasionally (maximum 5 times within the year) 3 = Sometimes (1-2 times per month) 4 = Often (3-4 times per month) 5 = Very often (2- 3 times a week) 6 = Always (daily or almost daily)
<ul style="list-style-type: none"> ▪ San Pedro ▪ Iboga ▪ Datura ▪ Peyote ▪ Psilocybin mushrooms 	

How often have you used the following psychoactive substances in the past year?	0 = Never 1 = Rarely (1-2 times per year) 2 = Occasionally (maximum 5 times within the year) 3 = Sometimes (1-2 times per month) 4 = Often (3-4 times per month) 5 = Very often (2- 3 times a week) 6 = Always (daily or almost daily)
<ul style="list-style-type: none"> ▪ Alcohol ▪ Hashish / Marijuana ▪ Cocaine ▪ Heroin ▪ MDMA / Ecstasy ▪ Psychotropic medication 	

Spirituality

Which of the following categories best reflects your religious and/or spiritual beliefs?	Atheism Agnosticism Christianity Judaism Islam Buddhism Hinduism Other (specify)
--	---

How often have you engaged in the following meditative and spiritual practices in the past year?	0 = Never 1 = Rarely (1-2 times per year) 2 = Occasionally (maximum 5 times within the year) 3 = Sometimes (1-2 times per month) 4 = Often (3-4 times per month) 5 = Very often (2- 3 times a week) 6 = Always (daily or almost daily)
<ul style="list-style-type: none"> ▪ Yoga ▪ Meditation ▪ Saying prayers / Chanting mantras 	

Italian survey

Survey question	Available response options
<i>Sociodemographic characteristics</i>	
Età	[Number]
Sesso	Maschio Femmina Altro (non binario)
Titolo di studio	Nessun titolo di studio Licenza elementare Licenza media Diploma di scuola superiore Laurea triennale Laurea magistrale o a ciclo unico Diploma di specializzazione post-lauream / Master Dottorato di ricerca
Qual è il tuo status sentimentale?	Single In una relazione In una convivenza Sposato/a Separato/a / Divorziato/a Vedovo/a
Condizione professionale	Non occupato/a e non in cerca di occupazione Disoccupato/a o in cerca di lavoro Coltivatore/trice diretto/a Operaio/a Commesso/a in un negozio Impiegato/a Artigiano/a, Commerciante Insegnante Medico, Avvocato, Imprenditore/Imprenditrice Dirigente professionista Altro (<i>specificata</i>)
Regione di Residenza	[The respondent could choose his/her Region of residence among all the Regions of Italy and Colombia, in the Italian and Colombian survey, respectively]
<i>Ayahuasca consumption</i>	
A quale età hai iniziato ad assumere ayahuasca?	[Number]
Come sei venuto a conoscenza della/e cerimonia/e a cui hai partecipato?	Newsletter Social media Passaparola Conoscenza diretta di curanderos, del contesto, di facilitatori Altro (<i>specificata</i>)
Con quale frequenza hai preso parte ad una cerimonia di ayahuasca nell'ultimo anno?	0 = Mai 1 = Raramente (1-2 volte all'anno) 2 = Qualche volta (massimo 6 volte nell'arco dell'anno) 3 = Spesso (circa 1 volta al mese) 4 = Molto spesso (3-4 volte al mese) 5 = Sempre (quotidianamente o quasi)
Quanti giorni sono trascorsi dall'ultima assunzione?	1 = Un giorno 2 = Meno di una settimana 3 = Meno di un mese 4 = Più di un mese
Generalmente, chi ti somministra l'ayahuasca?	Uno sciamano Una persona iniziata da uno sciamano Assunta in un contesto non cerimoniale
<i>Individual preparation for the ceremonies</i>	
Prima di assumere ayahuasca...	0 = No 1 = Sì

- | | |
|--|--|
| <ul style="list-style-type: none"> ▪ Hai iniziato una dieta alimentare? ▪ Ti sei astenuto dal bere alcolici? ▪ Ti sei astenuto dall'assumere sostanze stupefacenti (incluso cannabis)? ▪ Hai praticato astinenza sessuale? | <i>Se sì:</i>
1 = Sì, a partire dal giorno prima
2 = Sì, a partire dalla settimana prima
3 = Sì, a partire dal mese prima |
|--|--|

Motives related to the ayahuasca intake

- | | |
|--|--|
| <p>Indica quanto sei d'accordo con le seguenti affermazioni:</p> <ul style="list-style-type: none"> ▪ Assumo ayahuasca per motivi di ricerca, studio e approfondimento antropologico ▪ Assumo ayahuasca per accedere ad un'esperienza interessante o eccitante ▪ Assumo ayahuasca per acquisire auto-consapevolezza e/o per esplorare il mio sé ▪ Assumo ayahuasca per motivi spirituali ▪ Assumo ayahuasca per risolvere alcuni problemi fisici ▪ Assumo ayahuasca per risolvere alcuni problemi di natura psicologica (es. ansia, depressione, blocchi emotivi) ▪ Assumo ayahuasca per risolvere alcuni problemi di dipendenza da sostanze (es. alcool, droghe) | 0 = Completamente in disaccordo
1 = In disaccordo
2 = Né d'accordo, né in disaccordo
3 = D'accordo
4 = Completamente d'accordo |
|--|--|

Ceremonial setting

- | | |
|--|--|
| <ul style="list-style-type: none"> ▪ Ritieni di aver ricevuto sufficienti informazioni su come prepararti alla cerimonia e su come comportarti in caso di eventuali difficoltà durante l'assunzione? ▪ Quanto sono stati utilizzati gli icaros nelle cerimonie in cui hai partecipato? ▪ Quanto ritieni ti siano stati d'aiuto gli icaros? ▪ Quanto sono stati utilizzati gli strumenti di supporto (es. fumi, rapè) nelle cerimonie in cui hai partecipato? ▪ Quanto ritieni ti siano stati d'aiuto gli strumenti di supporto? ▪ Quanto ti sei sentito fisicamente al sicuro durante il corso delle cerimonie in cui hai partecipato? | 0 = Per niente
1 = Poco
2 = Abbastanza
3 = Molto
4 = Del tutto |
|--|--|

- Quanto hai sentito di poter confidare su chi guidava e supportava le cerimonie?
- Quanto hai potuto contare sul sostegno emotivo degli altri durante il corso delle cerimonie?
- Quanto ti è stato concesso spazio per esprimere gratitudine, emozioni, dubbi e pensieri nei vari momenti delle cerimonie?
- Quanto ti sei sentito compreso, rispettato e non giudicato sulla tua esperienza durante il momento di condivisione/integrazione?

Phenomenology of the ayahuasca experience

- | | |
|--|---|
| Pensando alla tua esperienza durante la/le cerimonia/e in cui hai assunto ayahuasca, in che misura hai sperimentato: | 0 = Per niente
1 = Poco
2 = Abbastanza
3 = Molto
4 = Per tutto il tempo |
| ▪ Sensazioni fisiche spiacevoli (vomito, diarrea) | |
| ▪ Sensazione di dissoluzione del corpo | |
| ▪ Percezione di essere parte di un'unità | |
| ▪ Pianto e risata quasi allo stesso tempo | |
| ▪ Sensazione di paura | |
| ▪ Sensazione di gratitudine | |
| ▪ Visione di esperienze del passato dolorose | |
| ▪ Visione di esperienze rimosse | |
| ▪ Presenza di 'pinta' (immagini visuali forti) | |
| ▪ Sentire di aver ricevuto messaggi dalla pianta | |

Perceived impact of ayahuasca use

- | | |
|---|---|
| Nelle due settimane successive all'assunzione di ayahuasca: | 0 = Per niente
1 = Poco
2 = Abbastanza
3 = Molto
4 = Moltissimo |
| ▪ Esperisco sensazioni piacevoli (gratitudine, amore) | |
| ▪ Esperisco sensazioni spiacevoli (ansia, timore) | |
-
- | | |
|--|--|
| Dopo aver fatto uso di ayahuasca... | 0 = Per niente
1 = Poco
2 = Abbastanza
3 = Molto
4 = Moltissimo
5 = Del tutto |
| ▪ Condivido l'esperienza con le persone a me care | |
| ▪ Vorrei ripetere l'esperienza | |
| ▪ Spiritualmente mi ritengo più attivo/a o curioso/s | |
| ▪ Mi sento più lucido/a e presente a me stesso/a | |
| ▪ Sono più empatico/a e socievole | |

- Sono più disposto/a a perdonare i torti subiti
- Sono più fiducioso/a in me stesso/a e negli altri
- Sono più positivo/a

Current drug use

- | | |
|---|---|
| Con quale frequenza hai assunto una delle seguenti piante medicinali nell'ultimo anno? | 0 = Mai
1 = Raramente (1-2 volte all'anno)
2 = Ogni tanto (Massimo 5 volte nell'arco dell'anno)
3 = Qualche volta (1-2 volte al mese)
4 = Spesso (3-4 volte al mese)
5 = Molto spesso (2- 3 volte a settimana)
6 = Sempre (quotidianamente o quasi) |
| <ul style="list-style-type: none"> ▪ San Pedro ▪ Iboga ▪ Datura ▪ Peyote ▪ Funghi allucinogeni | |

- | | |
|--|---|
| Con quale frequenza hai fatto uso delle seguenti sostanze psicoattive nell'ultimo anno? | 0 = Mai
1 = Raramente (1-2 volte all'anno)
2 = Ogni tanto (Massimo 5 volte nell'arco dell'anno)
3 = Qualche volta (1-2 volte al mese)
4 = Spesso (3-4 volte al mese)
5 = Molto spesso (2- 3 volte a settimana)
6 = Sempre (quotidianamente o quasi) |
| <ul style="list-style-type: none"> ▪ Alcolici ▪ Hashish / Marijuana ▪ Cocaina ▪ Eroina ▪ MDMA (Ecstasy) ▪ Psicofarmaci | |

Spirituality

- | | |
|---|--|
| Quale delle seguenti categorie riflette meglio il tuo credo religioso e/o spirituale? | Ateismo
Agnosticismo
Cristianesimo
Ebraismo
Islam
Buddhismo
Induismo
Altro (<i>specifica</i>) |
|---|--|

- | | |
|--|---|
| Con quale frequenza hai svolto le seguenti pratiche meditative e spirituali nell'ultimo anno? | 0 = Mai
1 = Raramente (1-2 volte all'anno)
2 = Ogni tanto (Massimo 5 volte nell'arco dell'anno)
3 = Qualche volta (1-2 volte al mese)
4 = Spesso (3-4 volte al mese)
5 = Molto spesso (2- 3 volte a settimana)
6 = Sempre (quotidianamente o quasi) |
| <ul style="list-style-type: none"> ▪ Yoga ▪ Meditazione ▪ Recitazione di mantra o preghiere | |
-

Spanish survey

Survey question	Available response options
<i>Sociodemographic characteristics</i>	
Edad	<i>[Number]</i>
Sexo	Masculino Feminino Otro (no binario)
Cualificación educativa	Sin título Educación básica primaria Certificado de Estudios del Bachillerato Básico Título de Bachiller Académico / Título de Bachiller Técnico / Certificado de Aptitud Ocupacional Técnico Profesional / Tecnólogo Título Profesional / Licenciatura Título de Magister Especialización Doctorado
Cuál es tu estado sentimental?	Soltero En una relación Conviviendo Casado/a Separado/a divorciado/a Viudo/a
Condición profesional	Sin empleo y sin buscar trabajo Desempleado o buscando trabajo Agricultor/a Operario/a Vendedor/a dependiente/a Empleado/a Artesano, Comerciante Profesor Médico, Abogado/a, Emprendedor /a Ejecutivo/a profesional Otros (<i>especificación</i>)
Departamento de residencia	<i>[The respondent could choose his/her Region of residence among all the Regions of Italy and Colombia, in the Italian and Colombian survey, respectively]</i>
<i>Ayahuasca consumption</i>	
¿A qué edad empezaste a tomar ayahuasca?	<i>[Number]</i>
¿Cómo se enteró de las ceremonias a las que asistió?	Boletín informativo Redes sociales Boca a boca Conocimiento directo de los curanderos, del contexto, de los facilitadores Otros (<i>especificación</i>)
¿Con qué frecuencia ha participado en una ceremonia de ayahuasca durante el último año?	0 = Nunca 1 = Rara vez (1-2 veces al año) 2 = A veces (máximo 6 veces al año) 3 = A menudo (aproximadamente una vez al mes) 4 = Muy a menudo (3-4 veces al mes) 5 = Siempre (a diario o casi)
¿Cuántos días han pasado desde su última ingesta?	1 = Una día 2 = Menos de una semana 3 = Menos de un mes 4 = Más de un mes

Generalmente, quien te da ayahuasca?	Un chamán Una persona iniciada por un chamán Tomada en un contexto no ceremonial
Individual preparation for the ceremonies	
Antes de tomar ayahuasca ...	0 = No 1 = Si
<ul style="list-style-type: none"> ¿Ha comenzado una dieta alimentaria? ¿Te abstuviste de beber alcohol? ¿Se ha abstenido de consumir drogas (incluido el cannabis)? ¿Has practicado la abstinencia sexual? 	<p><i>En caso afirmativo:</i> 1 = Sí, a partir del día anterior 2 = Sí, a partir de la semana anterior 3 = Sí, a partir del mes anterior</p>
Motives related to the ayahuasca intake	
Indique hasta qué punto está de acuerdo con las siguientes afirmaciones:	0 = Totalmente en desacuerdo 1 = En desacuerdo 2 = Ni de acuerdo ni en desacuerdo 3 = De acuerdo 4 = Totalmente de acuerdo
<ul style="list-style-type: none"> Tomo ayahuasca para investigación, estudio y estudio antropológico Tomo ayahuasca para acceder a una experiencia interesante o emocionante Tomo ayahuasca para tomar conciencia de mí mismo y/o para explorarme a mí mismo. Tomo ayahuasca por motivos espirituales Tomo ayahuasca para solucionar algunos problemas físicos Tomo ayahuasca para solucionar algunos problemas psicológicos (por ejemplo, ansiedad, depresión, bloqueos emocionales) Tomo ayahuasca para resolver algunos problemas de adicción a sustancias (por ejemplo, alcohol, drogas) 	
Ceremonial setting	
<ul style="list-style-type: none"> ¿Siente que ha recibido suficiente información sobre cómo prepararse para la ceremonia y como comportarse en caso de dificultades durante el reclutamiento? ¿Cuánto se usaron los cantos ceremoniales en las ceremonias a las que asistió? ¿Cuánto crees que te han sido de ayuda los cantos ceremoniales? ¿Cuánto se utilizaron las herramientas de apoyo (o(p. Ej. Humos, rapè..) en las ceremonias en las que participó? 	0 = Para nada 1 = Un poco 2 = Suficiente 3 = Mucho 4 = Del todo

- ¿Cuánto crees que te han sido de ayuda las herramientas de apoyo?
- ¿Qué tan seguro sintió físicamente durante el transcurso de las ceremonias en las que asistió?
- ¿Cuánto sintió qué podía confiar en quiénes dirigieron y apoyaron las ceremonias?
- ¿Cuánto ha podido contar con el apoyo físico y emocional de los demás durante el transcurso de las ceremonias?
- ¿Cuánto espacio se le ha dado para expresar gratitud, emociones, dudas y pensamientos en los distintos momentos de las ceremonias?
- ¿Cuánto se sintió comprendido, respetado y no juzgado sobre su experiencia durante el momento de compartir / integración?

Phenomenology of the ayahuasca experience

- | | |
|---|---|
| Pensando en su experiencia durante la(s) ceremonia(s) en la(s) que tomó ayahuasca, ¿en qué medida experimentó | 0 = Para nada
1 = Un poco
2 = Suficiente
3 = Mucho
4 = Todo el tiempo |
| <ul style="list-style-type: none"> ▪ Sensaciones físicas desagradables (vómitos, diarrea) ▪ Sensación de disolución del cuerpo ▪ Percepción de formar parte de una unidad ▪ Llorar y reír casi al mismo tiempo ▪ Sentimiento de miedo ▪ Sentimiento de gratitud ▪ Ver experiencias pasadas dolorosas ▪ Visión de experiencias reprimidas ▪ Presencia de "pinta" (imágenes visuales fuertes) ▪ Sensación de haber recibido mensajes de la planta | |

Perceived impact of ayahuasca use

- | | |
|---|---|
| En las dos semanas siguientes a la ingesta de ayahuasca: | 0 = Para nada
1 = Un poco
2 = Suficiente
3 = Mucho
4 = Todo el tiempo |
| <ul style="list-style-type: none"> ▪ Experimento sentimientos agradables (gratitud, amor) ▪ Experimento sensaciones desagradables (ansiedad, miedo) | |

Después de usar ayahuasca...	0 = Para nada 1 = Un poco 2 = Suficiente 3 = Mucho 4 = Muchísimo 5 = Totalmente
<ul style="list-style-type: none"> Comparto la experiencia con las personas importante para mí Me gustaría repetir la experiencia Espiritualmente me siento más activo o curioso Me siento más lúcido y presente a para mí Soy más empático y sociable Estoy más dispuesto a perdonar los males sufridos Tengo más confianza en mí mismo y en los demás Soy más positivo 	
Current drug use	
¿Con qué frecuencia ha tomado alguna de las siguientes plantas medicinales en el último año?	0 = Nunca 1 = Rara vez (1-2 veces al año) 2 = Ocasionalmente (máximo 5 veces al año) 3 = A veces (1-2 veces al mes) 4 = A menudo (3-4 veces al mes) 5 = Muy a menudo (2-3 veces por semana) 6 = Siempre (a diario o casi a diario)
<ul style="list-style-type: none"> San Pedro Iboga Datura Peyote Hongos alucinógenos 	
Con qué frecuencia ha consumido las siguientes sustancias psicoactivas en el último año?	0 = Nunca 1 = Rara vez (1-2 veces al año) 2 = Ocasionalmente (máximo 5 veces al año) 3 = A veces (1-2 veces al mes) 4 = A menudo (3-4 veces al mes) 5 = Muy a menudo (2-3 veces por semana) 6 = Siempre (a diario o casi a diario)
<ul style="list-style-type: none"> Alcohol Hachís / Marijuana Cocaína Heroína MDMA (éxtasis) Psicofarmacos 	
Spirituality	
¿Cuál de las siguientes categorías refleja mejor sus creencias religiosas y/o espirituales?	Ateísmo Agnosticismo Cristianismo Judaísmo Islam Budismo Hinduismo Otros (<i>especificación</i>)
¿Con qué frecuencia ha realizado las siguientes prácticas espirituales y de meditación durante el año pasado?	0 = Nunca 1 = Rara vez (1-2 veces al año) 2 = Ocasionalmente (máximo 5 veces al año) 3 = A veces (1-2 veces al mes) 4 = A menudo (3-4 veces al mes) 5 = Muy a menudo (2-3 veces por semana) 6 = Siempre (a diario o casi a diario)
<ul style="list-style-type: none"> Yoga Meditación Recitación de mantras y oraciones 	