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Ibogaine and Subjective Experience: Transformative States and Psychopharmacotherapy in the Treatment of Opioid Use Disorder

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ABSTRACT

This article examines the therapeutic potential of ibogaine, a powerful oneiric alkaloid derived from *Tabernanthe iboga*, through exploring the subjective experiences of 44 participants from two observational treatment studies for opioid use disorder. Following treatment with ibogaine HCl, the participants (Mexico, $n = 30$; New Zealand, $n = 14$) completed the States of Consciousness Questionnaire (SCQ) to quantify the magnitude of their psychotropic experience. Participants were asked to provide written transcripts of their experiences, with those supplied being analyzed thematically through an iterative process, to produce a set of coded themes. Mean SCQ scores in many domains exceeded 0.6, the cutoff score for a “complete mystical experience,” with 43% of participants achieving this in more than five of seven domains. Qualitative data described multiple phenomenological themes, including auditory and visual phenomena. Ibogaine’s strong oneiric action promoted cyclic visions leading to confronting realizations involving remorse and regret for participants’ actions towards others, but also release from feelings of guilt and worthlessness. Many participants reported feeling a sense of spiritual transformation. We propose that the reported experiences support the meaningfulness of ibogaine’s oneiric effects as a discrete element in its capacity for healing, which is distinct from pharmacological actions associated with reduced withdrawal and craving.

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Introduction

What has become a global movement for ibogaine treatment began with a serendipitous discovery by a single person. In June of 1962, Howard Lotsof, then a 19-year-old heroin-dependent member of a group of lay drug experimenters living in Brooklyn, received some ibogaine from a friend, who told him to expect a 36-hour “trip.”

He took the ibogaine unsuspecting of the eventually profound implications. About 23 hours after the onset of the drug’s effects, and long after the intense visual hallucinations subsided, Lotsof slept. He awoke refreshed three hours later. And it dawned on him that he was not in withdrawal and his perception of heroin as a comforting drug had changed: “I now viewed heroin as a drug which emulated death. And the very next thought into my mind was ‘I prefer life to death’” (Lotsof 2007).

Soon, others in the drug experimentation group reported similar results. Eventually, Lotsof was granted five patents for ibogaine treatment for dependence on

a variety of substances and, by 1990, ibogaine treatment sites were being run by proponents involved with addict self-help groups in Amsterdam and New York City (Alper, Beal, and Kaplan 2001).

This nascent movement grew rapidly, with over 3,400 people receiving ibogaine treatment by 2006, most for opioid dependence (Alper, Lotsof, and Kaplan 2008). By 2017, there were about 80 treatment sites globally (Brown 2017). Several thousand ibogaine treatments have provided anecdotal evidence of ibogaine’s efficacy, and of its capacity to facilitate profound alterations of consciousness.

With three recent publications, the scientific evidence of the efficacy of ibogaine treatment is growing. These include Schenberg et al. (2014), showing efficacy with increased periods of abstinence from problem substances, primarily cocaine, following detoxification. Two observational studies provided evidence that ibogaine is effective in treating opioid use disorder. Both Brown and Alper (2018) and Noller, Frampton, and Yazar-Klosinski (2018) found that ibogaine is useful in acute opioid detoxification, significantly reducing

withdrawal symptoms as measured by the Subjective Opioid Withdrawal Scale (Handelman et al. 1987). Both also showed, using the Addiction Severity Index (ASI; McLellan et al. 1999), that Drug Use Severity scores were significantly reduced 12 months following treatment. One study, based at treatment sites in Mexico (Brown and Alper 2018), also found significant improvements in ASI Family and Social Status subscores at all follow-up time points from one to 12 months following treatment. The other study, based in New Zealand (Noller, Frampton, and Yazar-Klosinski 2018), showed that ibogaine treatment was associated with improvement in depression symptoms at one month and 12 months following treatment, as measured by the Beck Depression Inventory-II (BDI-II; Beck, Steer, and Brown 1996).

Despite the efficacy demonstrated by these studies, as well as numerous pre-clinical studies demonstrating that ibogaine ameliorates withdrawal-like symptoms and reduces drug self-administration in animal models (Baumann et al. 2001; Glick, Maisonneuve, and Szumlanski 2000), understanding ibogaine's efficacy in treating substance use disorders is limited.

Numerous pharmacologically based theories have been offered to explain ibogaine's efficacy (Alper 2001; Mačiulaitis et al. 2008; Popik et al. 1995). In this article, however, we examine the possibility that at least some of its efficacy is mediated through the intense hallucinogenic experiences that the drug often engenders.

Method

The data reported in the following are derived from two observational studies of ibogaine treatment for opioid dependence. The studies described outcomes from ibogaine treatments in Mexico (lead investigator TKB) and New Zealand (lead investigator GN), and full methods are reported elsewhere (Brown and Alper 2018; Noller, Frampton, and Yazar-Klosinski 2018).

Research procedures used for this report received prior ethics approval from the Human Research Review Committee at the California Institute of Integral Studies (Mexico) and the Health and Disabilities Multi-region Ethics Committee (New Zealand).

The two studies were strictly observational, with neither investigator involved in administering ibogaine or in clinic management. Treatment consisted of administration of ibogaine hydrochloride (HCl) over the course of one to five days, followed by a clinic stay of three to six days. New Zealand participants received an average of 31.4 ± 7.6 mg/kg of ibogaine HCl during treatment, while 26 Mexican participants received an average of 22.5 ± 10.1 mg/kg; i.e.,

significantly lower than the New Zealand participants (*t*-test, $p = 0.018$). The remaining four Mexican participants received an average of 9.9 ± 7.8 mg/kg ibogaine HCl and additionally received 18.7 ± 17.3 mg/kg of a crude extract of *T. iboga* rootbark.

The treatment samples consisted of 30 clients of private Mexican clinics and 14 from New Zealand clinics, treated on a fee-for-service basis. All participants in both studies had sought treatment with ibogaine for opioid detoxification, having met DSM-IV criteria for Opioid Dependence with Physiological Dependence on Opioids (American Psychiatric Association 2000). Exclusion criteria included receiving treatment for substance use disorders other than opioid dependence, previous ibogaine treatment, and exhibiting any physical or psychosocial problems preventing compliance with study requirements.

The Mexico study sample comprised 25 men and five women with an average age of 29.0 ± 9.0 years. Twenty-seven were Caucasian, one Hispanic, and two other ethnicities. They had used opioids an average of 29.0 days out of the previous 30 before treatment and had undergone an average of 3.1 prior treatments for opioid dependence.

The New Zealand treatment sample consisted of seven women and seven men with an average age of 38 ± 4.8 years, all Caucasian. They had used opioids an average of 28.8 days out of the previous 30 before treatment and had undergone an average of 4.7 prior treatments for opioid dependence.

Quantitative measures

The primary quantitative outcome measure was the States of Consciousness Questionnaire (SCQ; Griffiths et al. 2006), used to assess the alterations of consciousness experienced during the ibogaine treatment. The SCQ has seven subscales; participants are considered to have had a "complete mystical experience" if their score on either or both of the "internal unity" and "external unity" subscales, as well as on all five of the other subscales, is greater than or equal to 60% of the maximum possible score on that scale (Griffiths et al. 2006). The SCQ was administered to individuals within one to four days after treatment. Data from all 14 of the New Zealand participants and 28 in the Mexico study were included in the analysis; for two in the Mexico study, the SCQ was either not administered or was lost.

The secondary quantitative measure was the Beck Depression Inventory-II (BDI-II; Beck, Steer, and Brown 1996), administered initially within two days before treatment and subsequently within one to four days after treatment when the individual was still in

residence at the clinic. All 14 New Zealand participants completed this measure at both time points, as did 24 of the 30 Mexico participants. Analysis of the BDI-II scores (two-tailed *t*-test) compared pre-treatment scores with post-treatment scores for each study and for the pooled data from the two studies ($n = 38$).

Qualitative interviews and method

As immediately post-treatment as was practicable, participants were asked to describe their ibogaine experiences. Seven of the New Zealand participants and 13 of the Mexico participants provided sufficient text to be included in the textual analysis. Other participants provided nothing (11), drawings (11), or limited text (2). A comparison of the two groups (included in thematic analysis, $n = 20$ versus not included, $n = 24$) found no differences in any demographic measures identified, and no differences in baseline BDI-II scores or ibogaine HCl dosages.

The resultant qualitative data from the 20 contributing participants in the two studies was analyzed using a generic inductive thematic analysis (Thomas 2006). This was conducted through an iterative process involving comparison across the transcripts, assisted by Atlas.ti 8 for Macintosh (ATLAS.ti 2018) qualitative analysis software. Descriptive codes were established and organized into higher-order thematic categories, with the analysis proceeding through several iterations until the coding structure was resolved to the researchers'

satisfaction. The plausibility and explanatory value of the categories were independently assessed to confirm credibility or internal validity (Onwuegbuzie and Leech 2007) by GN and TKB, both of whom are anthropologists experienced in the study of psychotropic phenomenology. Quotations from study participants (identified only by participant number and site) are used to contextualize themes derived from the analysis.

Results

Quantitative results

Figure 1 shows the mean SCQ subscores for participants in both samples in each of seven domains of mystical experience. Average subscores in the New Zealand sample ranged from 0.48 to 0.72 and for the Mexican sample from 0.49 to 0.64. The means across all subscores were 0.60 ± 0.22 in the New Zealand sample and 0.56 ± 0.24 for the Mexican sample. The mean scores in three domains are above 0.6, the cutoff score for a "complete mystical experience" (two in the Mexican study and four in the New Zealand study), indicating that the average experience was moderately strong. Comparison of the two samples also shows that the SCQ profiles in Figure 1 are very similar, as the mean scores in each domain are within one standard deviation of each other.

Figure 2 shows that 10 of the 42 participants (24%) achieved "complete mystical experiences" as determined

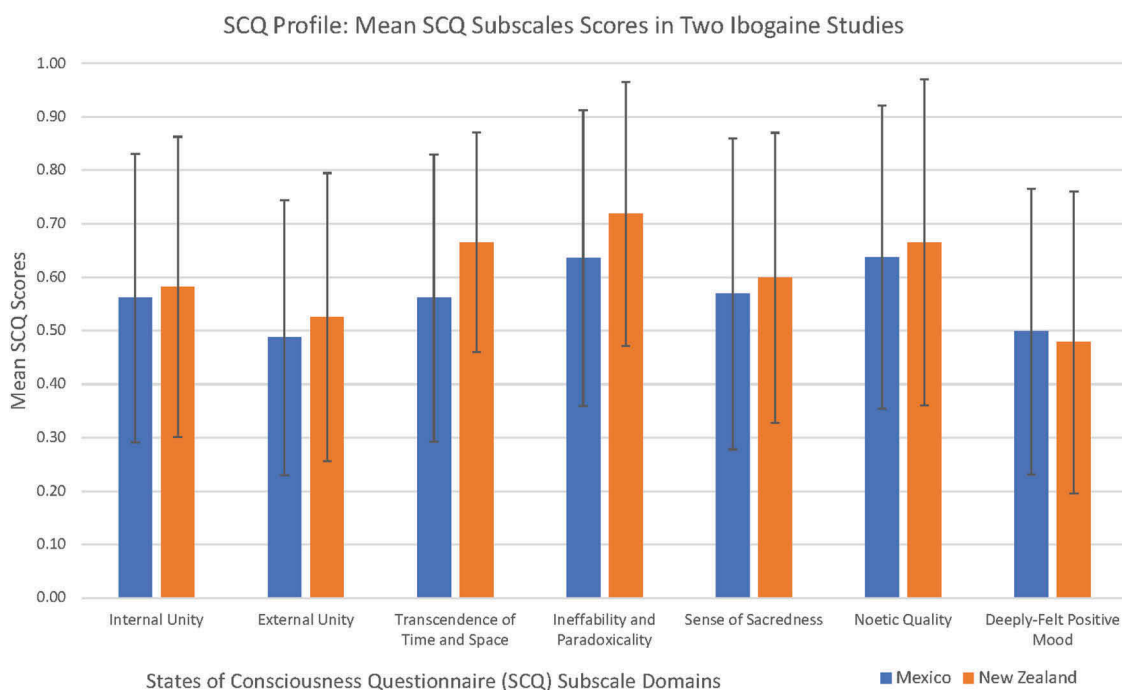


Figure 1. Mean SCQ subscales scores for seven domains of mystical experiences in two observational studies for the treatment of opioid dependence in Mexico ($n = 28$) and New Zealand ($n = 14$).

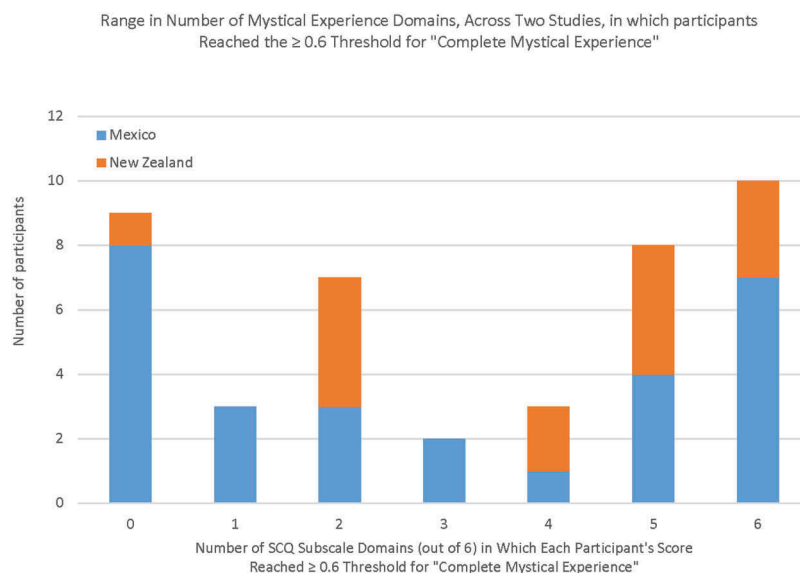


Figure 2. Range in number of mystical experience domains across two observational studies for the treatment of opioid dependence in Mexico ($n = 28$) and New Zealand ($n = 14$).

by the SCQ, having reached scores of 0.6 or higher in all six domains (with “Internal Unity” and “External Unity” merged). Nearly as many ($n = 8$) reached scores of 0.6 or higher in five of the six domains. Over 20% ($n = 9$) did not reach the 0.6 level in any domain, suggesting wide variation in the intensity of the ibogaine treatment experience.

Two-tailed t-tests of the mean cumulative SCQ scores for opioid-abstinent participants versus relapsed participants at 1, 6, and 12 months' post-treatment found no significant relationship between the two groups at any of these times.

BDI-II

Analysis of pooled data ($n = 38$) revealed that the BDI-II scores decreased significantly ($p < 0.001$) from pre-treatment (mean 24.4 ± 9.2) to post-treatment (16.5 ± 10.9).

Qualitative results

A number of themes emerged from the iterative analysis of written material generated by participants. Overall, 20 of the 44 participants from both groups contributed written descriptions of their experiences with ibogaine's psychotropic effects, with similar proportions from each site; i.e., the Mexican study (13, 43%) and the New Zealand study (7, 50%).

At the initial coding, 18 themes of varying significance emerged, which were then grouped under three higher-order constructs: *Vision Content*, *Perceptions*, and *Process*. After discussion, coded themes were placed in relation to their higher-order themes based initially on the time or

phase during the ibogaine experience that a given thematic element occurred to the participant. Subsequently, the relative weighting attributed to a given theme, based on the number of utterances identifying it, was also applied as an organizing principle. Reviewing this analysis produced a further theme (*Remorse & Regret*) under *Process*. Finally, themes were reconfigured and linked in relational networks under their respective higher-order constructs (fourth iteration of analysis, Figure 3). Interrater reliability was calculated using Cohen's kappa ($k = 0.46$; McHugh, 2012). While space allows for detailed discussion of selected themes only, Table 1 displays all themes along with illustrative quotes.

Higher-order constructs

The higher-order constructs in Table 1 (*Vision content*, *Perceptions*, *Process*) facilitated grouping sets of themes, based on general content, prominence within participants' aggregated experience, and temporality of occurrence during the vision.

Early on in participants' experiences, the *Visions* which ibogaine is renowned for seemed either to emerge from the auditory phenomena or be blended with them. This both links the theme *Colors* with auditory effects and also suggests synesthesia, a phenomenon associated with enhanced memory (Rothen, Meier, and Ward 2012). Other commonly occurring visionary elements included references to *African images* involving Bwiti practitioners, as well as *Spirit beings*, including representations of Iboga. Even more prevalent was imagery associated with the

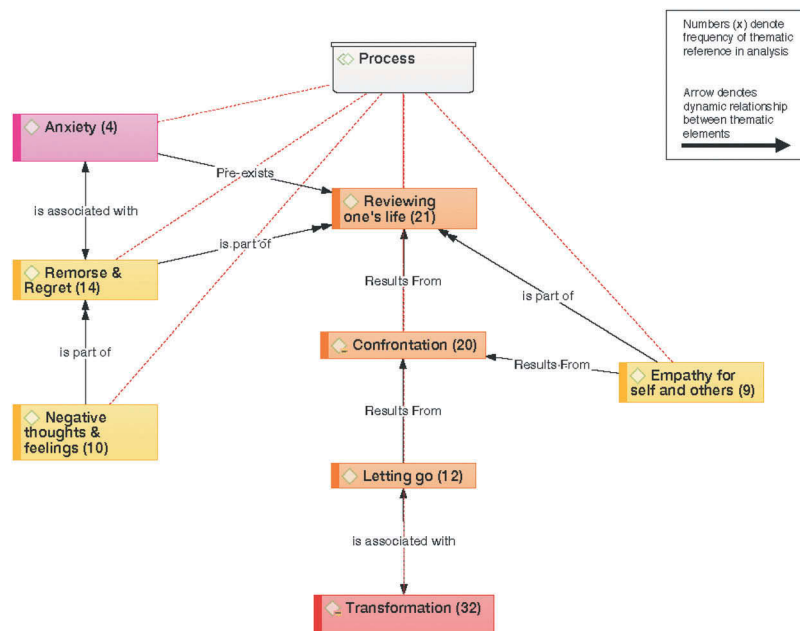


Figure 3. Final iteration of thematic analysis, showing higher-order construct *Process* and associated themes, and its relational network, where themes are in dynamic relation to each other, either unidirectionally or mutually.

cosmos, space, and spaceships (Table 1, *Planets, Earth, cosmic images*).

The construct *Perceptions* was used to group themes that captured elements of participants' experiences that appeared more cognitively engaging to them. Thus, while the *Physical experience of the vision* relates to perceived sensation, participants seemed generally to be describing more objective phenomena, as the Table 1 quote suggests.

Perceptions identifying *Negative references to the impact of drug taking* were commonly reported during the second, more contemplative phase of participants' experience. These implied self-awareness of participants' situation at the time of treatment and were linked closely with the associated theme in Table 1, *References to family*, which appeared to stimulate both insight and confrontation for participants.

The theme *Cleansing/healing* captures similar perceptions noted by several participants, with its respective quote identifying physical healing of bodies and brains. The sense of transformation implied by this was closely aligned with the theme *Sense of oneness with everything*. The Table 1 quote reflecting this theme was also coded with *Cleansing/healing*. Figure 3 sets out the relational network for the higher-order construct *Process*, which is described in greater detail in the following, as well as referenced in Table 1.

The themes represented in Figure 3 are in a more dynamic relationship to each other than those previously described. Along with the hierarchic ordering (signifying temporality) with, e.g., *Reviewing one's life* preceding

Confrontation, *Letting go*, and *Transformation*, there is also a lateral process, where themes to the left in Figure 3 precede those to the right. For example, the theme *Anxiety* represents an emotional state participants experienced at the commencement of, or even prior to, their treatment, as seen in Table 1.

Reviewing one's life was a frequently reported experience (21 references) for those undergoing treatment, commonly associated not only with pre-existing anxiety, but also with regret for past transgressions:

I saw my whole life as if it were on an old film—flickering past in black and white imagery, things I hadn't remembered or wanted.... There was a lot of time spent looking at my childhood and my parents and sisters. (007, New Zealand)

Similarly, *Remorse & regret* and *Negative thoughts & feelings* were associated with each other, and with *Reviewing one's life*, which was not necessarily confined to what participants had lived, but also perceived futures:

I then, for what felt like hours, saw my future as a heroin addict. I was in and out of prison for a long time till I was old and decrepit and alone. (S11, Mexico)

Most intently, I recall feelings of remorse, sorrow, and grief. And loss—hopelessness that I could never have back all the love that I threw away. (S21, Mexico)

The dynamic nature of the themes grouped under the construct *Process* is reflected in the major theme of *Confrontation* (20 references):

Table 1. Higher-order constructs, grouped themes, and examples of related quotes at the third iteration of thematic analysis.

Higher-Order Construct	Grouped Themes (Number of Utterances, n= x)	Examples of Quotes
Vision content	Auditory effects (n = 15)	"The first thing I began to notice was auditory—the sound like a water bottle caught in suction. A suction sound that turned into an insectoid buzzing sound." (S21, Mexico)
	Visions (n = 21)	"I remember one of the Bwiti slightly trembled and the Iboga spirit shook like a rattle." (S018, New Zealand)
	African images (n = 9)	"I also saw African things, wilderness, lions. Tribesmen. And this cycle was repetitive." (S23, Mexico)
	Colors (n = 7)	"Music was enhanced, and the sound was morphed into angelic sounds and colors." (S5, Mexico)
	Spirit being (n = 9)	"My first vision was of an African man who was very small in stature. He came and sat on my bed. I remember being really pleased to see him. I knew that he only had love for me and was there to help." (S007, New Zealand)
Perceptions	Planets, Earth, cosmic images (n = 16)	"We flew through the solar systems and came back to Earth." (S21, Mexico)
	Physical experience of vision (n = 15)	"The visions I remember most were Sci-Fi, like Star Wars." (S005, New Zealand)
	Negative references to impact of drug taking (n = 7)	"I felt my withdrawal symptoms begin to subdue. I felt a band of numbing ecstasy string across my body which took all the withdrawal away." (S18, Mexico)
	References to family (n = 15)	"I was mournful of the damage I'd done to my body and to my relationships with family and friends." (S28, Mexico)
	Cleansing/healing (n = 8)	"There was some really horrible stuff, like my father saying: You stupid little bitch!" (S008, New Zealand)
Process	Sense of oneness with everything (n = 7)	"I saw my family from young to older and how everything has been and how I affected them." (S9, Mexico)
	Anxiety (n = 4)	"My brain was being repaired, rewired. When it passed over bits that needed damage control it would pop the damaged bit, like bubble wrap." (S019, New Zealand)
	Reviewing one's life (n = 21)	"I then was traveling at super luminal speeds in this sense of the infinite for several hours where I saw random colors, shapes and images of rebuilding occurring. I think it was my brain showing me my receptors being repaired and rebuilt." (S18, Mexico)
	Negative thoughts and feelings (n = 10)	"On the day of my treatment, I remember sitting on the step outside my house, unable to stop shaking and trying not to back out of the plan that we had so carefully made." (S007, New Zealand)
	Empathy (n = 9)	"I kept seeing clips—real memories, of high-school girlfriends and playing music with friends—but then also clips of the present day in an alternate reality where I hadn't squandered so much love or compassion that had been offered to me." (S21, Mexico)
	Confrontation (n = 20)	"Many of these thoughts were reflections of my past, mainly my failures. When these feelings became intense I became very overwhelmed and upset at times." (S15, Mexico)
	Letting go (n = 12)	"I was also able to begin to see how, because I felt so unlovable, I paid in one way or another for love. I was able to stop that and open myself up to real love for maybe the first time in my adult life." (S2, Mexico)
	Transformation (n = 32)	"In the various body motions crippled in pain I would feel the Iboga spirit meeting me in a wrestling combat." (S018, New Zealand)
		"Around the time of my father's death, I had acquired from Dad a relentless and very negative voice in my head. During my journey, this voice left me. It was extraordinary! It was like a tape loop in my head broke and the tape spun off into space. It was so noticeable that I could sense the space in my mind that was freed up by its departure." (S2, Mexico)
		"I awoke 3 days later in tears of joy KNOWING that I was never alone and never would be alone and that death is just a doorway to another reality." (S18, Mexico)

It was all very chaotic. I was not in control. I would try to hold on to beautiful, loving images of memories but they fell away into space. (S21, Mexico)

Depression, suicidal ideations became profound. While being aware that I can't do it [suicide]. Sadness at the thought of it. Very uncomfortable on many levels. (S25, Mexico)

References to *Confrontation* were also associated with the recognition of *Empathy for self and others* by participants, for others in their lives, but also for themselves:

I was also able to begin to see how, because I felt so unlovable, I paid in one way or another for love. I was able to stop that and open myself up to real love for maybe the first time in my adult life. (S2, Mexico)

I was overwhelmed with the remorse and the waste and loss, feeling empathy with my family over all their hopes for me dashed by my relentless pursuit of drugs. (S21, Mexico)

Associated with observations reflecting both *Confrontation* and *Empathy for self and others* were references grouped under the theme *Letting go*. For example, the experience reported in the earlier quote by participant S2 was described as resulting from the following experience:

I must let go of things I identify with, but this is very difficult to because it feels like I am dying, or falling apart, and letting go of all these things I think are me is scary. (S5, Mexico)

I just saw myself lying there motionless. I believe this is one of the biggest transformative parts of my experience, because I suddenly realized that my family would be ok if I were dead. (S007, New Zealand)

As the previous quote from S007 suggests, the theme *Letting go* was closely aligned with the most prominent

theme in the analysis, *Transformation* (32 references). Utterances captured by this theme tended to occur towards the conclusion of participants' ibogaine experiences:

The light is pure bliss, convergence with the ultimate reality, freedom from suffering, enlightenment! (S5, Mexico)

Ibogaine fundamentally changed something within me, I had done detoxes before but always gone back. After ibogaine, I had absolutely no desire to use drugs. (S007, New Zealand)

Discussion

The preceding thematic analysis supports existing descriptions of altered states of consciousness experienced by those administered ibogaine, specifically for treatment of substance use disorders (Davis et al. 2017, 2018; Frenken 2001; Rodger 2018). This is particularly so where the characteristics of ibogaine visions are described, with auditory hallucinations especially common. The latter are remarkably consistent, even for specific sounds, with the "buzzing" reported in our study frequently described by others. For example, Heink, Katsikas, and Lange-Altman (2017) found that 89% of 27 individuals noted this. Interestingly, as described in the preceding section, some participants in our studies appeared to experience this buzzing in combination with colors. This phenomenon (synesthesia) has been reported elsewhere, with Rodger (2018) referencing the dream-like state induced by ibogaine reflecting a different set of rules, not only of content but also of structure, through a combination of "cognitive, emotional and sensory synesthesia."

Many other vision and treatment experience phenomena described by the participants are likewise reported elsewhere. These include: African motifs, together with animals and humans; spirit and other religious beings; cosmological references and movement through space; reviewing one's life, particularly where this involves relatives and friends; feelings of remorse, sadness, and confrontation; and ultimately, elements of transcendence (Alper 2001; Camlin et al. 2018; Goutarel, Gollnhofer, and Sillans 1993; Heink, Katsikas, and Lange-Altman 2017; Lotsof and Alexander 2001; Rodger 2018; Schenberg et al. 2017; Schenberg et al. 2016).

Nonetheless, while these elements are consistently reported, research describing them tends to focus on quantifying intensity of experience and frequency of occurring elements, as well as their categorization (Camlin et al. 2018; Heink, Katsikas, and Lange-Altman 2017), thereby framing them as adjunctive phenomena relative to the more quantifiable treatment

effects of reduction in craving, withdrawal, and improved mood, regularly referenced as measures of ibogaine's efficacy (Brown and Alper 2018; Glick, Maisonneuve, and Szumlinski 2000; Mash 2010; Noller, Frampton, and Yazar-Klosinski 2018).

This perspective is not universal, however, with Rodger (2018) drawing attention to the debate over the significance of ibogaine's "hallucinogenic" properties. He argues that many of those treated for substance use disorders "accord their 'visionary experience' during treatment with ibogaine central place in their healing journey" (Rodger 2018, 78). Here, Rodger is recognizing the earlier work of Naranjo, who during the 1960s employed ibogaine in low doses (3–5 mg/kg) over multiple psychotherapeutic sessions (1975), observing he was "more impressed by the enduring effects resulting from ibogaine sessions than by those from sessions conducted with any other drug" (Naranjo 1969, 219). That there is intrinsic value in the psychotropic effects of ibogaine is a view we also hold, and with this in mind, we return to an analysis of ibogaine's psychological mechanisms and key themes described in the preceding section.

It is evident from our quantitative data that the administration of ibogaine produces acute positive changes in psychological state. Data reported for the New Zealand sample (Noller, Frampton, and Yazar-Klosinski 2018) showed a sustained improvement in mood for participants at 12 months ($p < 0.001$). Taken together, the pooled data presented here and previously reported for the New Zealand sample suggest that beneficial psychological effects of treatment are immediate and that they persist over time. This persistence of positive treatment outcomes suggests that the immediate reductions in depression symptoms are not merely a placebo effect or a temporary shift related to the brief stay at the clinic, away from the individual's usual environment.

The variation we showed in mystical experience as determined by the SCQ data (Figure 2) might in part be explained by the pharmacokinetics of ibogaine. These are influenced by potential disparities in CYP2D6 metabolism of the parent drug into noribogaine, demonstrated by both phenotyping (Glue et al. 2015) and genotyping (Mash et al. 2001) of participants dosed with ibogaine. Indeed, Mash et al. (2018, 1998) reported an absence of oneiric effects in two CYP2D6 ultra-rapid metabolizers. This variability suggests that ibogaine's psychotropic effects may be less consistent than those commonly reported for what are sometimes referred to as the classical hallucinogens (MacLean, Johnson, and Griffiths 2011; Nichols 2004).

Rodger (2018), however, comments that ibogaine is not a classical hallucinogen. By this, he is

acknowledging Alper's (2001) observation that the state induced by ibogaine appears to have more in common with dreams than hallucinations. This "oneirophrenic" nature of ibogaine has been recognized for some time. Naranjo uses the term to describe drug-induced states characterized by an absence of psychotic symptoms while retaining what he refers to as "primary process thinking," where the capacity for fantasy is enhanced without interference with ego functions (Naranjo 1969, 210–211; see also Turner 1963). This usage is endorsed by more recent studies, with Schenberg et al. (2017, 82) agreeing that "oneiric" is a more useful description of ibogaine's affect than "psychedelic" or "hallucinogen."

In discussing the type of experiences quoted earlier, Goutarel, Gollnhofer, and Sillans (1993, 15) comment that such ideation might be described as symbolic unconscious material that is made conscious through the process of active dreaming, whereby "the ego of a mature person is compelled to become aware of his or her deep-rooted former error." Similarly, psychiatrist Leo Zeff, who treated patients with ibogaine in the 1960s, observed that it compels people to confront repressed conflicts, saying that the ibogaine experience "is a place where people will confront blocks... if they have been unwilling to accept them or believe them or often try to deny them. A truth that they're trying to deny.... Ibogaine won't let you do that" (Stolaroff 2004, 89).

Impact on family, remorse, and regret are also themes that have been reported elsewhere. For example, Schenberg et al. (2017) identified "Emotional effects" that captured "Reliving childhood experiences" and "Fear and distress due to past wrongdoings." Coupled with other aspects of the ibogaine experience (e.g., the powerful physiological effects), these authors suggested that the simulation of past traumas, difficult memories, and threats had the potential to impact positively on the people experiencing them.

The individual's growing awareness of the impact of their behavior, frequently emphasized by recycling of images, events, and experiences over hours in ibogaine's oneirophrenic vision, is a challenging process and forces *Confrontation*. Participants taking ibogaine are forced to reflect on their behavior and how it has impacted their lives, family, and friends; they come to accept that they might yet be able to forgive themselves and also be forgiven by those they have affected. This potentially leads to a growing sense of *Empathy* for others and oneself, and the potential letting go of guilt. Thus, Heink, Katsikas, and Lange-Altman (2017) reported that 85% of their participants conveyed that they had gained relief from guilt. Such relief facilitates the possibility of personal *Transformation*, which was our analysis' most frequently identified theme. In our view,

transformation is a significant element in both the ibogaine experience itself and in the healing of those suffering substance use disorders (e.g., Kellog 1993).

Rodger (2018) discusses at length the fear encountered by those undergoing ibogaine treatment, the importance of the mechanism of *Letting go* during the experience, and that going through this process is "almost invariably described as necessary for psychological or spiritual growth... as a gateway to transcendental positions." Furthermore, Rodger (2018) suggests that the presence of a therapist, with their knowledge and experience, provides an awareness of support to patients, thereby facilitating their "letting go" while maintaining a sense of "feeling held" at a deeper level during their treatment. While this view is not universal (e.g., Beal and de Rienzo 1997), it is endorsed by contemporary studies (e.g., Schenberg et al. 2017) as well as Frenken (2001), who commented that the ibogaine experience *per se* does not necessarily equip a person with the relevant skills to interpret and approach revealed psychological material in a constructive way.

For many experiencing ibogaine, the psychotropic effects are psychologically profound and lead to far-reaching transformations. This was evident for those whose experiences have been described here and as quantified by the SCQ (Figures 1 and 2). It is also the case elsewhere with numerous studies, whether specifically exploring the effects of ibogaine (Camlin et al. 2018; Rodger 2018, 2014; Heink, Katsikas, and Lange-Altman 2017; Schenberg et al. 2017; Lotsof and Alexander 2001; Naranjo 1974, 1969) or other hallucinogens (Griffiths et al. 2008; Hood 1975; MacLean, Johnson, and Griffiths 2011; Pahnke and Richards 1996), emphasizing the transformative impact of what has been referred to as the classic mystical experience, incorporating the dimensions of unity, noetic quality, sacredness, positive mood, transcendence of time/space, and ineffability (MacLean et al. 2012). Nonetheless, we observed no statistically significant relationship between the magnitude of participants' experiences as measured by the SCQ and treatment outcome. This lack of significant association between participants' experiences and magnitude of effect has been reported elsewhere; for example, by Heink, Katsikas, and Lange-Altman (2017), where the 5d-ASC (Dittrich, Lamparter, and Maurer 2011) variables showed no correlation between either withdrawal symptoms or their effectiveness variable. Interestingly, both of these instruments were developed in conjunction with assessing peak experiences induced by classical hallucinogens (i.e., psilocybin and LSD). Therefore, it may be that ibogaine's unique properties require the development of an instrument sensitive to its oneiric effects.

Nonetheless, the phenomena described earlier are likewise recognized in more traditional treatment contexts for their facility in achieving lasting positive treatment outcomes (Galanter et al. 2013). It is probable, therefore, that as with other substances that have demonstrated a lasting impact on those experiencing their effects—for example, psilocybin (Griffiths et al. 2008)—in the context of drug treatment, the powerful effects of ibogaine have an influential role to play in the observed positive outcomes of ibogaine-assisted therapy, and therefore require further attention.

Finally, having noted the potentially positive outcomes associated with ibogaine, as a final caveat reinforced by the New Zealand observational study that reported a death in treatment (Noller, Frampton, and Yazar-Klosinski 2018), there also remain fundamental concerns about its safety. While these may relate to various factors, including patient co-morbidities (Alper, Stajic, and Gill 2012), as the earlier discussion concerning CYP2D6 metabolism suggests (Glue et al. 2015; Mash et al. 2018), further clinical work is warranted, including confirming clear guidelines regarding appropriate pre-treatment testing of prospective patients.

This study has several limitations, including the relatively unstructured manner in which the qualitative reports were collected from participants. Further, those contributing reports represent a convenience sample, as participants were asked if they wished to provide a description. Additionally, recalling Zinberg's (1984) famous analysis, all of those providing narrative reports on their ibogaine experiences did so in the context of being treated for opioid dependence. These factors limit generalizability of reported experiences. While this is to some extent offset by all participants having been administered the SCQ, its timing was not coordinated across participants in both groups, unlike how the instrument was administered in psilocybin studies (e.g., Griffiths et al. 2006; MacLean et al. 2012). Last, we cannot yet quantitatively demonstrate a correlation between the intensity of the experiences, as measured by the SCQ, and positive treatment outcomes. This is partly due to small sample sizes, and to the large number of dropouts, particularly from the Mexican study, which reduced statistical power. As commented upon previously, however, further research could address the need for quantitative studies correlating changes in consciousness with ibogaine treatment outcomes through the development of instruments more sensitive to its unique effects.

This study examined the impact of the ibogaine's psychotropic effects on outcomes for treating drug dependence, specifically opioid use disorder. Consequently, it was proposed that the experiences people have during their ibogaine treatment are not simply meaninglessly epiphenomena overshadowed by observable

attenuation of cravings, withdrawals, and acutely elevated mood, but due to the powerful sense of meaning ibogaine's visions and related phenomena provide to those experiencing ibogaine. They, in fact, generate significant traction for lasting change in people's lives.

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References

- Alper, K. R. 2001. Ibogaine: A review. *The Alkaloids: Chemistry and Biology* 56:1–38.
- Alper, K. R., D. Beal, and C. D. Kaplan. 2001. A contemporary history of ibogaine treatment. *The Alkaloids: Chemistry and Biology* 56:249–81.
- Alper, K. R., H. S. Lotsof, and C. D. Kaplan. 2008. The ibogaine medical subculture. *Journal of Ethnopharmacology* 115:9–24. doi:10.1016/j.jep.2007.08.034.
- Alper, K. R., M. Stajic, and J. R. Gill. 2012. Fatalities temporally associated with the ingestion of ibogaine. *Journal of Forensic Science* 57:398–412. doi:10.1111/j.1556-4029.2011.02008.x.
- American Psychiatric Association. 2000. *Diagnostic and statistical manual of mental disorders, text revision (DSM- IV-TR)*. Washington, DC: American Psychiatric Association.
- ATLAS.ti. 2018. *ATLAS.ti 8.3.1 for Mac*. Berlin: Scientific software development GmbH.
- Baumann, M. H., J. Pablo, S. F. Ali, R. B. Rothman, and D. C. Mash. 2001. Comparative neuropharmacology of ibogaine and its O-desmethyl metabolite, noribogaine. *The Alkaloids: Chemistry and Biology* 56:79–113.
- Beal, D., and P. de Rienzo. 1997. *Report on the Staten Island project. The ibogaine story*. Brooklyn, New York: Autonomedia.

- Beck, A. T., R. A. Steer, and G. K. Brown. 1996. Beck depression inventory-II. *San Antonio* 78 (2):490–98.
- Brown, T. K. 2017. *Evidence for the efficacy and transformative power of ibogaine in the treatment of substance dependence*. Oakland, California, USA: Psychedelic Science 2017.
- Brown, T. K., and K. R. Alper. 2018. Treatment of opioid use disorder with ibogaine: Detoxification and drug use outcomes. *The American Journal of Drug and Alcohol Abuse* 44 (1):24–36. doi:10.1080/00952990.2017.1320802.
- Camlin, T. J., D. Eulert, A. T. Horvath, S. F. Bucky, J. P. Barsuglia, and M. Polanco. 2018. A phenomenological investigation into the lived experience of ibogaine and its potential to treat opioid use disorders. *Journal of Psychedelic Studies* 2 (1):1–12. doi:10.1556/2054.2018.004.
- Davis, A. K., E. Renn, A. Windham-Herman, M. Polanco, and J. P. Barsuglia. 2018. A mixed-method analysis of persisting effects associated with positive outcomes following ibogaine detoxification. *Journal of Psychoactive Drugs* 50 (4):287–97. doi:10.1080/02791072.2018.1487607.
- Davis, A. K., J. P. Barsuglia, A. Windham-Herman, M. Lynch, and M. Polanco. 2017. Subjective effectiveness of ibogaine treatment for problematic opioid consumption: Short- and long-term outcomes and current psychological functioning. *Journal of Psychedelic Studies* 1:65–73. doi:10.1556/2054.01.2017.009.
- Dittrich, A., D. Lamparter, and M. Maurer. 2011. *5D-ASC: Questionnaire for the assessment of altered states of consciousness: A short introduction*. Zurich, Switzerland: PSIN PLUS Publications.
- Frenken, G. 2001. From the roots up: Ibogaine and addict self-help. *The Alkaloids: Chemistry and Biology* 56:283–92.
- Galanter, M., H. Dermatis, S. Post, and C. Sampson. 2013. Spirituality-based recovery from drug addiction in the twelve-step fellowship of narcotics anonymous. *Journal of Addiction Medicine* 7 (3):189–95. doi:10.1097/ADM.0b013e31828a0265.
- Glick, S. D., I. M. Maisonneuve, and K. K. Szumlinski. 2000. 18-Methoxycoronaridine (18-MC) and ibogaine: Comparison of antiaddictive efficacy, toxicity, and mechanisms of action. *Annals of the New York Academy of Sciences* 914 (1):369–86. doi:10.1111/j.1749-6632.2000.tb05211.x.
- Glue, P., H. Winter, K. Garbe, H. Jakobi, A. Lyudin, Z. Lenagh-Glue, and C. Tak Hung. 2015. Influence of CYP2D6 activity on the pharmacokinetics and pharmacodynamics of a single 20 mg dose of ibogaine in healthy volunteers. *The Journal of Clinical Pharmacology* 55 (6):680–87. doi:10.1002/jcph.471.
- Goutarel, R., O. Gollnhofer, and R. Sillans. 1993. Pharmacodynamics and therapeutic applications of iboga and ibogaine. *Psychedelic Monographs and Essays* 6:70–111.
- Griffiths, R. R., W. A. Richards, M. W. Johnson, U. D. McCann, and R. Jesse. 2008. Mystical-type experiences occasioned by psilocybin mediate the attribution of personal meaning and spiritual significance 14 months later. *Journal of Psychopharmacology* 22 (6):621–32. doi:10.1177/0269881108094300.
- Griffiths, R. R., W. A. Richards, U. McCann, and R. Jesse. 2006. Psilocybin can occasion mystical-type experiences having substantial and sustained personal meaning and spiritual significance. *Psychopharmacology* 187 (3):268–83. doi:10.1007/s00213-006-0457-5.
- Heink, A., S. Katsikas, and T. Lange-Altman. 2017. Examination of the phenomenology of the ibogaine treatment experience: Role of altered states of consciousness and psychedelic experiences. *Journal of Psychoactive Drugs* 49 (3):201–08. doi:10.1080/02791072.2017.1290855.
- Hood, R. W., Jr. 1975. The construction and preliminary validation of a measure of reported mystical experience. *Journal for the Scientific Study of Religion* 14:29–41. doi:10.2307/1384454.
- Kellogg, S. 1993. Identity and recovery. *Psychotherapy: Theory, Research, Practice, Training* 30 (2):235.
- Lotsof, H. S. 2007. Howard Lotsof (RIP) speaks about ibogaine. Accessed October 27, 2018. <https://www.youtube.com/watch?v=TezytTw72Bg>.
- Lotsof, H. S., and N. E. Alexander. 2001. Case studies of ibogaine treatment: Implications for patient management studies. *The Alkaloids: Chemistry and Biology* 56:293–313.
- Maciulaitis, R., V. Kontrimavičiūtė, F. M. M. Bressolle, and V. Briedis. 2008. Ibogaine, an anti-addictive drug: Pharmacology and time to go further in development. A narrative review. *Human & Experimental Toxicology* 27 (3):181–94. doi:10.1177/0960327107087802.
- MacLean, K. A., J. S. Leoutsakos, M. W. Johnson, and R. R. Griffiths. 2012. Factor analysis of the mystical experience questionnaire: A study of experiences occasioned by the hallucinogen psilocybin. *Journal for the Scientific Study of Religion* 51 (4):721–37. doi:10.1111/j.1468-5906.2012.01685.x.
- MacLean, K. A., M. W. Johnson, and R. R. Griffiths. 2011. Mystical experiences occasioned by the hallucinogen psilocybin lead to increases in the personality domain of openness. *Journal of Psychopharmacology* 25 (11):1453–61. doi:10.1177/0269881111420188.
- Mash, D. C. 2010. Ibogaine therapy for substance abuse disorders. In: Brizer, D., Castaneda, R., editors. *Clinical Addictions Psychiatry*. Cambridge University Press. pp. 50–60.
- Mash, D. C., C. A. Kovera, B. E. Buck, M. D. Norenberg, P. Shapshak, W. L. Hearn, and J. U. A. N. Sanchez-Ramos. 1998. Medication development of ibogaine as a pharmacotherapy for drug dependence. *Annals of the New York Academy of Sciences* 844 (1):274–92. doi:10.1111/j.1749-6632.1998.tb08242.x.
- Mash, D. C., C. A. Kovera, J. Pablo, R. Tyndale, F. R. Ervin, J. D. Kamlet, and W. L. Hearn. 2001. Ibogaine in the treatment of heroin withdrawal. *The Alkaloids: Chemistry and Biology* 56:155–71.
- Mash, D. C., L. Duque, B. Page, and K. Allen-Ferdinand. 2018. Ibogaine detoxification transitions opioid and cocaine abusers between dependence and abstinence: Clinical observations and treatment outcomes. *Frontiers in Pharmacology* 9:529. doi:10.3389/fphar.2018.00529.
- McHugh, M. L. 2012. Interrater reliability: The kappa statistic. *Biochemia medica: Biochemia medica* 22 (3):276–82. doi:10.11613/BM.2012.031.
- McLellan, A. T., J. Cacciola, D. Carise, and T. H. Coyne. 1999. *Addiction severity index-lite (clinical training version)*. Philadelphia, PA: Treatment Research Institute.
- Naranjo, C. 1969. Psychotherapeutic possibilities of new fantasy-enhancing drugs. *Clinical Toxicology* 2 (2):209–24. doi:10.3109/15563656908990930.
- Naranjo, C. 1974. *The healing journey*. New York, NY: Ballantine Books.

- Nichols, D. E. 2004. Hallucinogens. *Pharmacology and Therapeutics* 101 (2):131–81. doi:10.1016/j.pharmthera.2003.11.002.
- Noller, G. E., C. M. Frampton, and B. Yazar-Klosinski. 2018. Ibogaine treatment outcomes for opioid dependence from a twelve-month follow-up observational study. *The American Journal of Drug and Alcohol Abuse* 44 (1):37–46.
- Onwuegbuzie, A. J., and N. L. Leech. 2007. Validity and qualitative research: An oxymoron? *Quality & Quantity* 41 (2):233–49. doi:10.1007/s11135-006-9000-3.
- Pahnke, W. N., and W. A. Richards. 1966. Implications of LSD and experimental mysticism. *Journal of Religion and Health* 5 (3):175–208. doi:10.1007/BF01532646.
- Popik, P., R. T. Layer, and P. Skolnick. 1995. 100 years of ibogaine: Neurochemical and pharmacological actions of a putative anti-addictive drug. *Pharmacological Reviews* 47 (2):235–54.
- Rodger, J. 2018. Understanding the healing potential of ibogaine through a comparative and interpretive phenomenology of the visionary experience. *Anthropology of Consciousness* 29 (1):77–119. doi:10.1111/anoc.12088.
- Rothen, N., B. Meier, and J. Ward. 2012. Enhanced memory ability: Insights from synaesthesia. *Neuroscience & Biobehavioral Reviews* 36 (8):1952–63. doi:10.1016/j.neubiorev.2012.05.004.
- Schenberg, E. E., M. A. de Castro Comis, B. R. Chaves, and D. X. Silveira. 2014. Treating drug dependence with the aid of ibogaine: A retrospective study. *Journal of Psychopharmacology* 28 (11):993–1000. doi:10.1177/0269881114552713.
- Schenberg, E. E., M. A. de Castro Comis, J. F. M. Alexandre, B. D. R. Chaves, L. F. Tófoli, and D. X. Da Silveira. 2016. Treating drug dependence with the aid of ibogaine: A qualitative study. *Journal of Psychedelic Studies* 1 (1):10–19. doi:10.1556/2054.01.2016.002.
- Schenberg, E. E., M. A. de Castro Comis, J. F. M. Alexandre, L. F. Tófoli, B. D. Rasmussen Chaves, and D. X. Da Silveira. 2017. A phenomenological analysis of the subjective experience elicited by ibogaine in the context of a drug dependence treatment. *Journal of Psychedelic Studies* 1 (2):74–83. doi:10.1556/2054.01.2017.007.
- Stolaroff, M. J. 2004. *The secret chief revealed*. Santa Cruz: Multidisciplinary Association for Psychedelic Studies.
- Thomas, D. R. 2006. A general inductive approach for analyzing qualitative evaluation data. *American Journal of Evaluation* 27 (2):237–46. doi:10.1177/1098214005283748.
- Turner, W. J. 1963. Experiences with primary process thinking. *Psychiatric Quarterly* 37 (3):476–88.
- Zinberg, N. E. 1984. *Drug, set, and setting: The basis for controlled intoxicant use*. New Haven, Connecticut: Yale University Press.