The Ibogaine Experience: A Qualitative Study on the Acute Subjective Effects of Ibogaine

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ABSTRACT

Ibogaine is the most abundant alkaloid present in the African shrub Tabernanthe iboga. As a result of the lack of research on the acute subjective effects, the purpose of this study was to identify categories of the ibogaine experience and gain a better understanding of the internal processes while under its effects. We created a semistructured interview and recruited twenty

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individuals who had recently taken ibogaine. The interviews were analyzed according to grounded theory approach. We identified eight categories (physical, sensory, visual, cognitive, auditory, adverse, anti-dependency agent, after-effects) and ten subcategories (open eye visuals; closed eye visuals: ancestors and entities, sceneries and landscapes, horrific scenarios; self-psychoanalysis enhancement; empathy, love, and prosocial behavior; catharsis; observer quality; ego dissolution; spiritual states) of the acute subjective effects of ibogaine. The study contributes to the advancement of our understanding of ibogaine and its role in personal growth, prosocial behavior, therapeutic use, and anti-dependency treatments.
KEYWORDS: ibogaine, acute subjective effects, Bwiti, drug dependence, prosocial behavior

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INTRODUCTION

Ibogaine is the most abundant alkaloid found in the African shrub *Tabernanthe iboga*. The root bark has been sacramentally used for centuries in the Bwiti religion as a spiritual and social "binding" tool (Fernandez 1982; Fernandez and Fernandez 2001). The Bwiti religion also became a type of "collective psychological resistance" against the French colonialist occupation and has been gaining political relevance ever since (Alper et al. 2008, 10). Traditionally, ibogaine has been used as a stimulant (Fernandez and Fernandez 2001) and for treating infertility (Fernandez 1982).

Etymologically iboga derives from the word *boghaga* or, "to take care of" in the Tsogo language, whereas the origins of Bwiti and the use of root bark are claimed to be initiated by the Pygmies. In the Gabonese Republic, iboga is called "Holy Wood" and is considered a key to the magic universe, enabling communication with ancestors and other entities (Ravalec et al. 2007, 6). Iboga is used for rites of passage, teaching the neophyte about the past, the present, the future, and the collective dimension of the Bwiti worldview. It reveals secrets and mythologies, rules and taboos to be respected in the society one is being initiated into. Once through all the initiation stages, the individual becomes a new person and attains clairvoyance that can last for a long period after the initiation (Ravalec et al. 2007).

In western society ibogaine is most commonly known as an anti-addictive agent, which is a rather novel discovery. Its potential for treating drug dependence, one of today's most plaguing public health issues, was for the first time observed and documented in the United States in the early 1960s (Lotsof and Alexander 2001). Since then, the amount of preclinical evidence is substantially growing in support of ibogaine as an effective agent for

attenuating withdrawal and reducing craving (Belgers et al. 2016; dos Santos et al. 2017; Wilkins et al. 2017). A recent qualitative study reported substantial improvements in the quality of life and found that the individuals felt grateful for the experience, despite its physical and psychological unpleasantness (Schenberg et al. 2017).

A rather extensive number of studies exploring the subjective effects of psychedelics can be found in the scientific literature. Rating scales such as the Hallucinogen Rating Scale (HRS; Strassman et al. 1994); the Addiction Research Center Inventory (ARCI; Haertzen 1966; Martin et al. 1971); the Abnormal Mental States questionnaire (APZ; Dittrich 1975; Dittrich 1998) and its revised versions, the Altered States of Consciousness rating scale (OAV; Bodmer et al. 1994) or the 5-Dimensional Altered States of Consciousness Questionnaire (5D-ASC; Dittrich et al. 2006; Dittrich et al. 2010); the Ego-Dissolution Inventory (EDI; Nour et al. 2016); and different versions of the Mystical Experience Questionnaire (MEQ; Pahnke 1963; Pahnke 1969; Maclean et al. 2012) are being used to assess them, respectively. Only a few, however, have been rigorously analyzed. Their psychometric properties could be improved by new items and validated for different languages and substances (Bouso et al. 2016). There are also epistemic limitations in the assessment of subjective effects, and a metaphoric terminology might prove useful to assess these experiences (Majić et al. 2015), which is where the present study might offer valuable insights. By investigating the physical and psychological aspects of the immediate experience, we extracted categories of effects that can be used to improve the assessment of the subjective effects of ibogaine and other psychedelics.

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METHODS

Development of a semistructured interview

The objective of the study was to assess the acute subjective effects of ibogaine by collecting testimonies and extracting relevant categories from the data. We constructed a semistructured interview after reviewing the literature regarding subjective effects of ibogaine (Naranjo 1969; Fernandez 1982; Goutarel et al. 1993; Alper 2001; Lotsof and Alexander 2001; Ravalec et al. 2007).

The questionnaire was divided into three parts. The first part had questions on demographics, the participant's ibogaine use, drug use, reasons for taking, and setting. In the second part participants talked freely about their most recent ibogaine flood dose with focus on themes and topics of the experience. The third part was subdivided into questions on time course and perception of time, general effects and mood, physical effects, psychological effects, and spiritual effects of ibogaine. The duration of the interviews was between 1 and 3 hours.

Study sample

Study subjects were recruited through the network of the ICEERS Foundation, which has established collaborations with several ibogaine providers and organizations such as GITA (Global Ibogaine Therapy Alliance), or via social media. Twenty-two subjects participated in the study, of which eleven were ibogaine providers or professionals, and another eleven were patients or users. Thirteen subjects were male and nine female, between 23 and 57 years old ($n = 20$; mean age = 39.8; SD = 9.11). The education level of the study sample was either high school degree or university degree. The study subjects came from different corners of the world: USA, Canada, South Africa, Mexico, Russia, Europe, and Armenia. Most study subjects belonged to the medium socio-economic status. The main exclusion criterion was a history of, or acute, mental illness. Two subjects were excluded, one due to an incomplete interview, the other due to low dose of root bark ingested (Table 1).

The priority was to assess information from subjects who had recently taken ibogaine, while the memory of the experience was still fresh. Fourteen

TABLE 1. DEMOGRAPHICS OF THE 20 SUBJECTS INCLUDED IN THE STUDY

Gender	Age	Socio-economic status	Educational level	Country of origin	Relationship status
M	37	Medium	High school	USA	Single
M	29	Medium	High school	Canada	Single
M	23	Medium	High school	Mexico	Single
M	38	Medium	High school	Russia	Single
M	50	Low	High school	Canada	In a relationship
M	28	Medium	University	USA	In a relationship
M	33	Medium	University	USA	Single
M	26	High	University	Mexico	Single
M	38	Medium	University	Armenia	Married
M	40	High	Master	USA	Married
M	35	Medium	Master	Belgium	In a relationship
F	41	Medium	High school	South Africa	Single
F	47	Medium	High school	USA	Single
F	46	Low	High school	Russia	Single
F	57	Medium	High school	USA	Married
F	46	High	High school	South Africa	Married
F	42	High	University	Canada	In a relationship
F	45	Medium	University	South Africa	Single
F	41	Medium	Master	England	Single
F	54	Low	Master	USA	Single

subjects were interviewed not more than 3 months after their last flood dose. The remaining eight subjects were interviewed 1 year or more after their last flood dose. The interviews were conducted from February to April 2016. Due to geographical distances between the researchers and study subjects, most of the interviews were done using Skype, with one in person. All subjects signed an "informed consent" prior to the interview, in which they were informed that the conversation would be voice recorded, and that their identity would be kept anonymous by ascribing to them a randomized, computer generated ID number. The Ethics Committee of the Universidad Autónoma de Madrid, Spain approved the study.

Data analysis

Two researchers (MK and MO) transcribed the semistructured interviews. Then the content analysis was carried out using grounded theory approach (Brewer 2000; Silverman 2014). We extracted the data by qualitative coding or labeling semantically similar bits of information. The coding and labeling was done with pen and paper by three researchers (MK, MO, and JCB). The reoccurring keywords were extracted and grouped into categories. These were then discussed between the authors of the present paper. An Excel spread sheet was used to outline and unite all the collected data. At first six categories and eight subcategories of the subjective acute effects were created. Those were then compared to the categories from the Subjective Effects Index (SEI) and served as an orientation for the selection of final categories. The SEI is an extensive and elaborated database of potential effects that might be experienced under the influence of any psychoactive compound (PsychonautWiki 2017). It is part of an online community-driven platform, documenting objective and technical descriptions of subjective effects based on the experiences of the contributors.

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RESULTS

Reasons for taking ibogaine

Sixteen of twenty study subjects identified spiritual reasons for taking ibogaine. First-time users were taking it largely out of curiosity, because they felt drawn or called to it, as well as out of professional interest. The study subjects took ibogaine to improve their life by gaining spiritual education and clarity or connecting with the spirit world. Others were exploring the relationship to one's self and others, or balancing between spiritualist and materialist desires. Study subjects who used ibogaine several times were taking it as a tool for integrating personal issues, and expanding consciousness, or to gain wisdom and knowledge about the world and one's self.

Eighteen of twenty study subjects identified psychological reasons for taking ibogaine. Among the most commonly mentioned were treating (suicidal) depression and (social) anxiety, as well as healing from trauma (PTSD), relieving stress, or dealing with fears. Some had also interpersonal motives for taking ibogaine, such as improving family or romantic relationships.

Thirteen of twenty study subjects identified substance abuse and addictive behaviors as reasons for taking ibogaine. Among the most commonly mentioned substances were opiates such as heroin, methadone, and suboxone. Other mentioned substances were benzodiazepines, alcohol, tobacco, cannabis, codeine, kratom, amphetamines, and cocaine. Under addictive behaviors, study subjects listed eating disorders, compulsive relationships, consumerism, workaholic behaviors, and computer addiction, or combinations of these addictive behaviors and/or substances.

Setting

The ibogaine was taken in different settings. Most were at home or in a home-like setting under the supervision of ibogaine providers or trusted people (e.g., experienced family members). Few took ibogaine in a clinic, retreat center, or/and a ceremonial setting. Most of them evaluated the setting as positive. They felt comfortable, safe, and taken care of by their facilitators. Taking ibogaine in one's own home and under supervision enhanced the feeling of security in a sense that they did not feel "out of place" and were relaxed.

Seventeen of twenty study subjects felt the setting influenced the experience. Colors, smells (e.g., incenses), objects (e.g., eye-mask or mirror with a design on it, so it is not possible to see all aspects of one's face at the same time), and sounds (e.g., Bwiti music) were considered effective for enhancement of the experience. In a few cases, however, the enhancement tools were considered uncomfortable. A bad recording of the music playing, noise from the environment, or bright places were considered disturbing. Anticipatory anxiety and fear were less expressed if the providers monitored vital signals such as heart rate and blood pressure on a regular basis to assure the individuals that they were not in physical danger.

An optimal setting was considered a quiet and comfortable place, under regular monitoring by an experienced, trustable, and compassionate facilitator, or with the possibility to call the facilitator in case of need.

Dosage

Ibogaine was taken in different forms and combinations. Most commonly administered was iboga hydrochloride (i-HCL), which is ibogaine in one of its purest forms, and i-HCL in combination with total alkaloid (TA). In two cases the dose was not known. Fewer study subjects were administered TA

only. One study subject ingested root bark (RB) only and another one a combination of TA and RB (Table 2).

Stages

The total duration of the experience lasted a minimum of 24 to a maximum of 96 hours. Many individuals perceived this time in stages. Most commonly, study subjects recognized three or four stages of the experience.

The first stage is described as physically uncomfortable and rough due to the ataxia, intense nausea and vomiting, tachycardia, and the sensation of dying. The symbolic death and rebirth process may be seen also as a transition between the first and the second stage. In cases of drug dependence, the first stage is perceived as detoxification, when the withdrawal symptoms and cravings are being alleviated. The first stage usually lasted from 2 to 14 hours.

The second stage is physically more comfortable. The individual has more control over the body and can interact with the environment but mostly avoids external stimuli. Most study subjects referred to this stage as the main visionary experience. The dream-like state was experienced with visual imagery, yet not in all cases. Some study subjects described a cognitive, psychoanalytical quality of the experience rather than a visual one. Again the timespan of the second stage varied greatly, from about 4 hours to 30 hours.

The third stage is the time of gradually coming out of the experience. Ibogaine is still present in the body, but the most intense imagery has

TABLE 2. FORM AND DOSAGE OF IBOGAINE ADMINISTERED TO THE 20 STUDY SUBJECTS

i-HCL (mg/kg)	**TA (mg/kg)**	**i-HCL + TA (mg/kg)**	**RB (g)**	**TA + RB (g)**
6*	7.5 (2.14 g over 9 days)*	5.8 i-HCL + 2 TA (voacanga)	70 g	2.5 TA + 3 RB (6 hours after)
15*	3 g*	18 i-HCL + 16.6 TA (over 3 hours)*		
12*	cca. 16*	6.25 TA + 3 i-HCL (2 hours after)		
21*	11.5 + 4 (boosters for 3 days)*	28 TA + 15 i-HCL*		
12		7 i-HCL + 2.4 TA		
18-20		Not known		
9.3				
Not known*				

* Ibogaine used for drug dependency treatment.

terminated. Because of physical and psychological exhaustion most individuals are resting, continuing to process the experience. This stage starts either before or after the first sleep and lasts for an additional 12 to 72 hours.

While the acute effects terminated within maximum 96 hours after ingestion, the experience continued to have an impact on the subject for weeks or even months after the actual intake. This time was often referred to as the fourth stage.

Acute subjective effects

In the present paper, we propose eight categories and ten subcategories of the acute subjective effects of ibogaine: physical effects, sensory effects, visual effects, cognitive effects, auditory effects, adverse effects, anti-dependency agent, and after effects. We divided visual effects into two subcategories: open eye visuals (OEV) and closed eye visuals (CEV). CEV are further divided into three subcategories: ancestors and entities, sceneries and landscapes, and horrific scenarios. Cognitive effects consist of six subcategories: self-psychoanalysis enhancement; empathy, love, and prosocial behavior; catharsis; observer quality; ego dissolution (death and rebirth); and spiritual states. It is uncommon to experience all the categories and subcategories of acute subjective effects. Generally subjects experience a combination of some or many (Figure 1).

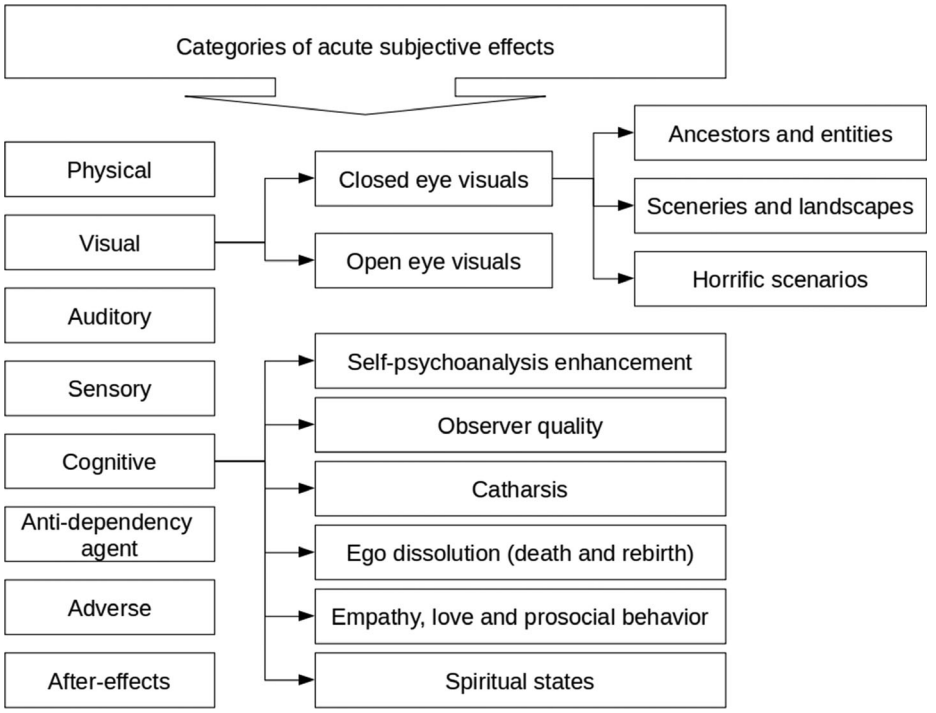

FIGURE 1. CATEGORIES OF THE ACUTE SUBJECTIVE EFFECTS.

Physical effects

The acute physical effects generally start with tactile sensations such as a vibration throughout the body, which can intensify with time and are often present throughout the experience. Also common were changes in the perception of weight (feeling heavy) and body temperature (hot and/or cold flushes), as well as appetite suppression. The individuals usually regained appetite after the first sleep.

While still fairly lucid, the physical balance was decreasing along with spatial orientation. Most individuals experienced dizziness and impaired motor control, hence some felt dehydrated because of the inability to move and drink, not as an effect of ibogaine *per se*. In a similar sense, urinary retention was experienced because of the ataxia, making the individual lie down in a bed and not move around. Moreover, any sort of movement often caused heavy nausea and vomiting.

> *I couldn't walk, if you moved the head it would start spinning... you have to stay still, if you move you get nauseated. Walking to the toilet impossible almost, so you're lying down for a long time. (#2792)*

Less than half of individuals reported having experienced heart irregularities such as tachycardia or bradycardia, often as a result of the interaction between the physical effects and the internal experience. Furthermore, heart issues appeared to be more frightening for individuals who knew more about ibogaine and its pharmacological activity.

> *I started to feel my heart beat really fast and really strong. And of course because I've had been really aware of all the dangers of ibogaine and giving out information on it, I was convinced that I was having some kind of heart problem. And it was at this point that I've realized that I got a real problem because my sitter was downstairs and I couldn't... I was feeling myself sink inside myself, so that I couldn't talk or even shout for help. I kind of just dropped inside and couldn't come out on the outside and express my anxiety. I've probably struggled for what must have been half an hour, convinced that I must be dying and unable to tell anyone about it. Really freaking out, like a proper anxiety attack probably. And then I realized okay, I just... if I'm going to die, I'm going to die. That's it, you know. I just had to surrender to it at a certain point. So, when I surrendered to it, then suddenly, actually everything kind of relaxed and subsided. (#3393)*

Less commonly mentioned were digestive difficulties (feeling gassy, constipation), and some experienced tremors. Stimulatory or stamina enhancing

properties were experienced only with a low dose or, on some occasions, at the onset of the effects. Similarly, the aphrodisiac effect was experienced only with a low dose or at the end of the experience. Opioid users could experience the stimulating effects and felt like their sexual desire awakened after the acute effects of ibogaine wore off.

Visual effects

Open eye visuals (OEV). In some cases visual alterations with open eyes were reported. For example an increase in visual acuity by noticing patterns and details in the external world that were not acknowledged before. The colors would appear more vibrant or could change (e.g., black and white colors). Many experienced distortions in depth perception and a drifting image (e.g., undulating walls, effect similar to fun-house mirror). In some cases geometrical patterns (e.g., pink triangles, circles), fractals, or light trails were seen. In rare cases animals (mice), insects (gnats), and spirits were seen.

> *I've opened my eyes and I saw these two, well actually three spirits just wander through the room. They were in like an old sack kind of cloths, like monks from old days or something. Feet not touching the ground, one of them was definitely hooded. . . literally just kind of materialized through the wall and passed through my room as real as this pen is right now, really real. I've never seen hallucinations like that on any drug before. (#3393)*

Closed eye visuals (CEV). A great part of the experience was happening internally. The visionary experience (as referred to by the study participants), dreaming while awake (as referred to in the literature), was experienced by many individuals and described as profound images or movies playing out in the head. Most describe the images as being very intense, rapid, and containing a lot of information, even unnecessary information, which was, in some cases, perceived as confusing. The content of the imagery could not be greatly influenced by the individual, however, the visuals would generally terminate with opening the eyes.

Ancestors and entities. Individuals reported seeing ancestors, who could be either ancestors they actually knew (deceased grandparents or parents) or recognized ancestors they did not know personally.

> *I would see a young face that was very quickly morphing and aging in front of me. I would see this being go from young adulthood to old age. Actually they were just disembodied heads that I've recognized as ancestors. And then the heads started to look down as they disintegrated.*

And this happened with five or six or seven female ancestors. I didn't know who they were, but my interpretation was that they were my ancestors, but they were people that I didn't know of. (#9290)

It was also common to encounter or feel the presence of divinities, archetypes (e.g., angel, native American chief) or mythological characters (e.g., Jesus), the spirit of iboga, and other entities. Often the individuals would communicate with them, either in a direct dialogue or just receiving information or insights from them. In some cases the individual could ask questions and receive answers.

At one point I had a distinct vision of a native American chief who I was having a dialogue with and during that he told me to get more in touch with plants. I don't really know what it meant, but that's what happened. (#5015)

I was asking questions about my relationship to my body, liking my body, being in my body, having my body be a place of appreciation and joy, not painful and health, etc. I found myself in front of my childhood home and I went inside and I've remembered everything. I've walked through the house and recognizing everything and I've only lived there until I was eight or nine. And then I went upstairs and started remembering things that happened there. At the end of the hall was my room, and I've walked into my bedroom and right on a right side of the room I saw a vanity. And then this whole thing started to unfold. Recognizing first of all my mother's excitement for creating and giving me this vanity. I was 6 years old. And the messages that that gave me, that I've internalized, which was it's all about looking beautiful, realizing I'll never able to be as beautiful as I could be. The struggle, the pressure from my mother... and this whole thing unfolded about my own relationship to my own beauty, from seeing this vanity, which comes from the word vain, and how my relationship to my body... my whole life was a continued rejection and polarization to my mothers' values around beauty. Very informative and really powerful when you consider that these were memories that I've thought I'd lost." (#9290)

Sceneries and landscapes. The landscapes seen in the visions were earthly and/or cosmic. Many felt like they were in space, seeing the earth and the moon. They traveled to continents like Europe, Asia, or America in different historical or futurist times. They were shown the history of the planet, the

evolution of living beings, and the beginning of the universe itself. Less commonly experienced were African themes.

They could envision the whole universe or a single cell. They saw how things are assembled and experienced the interconnectedness of everything. Some saw futurist technology or had prognostic visions. Often these images incorporated meaningful messages on environmentalism, raising self-awareness and enforcing a feeling of responsibility not only for one's self and others but also for the animals and the environment as a whole.

> *It was a bit like the movie Baraka. Lots of different images of different cultures all around the world, beautiful cinematography. Kind of going from heaven to hell. Lots of beautiful images of pristine nature and then suddenly images of like really hectic city life and town and busy and pollution and industry, really contrasting. Essentially, what we are doing on the planet. Where we have come from and where we are headed and what we are doing now. (#3393)*

Horrific scenarios. Common were feelings of impending doom and visions of apocalyptic scenes, or just darkness accompanied with a profound feeling of aloneness. The imagery was on occasion historical such as the mistreatment of women in the middle ages, or contemporary, like the controlling role of media and its influence on society. Sometimes futuristic scenarios of destruction on the planet were seen, such as scenes of wars, fires burning, and bloody images of dead animals and bodies. Some individuals experienced imagery of torture, rape, or murder. These were nonspecific to anyone in person, but showed the nature and the origin of such violent behavior in human beings in general. The visions of violence could also show very personal content.

> *I was shown like a nuclear experiment or test that was done that destroyed absolutely everything. And there were bodies floating in the water. And animals and plants everything was dead. (#2893).*

> *I saw my mother. My mother died a few years ago. She was severely abused by my grandfather, the same person who abused me. And she communicated to me how much her childhood was an absolute nightmare and she was on the verge of suicide so many times at very young age. She was showing me pictures, visuals. It was like a circle of symbolic images of herself of different stages of her childhood. Naked with like a bleeding vagina, obviously having being raped. She showed a circle of different images from being a little girl to being older. I just felt so horrible for her and I felt such love for her. (#3514)*

Auditory effects. Most study subjects experienced enhanced auditory sensitivity and distortions like a buzzing sound or the sound of waves. If music was played individuals experienced increased music appreciation and felt more connected to it. In rare cases the music was disturbing due to bad recording or personal dislike of the chosen music. In some cases auditory hallucinations like chanting were experienced, which started with the first acute effects and usually remained present throughout the experience. Generally these effects could not be influenced or terminated by the individual. The chanting did in one case apparently serve as a communication path between a "higher consciousness" and the individual. It transmitted inspirational future possibilities, insights on relationships and new perspectives on life's challenges. The continuous chanting was helping the individual to process and somewhat facilitate the experience.

> *I kept hearing this chanting. For three days it kept repeating itself. It was like a choir of men, maybe three, four or five men singing this really beautiful chant. Very simple. It stopped exactly after three days. As they were singing, I felt that the information was being downloaded to me and that the singing and chanting was helping me process it. So there was a huge reflective state for three days. I could drive, I could talk to people, but what I was enjoying the most would be to lie down and start processing... I was getting all kinds of detailed guidance, giving me specific solutions... all sorts of insights about people in my life. It was a very consciousness expanding interaction with higher consciousness... giving me a lot of wisdom, a lot of understanding that I didn't had before maybe or wasn't conscious of before. (#3514)*

Sensory effects. As the effects were getting stronger, the individuals got extremely sensitive to external stimuli such as light, sound, and smell. Also, touch and taste were affected. These sensations were often described as a "reset," making subjects more susceptible to everything in the surroundings.

> *If you washed your hands, the water would be so alive on your skin, it would feel incredible. And obviously, after the experience is over, if you eat something for the first time, like a piece of fruit. It's like the best piece of fruit you've ever ate in your life because everything is reset in your sinuses, in your taste buds and a lot of other things. (#3710)*

Half of the individuals reported synesthesia or blending of senses. It was experienced as "feeling the sound" and, in other cases, the music would affect the visuals seen or become an animated dream.

Cognitive effects. The individuals experienced wakefulness for at least 24 hours. This state was accompanied with enhanced analytical capabilities and thought connectivity where abstract and fluid thoughts were making seemingly unrelated ideas intertwined, resulting in an abundance of new and insightful ideas. This effect had an influence also on the increase of creativity experienced by most individuals, producing enhanced problem-solving capabilities, child-like fascination, increased appreciation of things, and an overwhelming feeling of profoundness. Among the most common cognitive effects was immersion and memory enhancement, which enabled the individual to easily access stored memories and recall them. Many individuals reported experiencing deep understanding of everything (e.g., the organization or structure of the universe, consciousness, everyday life, causalities) due to enhanced conceptual thinking. The information was perceived both in its entirety and in overwhelming detail. The individuals were very introspective, in a mindful, meditative-like state, with attention focused on the immediate experience. Some individuals experienced vomiting as part of "quieting the mind."

All individuals experienced distorted time perception, most commonly described as timelessness or irrelevance of time. Some experienced time expansion (slowing down of time) or time compression (speeding up). On rare occasions individuals experienced time or thought loops (e.g., same song repeating in a loop), slight dissociative or selective amnesia effects (e.g., asking the same question again), or cognitive fatigue (mental exhaustion toward the end of the experience). Some felt confused by the amount of information they were subjected to, while a few experienced anxiety (e.g., anticipatory anxiety).

Self-psychoanalysis enhancement. Most individuals described the experience as an accelerated psychoanalytical treatment. Many experienced an abreactive process or resolution of personal issues, either during or after the experience, by reliving a traumatic event emotionally, coming to terms with it and moving forward. The experience was compared to psychoanalysis particularly in cases where the individuals did not experience much visual imagery but described the experience as an interaction with one's own subconscious.

> *It actually happens in your head. It happens within you and there is nothing coming from outside. There is no connection to any kind of entities, miracles, energies, or whatever. Also during that I realized the benefit of this incredibly nauseous state. Because I understood that that's the only way to shut off your logical thinking. To create this kind of window that makes this kind of conversation with your subconsciousness possible. Which acquainted to me, at least within that experience, that*

that's impossible to reach even in two or three years of psychotherapy... and I've done psychotherapy a lot. (#4355)

Observer quality. A number of individuals felt as if they were in a state of witnessing, a unique state of being emotionally distant from the personal imagery seen. This spectator quality of ibogaine is distinct from any other serotonergic hallucinogens, according to our study subjects.

I was kind of thinking about instances in my life, and the past, and some of the traumatic things that have had happened, but not feeling the emotions that were linked to those events, when I was thinking about them. Which is unusual because normally I would get really anxious and really upset about it. Everything was for very short periods of time. It's not like this things would play out for hours... it would feel like seconds almost, but you would sort of deal with everything in those few seconds and then you would move on to something else. (#6568)

I don't remember having any emotion at all, I was just sort of in a state of witnessing. It's an extremely different quality. It really feels like the content is coming from somewhere really real and somewhere really deep, rather than being produced in the brain or by the drug. It really feels like some kind of weird, deep subconscious part. (#2380)

Catharsis. Many individuals report seeing specific, very factual events in life, events from their childhood, relationship with parents or romantic partners and friends. The memory seen can be a traumatic event or simply a trivial memory of a seemingly insignificant event, yet one that influenced the individual one way or another. The focus is not on the trauma *per se*; the individual was not only remembering a specific memory but also gained insight into the culmination of events that led to it, how it developed, and what it caused. Such understandings lead to a more objective perception of the event and consequently changed the impact that the event had on the individual. Profound realizations about understanding one's own behavior and the behavior of others were gained. In some cases this helped in the grieving process and letting go of a loved one (by encountering the person and communicating with the deceased), while in others it stimulated the feeling of forgiveness and acceptance of one's self and other people.

Iboga showed me some things in my life that I needed to apologize about, or make right, or have remorse about. One of them was that I saw myself being rude to my mother when I was in high school. She was

clinically depressed and was pretty much losing her mind at the time. So I've found a place that I felt very remorseful about how I've treated her. I apologized to her. I felt like she was available to receive that apology. She is very alive in my life, although she committed suicide 30 years ago. (#7753)

Also commonly experienced was a sensation of rebalancing male and female energies, in one case with significant effects on rediscovering the sexual attraction toward the opposite gender. Often these effects were not perceived immediately but did manifest in the days after the ingestion.

These realizations happened after the actual intake. This unfolded maybe two weeks after, but also as a result of the ibogaine. [. . .] It's almost like I've re-synthesized my masculine and feminine principles and as a result I've rediscovered my attraction to women that I've had not felt since I was ten years old, which, I guess, is a very significant part of the experience. (#1983)

Ego dissolution (death and rebirth). Many individuals experienced a symbolic death and rebirth process. Usually it was connected to physical symptoms such as heart rate that triggered the fear of death. However, with the exception of one study subject, none of them was in actual risk. While some were conscious that they were not in a life-threatening situation but still experienced the fear, others truly believed they were going to die on the spot. Once they had accepted their own mortality and came to terms with it, the unpleasant physical effects generally subsided along with the very intense, confusing, and uncontrollable imagery. After this intensive phase, many felt rejuvenated, mentally clear (reset of habits), spiritually uplifted (by realizing possibilities in life; experiencing gratitude for oneself and others), and physically cleansed (reset of senses; relieved from body tensions).

[It] brought me to a point where I thought there is really no point in continuing it all and I was pretty much ready to just die right there. Feeling like the loneliest person on planet earth, just being in a total desert and just nothing. Nothing to come from and nothing to go to. . . like for all human beings. Every kind of existence is totally senseless. And after that, where I was ready to just die, it kind of went into the next phase where, and that brought an immense relief with it. [. . .] I felt all arteries and veins opened up, so you feel incredibly hot. I felt like every single cell in my body and my brain is like vibrating and burning in a way. So it felt like a total body cleanse on a cellular level as well. (#4355)

Empathy, love, and prosocial behavior. A reoccurring effect was the suppression of personal bias, showing the individual the many aspects of the objective reality and allowing them to understand situations and events bias free. Such alternations were in many cases perceived as irreversible. Study subjects very commonly reported a prosocial quality of the experience. They felt great empathy for people by whom they were hurt and saw situations when they were the ones hurting others. The feelings that accompanied this experience were initially those of guilt and remorse, yet once they came to terms with it acceptance, forgiveness, and unconditional love followed. This not only helped them to reconnect with their loved ones and improve relationships in the work environment but also gave them a sense of understanding of one's self and people in general.

> *A lot of it was based on relationships I've had with people. It showed me what I have done to hurt them. And what it did, it switched my role, it put me into their shoes and vice versa. The people I've hurt, in the vision I would go and apologize to them and asked them to forgive me. And the people who'd hurt me, I forgave them. Basically, once I forgave people everything changed. All that went to the side and the universe opened up. (#3710)*

> *I was moving through thoughts about one child and then my other child, and my relationship with my parents, my relationship with my family, and with my job. What I found was a real tenderness, like soft authenticity, and a level of compassion for myself and for people that I've been angry with or had some resentment towards. It just seemed as if those types of sharp, resentful feelings were just melting away. Very very reflective. (#2635)*

Spiritual states. Spiritually, a sense of unity or interconnectedness was experienced by most. While many gained an understanding of spiritual roots, the source of life or life's purpose, all agreed they had become better persons. Most importantly, the experience brought a sense of hopefulness for the future, especially in cases of drug dependence. In some cases interdependent opposites were described such as light–dark; bad–good; life–death; disconnection–connection to people.

> *Ibogaine reconnected me with my life's purpose. And I've discovered the fact that whenever I didn't had a life purpose, I've felt like I just wanted to die. Even if my life's purpose is not clear, it's present. I want to live and I want to love, and I want to connect and I want people to connect and love and create a better world. (#1983)*

Spiritually speaking there was a definite sense of reconnecting with some type of spirit, we can call it god. God was present, both, in my mind and in my body, down to a very cellular level. It was also present within everything that was around. All the plants, all the animals, all the people, all the creation that men have made in their lives. Being able to look at anything, something as simple as a lawnchair and realizing that whatever I was looking at had been created by a person or a number of people. [. . .] Almost like a story how everything came to be. (#2635)

Anti-dependency agent. Treatment of drug abuse represented one of the most common reasons for taking ibogaine. Because the purpose of the study was to assess the acute subjective effects of ibogaine, we interviewed individuals who had recently taken ibogaine and still had a fresh memory of the experience. Six individuals took the ibogaine not more than 3 months before the interview. Long-term effects on craving or relapse, therefore, cannot be clearly determined yet. Up to the point of the interview, however, all of them were abstinent with no intent to return to previous lifestyles.

Craving and withdrawal suppression were among the most prominent acute effects of ibogaine. Both disappeared within the first hours of ibogaine ingestion. The individuals were most often subjected to a review of particular moments in life, which contributed to the development of the addiction. These occasions were represented in various ways, most commonly showing triggers for the drug abuse, how it developed, and the vicious cycle of reward and punishment.

It was just showing me how the reward system works in the brain. It just always wants a reward. It was just showing me what the things were that hit my reward circuit more than others and possibly why, if that makes sense. Giving me insights into why I keep performing these behaviors I do perform, specifically about the pot. I've been smoking pot for 20 years off and on. It kind of reminded me of an incident that happened when I was a child that probably predetermined a course for a period of time. It brought up that in my mind again. How this manifests in the body pains for me. I experienced pains that were repressed, like aggressions and anger that I've never fully let go of or released yet. (#3551)

The symbolism of the messages could be as rich as the individual's imagination, using sacred and/or profane imagery. In the one case a popular song was playing out in a loop for several hours.

[I had] a lot of imagery of like poppy heads with skull and crossbones being imprinted on top of them. This is just imagery coming to me and

then going away. And also throughout the whole experience, for like the first 12 to 18 hours… there is this song by the artist Pink about raise your glass. I don't know, if you are familiar with it. It's a pop song and it's all about getting wasted and getting drunk and shit. I had that playing in my head from the time it started up until the time it ended. That was the soundtrack going on all the time. Just like continuous, like in a loop, I couldn't get rid of. That's all about alcohol. The whole thing was really banging into me about my addiction and stuff like that. Whether it be smoking meth or drinking alcohol or taking opioids, it's all the same fucking thing and that's what I was being told. That was very profound. (#8986)

Ibogaine seemed to create a "breathing space," a way out of the vicious cycle by temporarily freeing the individual of the destructive habits and giving the chance for change.

What the medicine did for me, when I was in an addictive phase, was, it gave me breathing room. It gave me time to assess things. Whereas, you know, I've just been falling down a pit for 20 years. And I'm someone that has gone through the 12 steps and that's just… it helps people and god bless the people that it helped. It did not help me. It did not help me twice. And more importantly, it just made me more pessimistic about my chances of ever being able to live a normal life, because that's all I knew. That's how everybody recovers in the United States, right? There is not a lot of other modalities. So you've got 12 steps and, if the 12 steps don't work, you are kind of fucked. So ibogaine was the last effort for me to safe my life and then it saved my life! (#3547)

While psychological benefits (suppressed craving) were experienced by all study subjects, not all experienced alleviated withdrawal symptoms. It should be also noted that in some cases taking low-dose boosters and/or repetitive treatments were used to reinforce the long-term effects.

The importance of aftercare, a therapy, or some sort of supportive environment among friends and family, has been pointed out as crucial to whether or not one relapses.

It's not on the plant or medicine or psychedelic to address the whole being and solve things, because I don't think it really does that. I also think that's one of the traps that people expect from those experiences or want them really desperately and often. What I've discovered in working with it, is that those aren't the things that ultimately keep us from harming ourselves and create healthy behaviors and learning how to live

happily. It's actually things like going for exercise, making yourself do yoga and having a therapist. You know, working diligently and daily on habit patterns. Those are the things that are ultimately necessary and crucial for anyone to utilize these substances and incorporate the messages. (#6520)

Albeit, the unsuccessful treatments are not seen as useless, rather they are perceived as one of the steps in the recovery process.

I was good for about a week or two, but I was a lot younger. I wanted to, but I don't think I was ready to check-off drug use. After that it was a while to my second experience. And I was little bit more ready, but I didn't know about after-care or any of that. I was given boosters, but I didn't use them like I should have. The third was not the greatest setting. I got a lot out of it. I used after-care, I didn't use the boosters. But now, I think, through all of the experiences, now I'm actually working on improving myself. I use aftercare, whether it's a therapist or just talk to people. I go to NA meetings. But I don't really support the whole 12 steps program. I think it's good to get away for an hour. Through all my experiences, I think, I'm in a new place… It will change you, but you have to do the work. Like the first, second, third experience… I got something out of it, but I didn't do the work, so I went back to my drug use. But I definitely had something from it, you know. And that's part of why I am wherever I am today. (#9903)

Adverse effects. Among the 20 study subjects one needed to be hospitalized due to arrhythmia and seizures. These adverse effects were a consequence of drug interaction rather than ibogaine itself. The individual had consumed alcohol along with benzodiazepines to treat heroin withdrawal just a day prior to the ibogaine treatment. The dose was approximately 15mg/kg i-HCL.

I've started to have visions and then I've blacked out and woke up in intensive care in a hospital. Apparently I was taken by two separate ambulances, because one ambulance did not have the medication to start my heart. I woke up in the hospital and I believe they gave me a little bit of Diazepam and I basically dreamed. (#6520)

After-effects. The individuals felt very happy, joyful, and alert (self-aware) for several days, even months, afterwards. The mind felt clear, the thoughts came very naturally and a sense to take care of oneself physically, emotionally, and spiritually was gained. They tended to sleep better but less than before. The compulsiveness was gone and many individuals tended to

change their eating habits and drug use habits. They made changes in their relationships, workplaces, and lifestyles. Many gained a sense of their life's purpose and felt personally empowered to make important life choices like having children, ending a relationship, or changing the profession.

> *After that I didn't feel rushed... no anxiety. I was able to just sit down and relax with my kids and really enjoy their company. So it really helped me connect with my kids so much better... So much of this ADHD was literally gone, so many problems went away forever.(#3514)*

> *I can think back to it and still enjoy and feel that spiritual awareness or self-awareness, that I didn't know I had before and kept that with me. And it makes me personally happier than I was before. (#6520)*

Yet, with time, these effects may vanish too. Many individuals indicated, that one has to work continuously and diligently on maintaining a healthy lifestyle and that aftercare is key for incorporating the benefits of the experience in the long term, whether it be with psychotherapy, meditation and yoga, nutrition, or something else.

> *This new interaction with my own inner voice started to fade along with the shiny sparkly holiness of seeing everything. That was about a month and a half after my treatment date. That was when I realized I needed to take up a meditation practice and yoga, I had to deepen. I couldn't just rely on ibogaine to continue my progress in life. (#1862)*

■ DISCUSSION

The objective of the study was to assess the subjective effects of ibogaine, therefore we asked the individuals to describe the experience with as much detail as possible. Since the amount of the gathered data was extensive, we focused here on the most common or compelling aspects of our findings and compared them to relevant published data.

Stages

The effects of ibogaine seem to last longer than what we know from other classic serotonergic hallucinogens such as psilocybin or LSD (Ott 1993) and are generally experienced in stages (Alper 2001; Mitsogho Bwiti in Goutarel et al. 1993; Lotsof and Alexander 2001). In Bwiti, both the initiation ritual and the iboga experience itself are perceived in stages that resemble the

process described in our study. In Bwiti the individuals receive the test dose to check for any potential allergic reactions, as was the case for many subjects in our study. After the test dose the ingestion of a purifying and stupefying flood dose followed. It would manifest in a symbolic death and rebirth and ended in reintegration (Fernandez 1982).

Although the first stage is most commonly referred to as the main visionary stage or a waking dream (Alper 2001; Lotsof and Alexander 2001) with incoherent, disordered images (Goutarel et al. 1993), individuals in our study mostly described it as the onset of physical attributes, mainly unpleasant physical effects like ataxia and nausea. The first stage lasted from 2 to 14 hours according to our data, with the onset of the acute effects within the first hour after ingestion. Compared to published data, the duration of the experience is comparable, because the onset is reported to be within 1–3 hours after ibogaine intake and a duration of 4–8 hours (Alper 2001).

The second stage is referred to as cognitive evaluation (Alper 2001; Lotsof and Alexander 2001). Our data, however, suggest it to be the main visionary phase, similar to Mitsogho Bwiti oneiric visions (Goutarel et al. 1993). The timespan of the second stage in our case was 4–30 hours compared to the previously reported 8–20 hours (Alper 2001).

The third stage, referred to as residual stimulation (Alper 2001; Lotsof and Alexander 2001), was described as the phase of coming down from the very intense experience, but still under significant cognitive effects—introspective and contemplating of the experience, yet alert and wakeful. This stage could last for an additional 12 to 72 hours, which corresponds with published data (Alper 2001).

The fourth stage refers to the after effects (Lotsof and Alexander 2001), which are as important for the individuals as the acute effects itself. This is a state of clarity of thought and presentness experienced for days, weeks, or even months afterwards. In Mitsogho Bwiti the fourth stage is identified as normative visions that correspond to the collective and cultural image of the society (Goutarel et al. 1993). In the psychoanalytical perspective, the long-lasting effects are understood as a process of abreaction (Lotsof and Alexander 2001), where understanding and resolutions about past (traumatic) events are gained.

Acute subjective effects

The categories and subcategories of the ibogaine experience identified among twenty individuals correspond to a large extent with published data. Similar themes and topics are reoccurring throughout the Bwiti literature (Fernandez 1982; Goutarel et al. 1993; Ravalec et al. 2007) and in case reports of drug dependency treatments (Lotsof and Alexander 2001), although each experience remains unique to the individual.

The subjective experiences among the study subjects corresponded greatly to the traditional role of iboga in Bwiti. Iboga is a plant teacher transmitting knowledge on the origin of the world or mankind, connecting the initiates with the spirit (ancestor) world with the help of music, and teaching about unity, altruism, and the importance of the collective dimension. It gives insights on the past, the present, and the future by invoking clairvoyance, while the process of a symbolic death and rebirth serves to return the initiates in a pristine condition, to their own integrity. This is also seen as a purification tool for cleansing the body of accumulated angers, desires, or other "sins," with nausea and vomiting being seen as an essential part of that purge (Ravalec et al. 2007).

Similarly to other serotonergic hallucinogens, ibogaine also enables a state of deep introspection or self-analysis, and an analysis of others without judgment. In this sense it has been argued as having a quality of a psychoanalytical treatment, where the individual can rediscover and gain psychological strength and physical energy that gives motivation and direction for change (Ravalec et al. 2007). The ease with which the individual can recall certain memories in life and the "observer quality" of the events experienced make ibogaine a potentially effective tool for facilitation and acceleration of conventional therapeutic methods (Naranjo 1969). The psychoanalytical property of ibogaine was in our case most commonly described as an interaction with one's own subconscious, especially in cases where vivid imagery was absent.

The aphrodisiac effect was not experienced when a flood dose was taken. Some had experienced it when ibogaine was taken in low doses or micro-doses. Noticing an increase in sexual desire was reported only as an after effect in individuals who treated opioid dependence with ibogaine. Because opioids dampen the sexual drive, an aphrodisiac effect can be experienced rather due to stopping the opioid consumption than a direct effect of ibogaine.

Drug dependence

In western society, ibogaine is to a large extent known by its anti-dependency properties, which are some of its most intriguing effects. Case reports gathered since the 1960s claim a promising role in treating even the most severe drug abuse, helping the individual to kick the destructive habits (Belgers et al. 2016; Schenberg et al. 2017; dos Santos et al. 2017; Wilkins et al. 2017). It is not to be claimed as a panacea, yet with appropriate support and aftercare, significant improvements have been observed in all drug-dependent individuals included in our study. Ibogaine produces an intense and transformative experience that can alleviate withdrawal symptoms and reduce craving in most cases.

Among commonly reported effects were vibrating or rocking sensations, changes in time perception, wakefulness, and auditory distortions. Ataxia,

heavy body feeling, nausea, and vomiting were reported as physical effects. Cognitively, a deep introspective state with memories of childhood and episodes on drug use were experienced. Other imagery like geometrical patterns, animistic, or African themes were reoccurring too. Spiritually, a sense of connection to other people and unity was gained. Among the most common after-effects were the cleansing feeling, enhanced self-confidence, and decreased anxiety (Lotsof and Alexander 2001).

Most long-term success is seen when the individual is highly motivated for change and is in a supportive environment, practicing aftercare or psychotherapy. Sometimes low-dose boosters or micro-dosing are reported beneficial to enforce abstinence, yet drug abuse is always a combination of personal socio-emotional issues (Alexander 2010), and solely pharmacological interventions often prove to be insufficient for long-lasting effects. The data suggest psychotherapy to be beneficial for the individual, while the 12-step program was evaluated as less effective, appreciated more as a socializing space rather than for its therapeutic value. Although the anti-dependency properties of ibogaine seem promising, the risk of adverse effects can be much higher because of drug interaction and, not uncommonly, the individual's poor health condition.

Adverse effects

In literature there are cases of fatalities associated with ibogaine, which appear to be the consequence of pre-existing medical conditions such as cardiac illnesses or, in the case of drug dependence, the use of other substances shortly before or during the ibogaine experience (Meisner et al. 2016). The only life-threatening situation reported in the present study occurred most probably due to poor health condition and malnourishment, high dose of ibogaine administered, and drug interaction involving alcohol and benzodiazepines 1 day before ibogaine, and heroin 3 days prior to the ibogaine treatment.

Additional potential risks can arise due to the lack of standardization of ibogaine, as it is with any other compound. Essential for safe use is analytical work to determine the quality and potency of the compound.

Most commonly the dose determines the risk of adverse effects. The LD50, a general indicator of a substance's acute toxicity, tells us the dose lethal for half of the tested population. The lower the LD50 the higher the toxicity of a substance. Studies on rats report the LD50 of ibogaine at 145 mg/kg when administered intraperitoneally or 327 mg/kg when administered intragastrically (Popik and Skolnick 1998) and should therefore not have a great liability for lethality. Yet due to its complex pharmacological activity and some reported fatalities it should be still handled with great care and caution. High doses of ibogaine increase the risk for seizures and heart

problems that in some cases caused death (Schep et al. 2016). Several decades of informal work, however, has accumulated valuable information that helped to define exclusion criteria and reduce the potential risks. Those include ECG tests, supervision during the ibogaine treatment, and experienced personnel for medical intervention (Lotsof and Wachtel 2003; Winkelman 2014; Litjens and Brunt 2016).

Prosocial quality of the experience

Any social interaction is determined by affective and cognitive processes. In scientific thought, emotion and cognition are generally perceived as separate but interacting mechanisms. Even the simplest tasks are carried out in an interaction between them, and both are equally contributing to the control of thought and behavior (Gray et al. 2002). It has been proposed that the disruption of this interaction may provoke psychiatric and neurologic diseases (Barbas and García-Cabezas 2017). Recent research continues to challenge the understanding of emotion and cognition by arguing that all conscious experience, emotional and non-emotional, comes from one system in the brain: cognition. It is considered to be the network responsible for processing the different contents or inputs of, both, emotional and cognitive states of consciousness (LeDoux and Brown 2017).

What we learned from our study subjects is that ibogaine produces a distinct witnessing state, where one is subjected to powerful emotional imagery but perceives it cognitively rather than emotionally, as an emotionally distant observer. The individual sees the world without prejudice with great understanding, empathy, compassion, and acceptance of family members or friends, of human kind, animals, and the planet itself. These states are in our classification represented in two subcategories of the cognitive effects (empathy, love and prosocial behavior and observer quality), which correspond also to the classification in the SEI.

Studies on the prosocial role of psychedelics are steadily growing in number. They have found these to enhance empathy, insight, communication, and treatment engagement (Tenenbaum 1961), to improve behavior and personality among psychopaths (Arendsen-Hein 1963), to enhance prosocial behavior among recidivists (Hendricks et al. 2014), and to stimulate social cognition (Preller et al. 2016). Similar studies with ibogaine, however, are lacking. The data in the present study suggest that the prosocial role of ibogaine requires further investigation as one of its particular long-term effects.

Study limitations

The study subjects found it difficult at times to describe the experience due to the limitations of the language and the uniqueness of the experience itself.

As one of the interviewees expressed: "*it would be easier for me to paint my trip really, than to talk about it.*"

Another limitation lies in obtainment of data. We believe the study sample of twenty persons is representative for the purpose of the study, yet most interviews were made via Skype calls (audio only). There are several disadvantages of an online interview compared to a face-to-face one. Because the topic of the conversation is very personal, we found it more challenging to establish a deep connection with the person due to the absence of visual cues, distractions, and technological shortcomings.

■

CONCLUSION

The acute subjective effects of ibogaine seem to differ from classical serotonergic hallucinogens such as psilocybin, LSD, or ayahuasca with regard to the duration of the whole acute experience, the observer quality of the experience, and the long-lasting after-effects, as well as the anti-craving and anti-withdrawal properties. The identified (sub)categories of the acute effects found in the present study may serve for a better understanding of the subjective effects of iboga and ibogaine, in particular its potential in personal growth, prosocial behavior, psychotherapy, and anti-dependency treatments. This study also adds valuable insights to pharmacological and neurobiological studies, hopefully opening up new horizons in the assessment of the subjective effects of such experiences in general.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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