



## Traditional Amazonian medicine in addiction treatment: Qualitative results

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### ABSTRACT

Traditional Amazonian medicine, and in particular the psychoactive substance *ayahuasca*, has generated significant research interest along with the recent revival of psychedelic medicine. Previously we published within-treatment quantitative results from a residential addiction treatment centre that predominately employs Peruvian traditional Amazonian medicine, and here we follow up that work with a qualitative study of within-treatment patient experiences. Open-ended interviews with 9 inpatients were conducted from 2014 to 2015, and later analysed using thematic analysis. Our findings support the possibility of therapeutic effects from Amazonian medicine, but also highlight the complexity of Amazonian medical practices, suggesting that the richness of such traditions should not be reduced to the use of ayahuasca only.

Substance abuse and other addictive disorders are ongoing social problems that account for a substantial portion of global disease burden (Armitage, 2021; Cheng, Lau, Chan, & Luk, 2021; Peacock et al., 2018; Rehm & Shield, 2019; Stevens, Dorstyn, Delfabbro, & King, 2020; Sussman, Lisha, & Griffiths, 2011). Addictive disorders are often challenging to treat, firstly because there is a lack of theoretical consensus over their origins (e.g., are they best understood as fundamentally biological or socio-cultural phenomena? Alexander, 2008; Leshner, 1997; Levy, 2013; Volkow, Koob, & McLellan, 2016); and secondly because they co-occur with other types of disorders at unusually high rates (Hunt et al., 2018, 2020; Lorains, Cowlishaw, & Thomas, 2011). For these reasons, highly effective and broad spectrum treatments are still sought after. In this regard psychedelic therapies have shown particular promise, and over the past decade impressive evidence has emerged for the utility of psychedelics in treating addictions (Bogenschutz et al., 2015; de Veen, Schellekens, Verheij, & Homberg, 2016; Johnson, Garcia-Romeu, & Griffiths, 2016) and other disorders (Carhart-Harris et al., 2021; Chi & Gold, 2020; dos Santos et al., 2016; Mitchell et al., 2021; Ross et al., 2016). However, pharmacologically similar natural psychoactive substances have been recognized for thousands of years (Guerra-Doce, 2015; Miller, Albarracín-Jordan, Moore, & Capriles, 2019; Robinson et al., 2020), and such plant-based preparations developed in Indigenous

contexts have also shown promise in treating addictions; including for example the peyote cactus in North America (Albaugh & Anderson, 1974; Pascaro, Futterman, & Halsweg, 1976) and more recently, the potent South American *ayahuasca* decoction (Apud, 2021; Hamill, Hallak, Dursun, & Baker, 2019; Rodrigues et al., 2021).

Although addiction treatment using ayahuasca is a new concept from a Western clinical perspective, when considered internationally there are in fact already active treatment centres making use of ayahuasca. One such institution is the Takiwasi Centre (*Centro Takiwasi*), a therapeutic community in Peru where a variety of Amazonian and Western techniques are applied in treating addictions (for around 15 inpatients concurrently; Mabit, 2002). The centre applies Amazonian medicine largely based in Peruvian traditions, which includes the use of ayahuasca as a central element (Bustos, 2006), but also other techniques such as dietary retreats (Berlowitz et al., 2022; Fotiou, 2017; Rumlerová, Friso, Romero, Kavenská, & Politi, 2021; Sanz-Biset & Cañigueral, 2011) and the use of purgative plants (Horák, Verter, & Somerlíková, 2021; Sanz-Biset & Cañigueral, 2013). In addition to the ritualized use of psychoactive and purgative plant preparations, individual and group psychotherapy is practised, as well as community living (known in Takiwasi as *convivencia*, or “coexistence”), daily occupational therapy, a variety of workshops, and intermittent biomedical evaluation.

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Treatment in the centre is a lengthy process, with the ideal treatment time being around 9 months (for a basic timeline, see O'Shaughnessy, Berlowitz, Rodd, Sarnyai, & Quirk, 2021). During this time, patients undergo a process that aims to work initially at a physical level (e.g., through the use of the various purgative plant remedies), but then develops to address psycho-emotional and spiritual elements. Addiction is viewed in the centre from a biopsychosocial-spiritual perspective (Berlowitz et al., 2017), and the spiritual component is informed by both Amerindian (Viveiros de Castro, 1998) and Christian ontological and epistemological concepts (including notions of good and evil spiritual entities that can impact human health). Such elements are traditionally characteristic of Peruvian *vegetalismo* (Luna, 1984b)—a shamanic healing modality which is predicated on the existence of a sentient plant and spiritual world which expert practitioners engage with (Jauregui, Clavo, Jovel, & Pardo de Santayana, 2011), often incorporating Christian elements and symbolism in idiosyncratic ways (Dobkin de Rios & Rumrill, 2008; Luna, 1984b, 1986). In recent decades, international interest has impacted Peruvian *vegetalismo*, altering traditions both in Amazonia and in adaptations overseas (Fotiou, 2016; Gearin & Labate, 2018; Labate, 2014).

Preliminary quantitative results regarding the centre's therapeutic process have been positive (Berlowitz, Walt, Ghasarian, Mendive, & Martin-Soelch, 2019; Giovannetti, Arce, Rush, & Mendive, 2020; O'Shaughnessy et al., 2021), although these results leave open questions regarding the patients' experience of treatment, particularly so in the case of Takiwasi where a variety of techniques beyond ayahuasca alone are employed. Qualitative work can be helpful in revealing how patients understand their experiences of illness, treatment, and healing with psychoactive substances, as it has been in other contexts of addiction treatment with both ayahuasca (Argento, Capler, Thomas, Lucas, & Tupper, 2019; Talin & Sanabria, 2017) and psilocybin (Noorani, Garcia-Romeu, Swift, Griffiths, & Johnson, 2018). Indeed, participants' lived experiences in these treatment modalities appear to be central to therapeutic outcomes (e.g., being modified via *set* and *setting*; Hartogsohn, 2017; J. A. Olson, Suissa-Rochelleau, Lifshitz, Raz, & Veissière, 2020; Perkins et al., 2021; Strickland, Garcia-Romeu, & Johnson, 2021), even though there are likely also pharmacological actions which support the process irrespective of context and subjective effects (Hesselgrave, Troppoli, Wulff, Cole, & Thompson, 2021; Liester & Prickett, 2012; D. E.; Olson, 2020).

In this paper we present a selection of qualitative results drawn from interviews with Takiwasi inpatients, conducted while they were residents at the centre and undergoing treatment for addiction. These qualitative results act as a companion to our recently published quantitative analyses (O'Shaughnessy et al., 2021), giving a more contextualized understanding of the Takiwasi treatment, while also allowing patients to describe the treatment in their own words. We do not aim here to provide a complete account of the treatment, but instead focus on the aspects that were most relevant for the patients, with the finding that the traditional Amazonian techniques (i.e., ayahuasca sessions, purges, and diets) were particularly salient. We describe instances of patient reported therapeutic change, but also the potentially stressful and difficult nature of the treatment, which supports the inference of within-treatment therapeutic effects that we reported previously (O'Shaughnessy et al., 2021).

## 1. Methods

The study was approved by the James Cook University Human Research Ethics Committee (H5267). All participants gave written informed consent prior to participation.

### 1.1. Design

The qualitative results reported in this paper were part of a larger biopsychosocial study of the treatment program at the Takiwasi Centre

(O'Shaughnessy, 2017), and interviews were conducted at the same time as the collection of quantitative psychological data. The biopsychosocial design aimed to combine quantitative (biological and psychometric) and qualitative (ethnographic) methods in order to "triangulate" (Jick, 1979), or converge on a better understanding of the treatment and its effects. Thus the qualitative findings presented here are set in the context of the observational within-treatment changes that we previously reported (O'Shaughnessy et al., 2021), with clinically positive changes being found across a range of measures including: health (physical and emotional), spiritual well-being, perceived stress, mental health, craving, and neuropsychological performance.

### 1.2. Procedures

The interviews with patients were open-ended and exploratory, but guided by two broad requests: (a) to describe their prior life situation and reasons for coming to Takiwasi, and (b) to describe what had transpired for them since arriving. Here we focus only on answers given in part (b) of the interview. Patients could answer in whatever detail they felt comfortable with, and the loosely structured format allowed them to focus on the aspects of the treatment most salient to them. The interviews were conducted by the first author in private at Takiwasi between 2014 and 2015, and were audio recorded and later transcribed (first author). Transcripts for those interviews that were conducted in Spanish were then translated to English, again by the first author.

### 1.3. Analyses

The first author conducted a thematic analysis (Braun & Clarke, 2006) using a realist approach where patient reports were taken as relatively straightforward reflections of their lived experiences (as opposed to a more constructivist approach that might seek instead to discover latent themes derived from the sociocultural context). The extraction of themes was partially theoretical (i.e., when coding based on reports with specific treatment techniques, such as the use of ayahuasca), and partially inductive (e.g., when analysing reports not related to specific treatment techniques), but ultimately fell closer to a positivist approach (Clarke & Braun, 2018). Coding was applied using MAXQDA (VERBI Software, 2015). The results reported here are not an attempt at an exhaustive thematic analysis or an entire treatment description, and for a fuller ethnographic account of the treatment, see O'Shaughnessy (2017).

### 1.4. Participants

The qualitative data sample consisted of 9 male inpatients (designated P1–P9) with a mean age of 28 years ( $SD = 6$  years). Five of these patients were South American (56%), 3 were European (33%), 1 was North American (11%), and on average they spent 275 days in treatment ( $SD = 93$  days). To compare the qualitative sample with the broader sample it was drawn from (O'Shaughnessy et al., 2021), we contrasted intake Addiction Severity Index (ASI; McLellan, Cacciola, Alterman, Rikoon, & Carise, 2006) scores for the qualitative sample ( $N = 8$ )<sup>1</sup> versus the rest of the Takiwasi sample ( $n = 27$ ).<sup>2</sup> Fig. 1 shows that the qualitative sample had an intake addiction severity that was comparable with the larger sample on most dimensions, although with fewer alcohol and employment problems. However, only the alcohol scores were significantly different by *t*-test,  $t(30.2) = -2.61, p = 0.014$ , Hedges'  $g = -0.66$ , 95% CI for  $g$  [  $-1.48, 0.15$ ].

<sup>1</sup> ASI data were unavailable for one patient.

<sup>2</sup> ASI data for one patient in the qualitative sample was not reported in O'Shaughnessy et al. (2021).

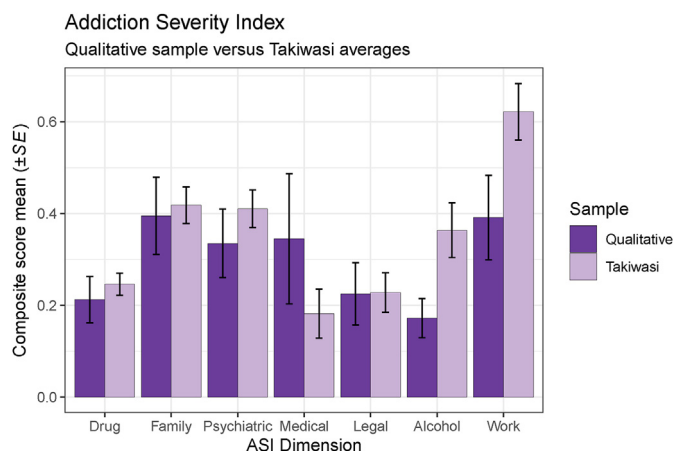


Fig. 1. ASI scores for the qualitative sample versus the larger Takiwasi sample (O'Shaughnessy et al., 2021).

## 2. Results

### 2.1. Daily living environment

An important issue regarding therapeutic communities is the extent to which characteristics of the living environment account for any within-treatment changes in a transient way. Thus one notable theme from the interviews was the potentially stressful nature of the treatment environment, which is situated within a large grounds in the tropical climate of Tarapoto, Peru:

P1: In a place where you live with fifteen people, it's high pressure. You have nowhere else to go. You can't go out, and you don't even have cigarettes. The only thing you can do is talk to your therapist, and that forces you to go into yourself and see what's really going on.

Patients in the centre live in a dorm area separated from the centre's main building (where many of the therapeutic and administrative staff are based), and they rise early every morning to begin their day by completing work activities such as baking bread, preparing food (which is generally of a simple nature due to the dietary restrictions imposed for therapeutic plant work), cleaning, and caring for animals. Later on in the day there will be workshops, a variety of group and individual therapy sessions, sports, and an optional Catholic mass which some patients attend regularly. These events will sometimes be punctuated by plant purges, preparations for ayahuasca sessions in the evening, and so on.

Given that the Amazonian treatment techniques are often physically and emotionally taxing, the reductions in perceived stress over time that were reported in O'Shaughnessy et al. (2021) are unlikely to be due to an especially easy life for patients at the centre, and are more likely to be the result of adaptation to the treatment environment combined with any therapeutic effects:

P6: Well, the bed is not the best bed, and it's not the best breakfast, and you have to wake up early, and you have to work a lot. You also can't choose the people you live with: When I first got here I saw people as crazy as me, or worse! I thought, "Wow, we're all like sick brothers here". Now it's become familiar to me and I feel a kind of friendship with everybody, or with most.

While the daily communal living environment was often described by patients as difficult and frustrating to varying degrees, it was also valued as a useful part of the therapeutic structure:

P9: It's like constantly living with a mirror, which is kind of hard. At the same time, living with those same people all the time creates a very strong bond. And that bond is there with the group therapy too. People really tell what is in their guts. Like, they talk about their

suicide attempts, the abuse story they have, the shit they did when they were doing drugs. So you know them almost from the deepest part of the soul. You actually receive a lot of support from them also. They're a good influence, that's what I want to say.

### 2.2. Experiences with Amazonian medicine

There are many facets to the Takiwasi treatment (Berlowitz et al., 2017; O'Shaughnessy, 2017; Politi, Friso, & Mabit, 2018), and one consequence of our interview style was to allow participants to focus on those experiences that were the most personally impactful or memorable. Despite the prior expectation that ayahuasca experiences would be the dominant treatment theme, there was also significant participant discussion around other Amazonian techniques, in particular the plant purges and diets. Below we discuss patient experiences with each of these techniques, noting that the selection of these particular methods also accords with practitioner views on the most important Amazonian techniques used in Takiwasi (Berlowitz et al., 2017).

#### 2.2.1. Ayahuasca

Ayahuasca sessions play a central role in the treatment. However, in Takiwasi new patients are not able to drink ayahuasca immediately upon admission, as they must first pass through a detoxification period (lasting a number of weeks) during which they will take other purgative plants. This difficult period probably leads to an early increase in voluntary treatment exits, although the initiation of ayahuasca sessions can have a profound impact, as in the case of P9 who below discusses why he decided to abandon his plans to exit the treatment early:

P9: I just realized that the treatment was working. Like a lot more than I could have expected. It happened after my two first ayahuasca sessions; they had a really, really strong effect. I'm not talking about during the session, but after. It's like bread, you roll up the dough, but the bread rises alone. It was like that. The ayahuasca rolls you up during the session, and then you start to rise. Those plants make you realize stuff.

I don't know if you can really cure yourself from an addiction, but you can understand why you did it, and why you don't want to do it anymore. What was crazy though was I could see the change. Often you change but you don't notice it—here I could see it. So I was like, yes, it's worth it.

The same participant though was careful to point out that these ayahuasca sessions were not enjoyable experiences:

P9: They say here that to take ayahuasca is to go through the storm. I had two sessions where I felt pain for hours. I mean it's also a process where you have to vomit to cure yourself. So no, it's not something pleasant. I have to say that, because I think it's important. But ayahuasca helps—it's like a microscope—it focuses on what you have inside you.

Ayahuasca sessions can be highly unpredictable however, as there are also sessions where very little takes place from the patient's perspective. P1's first session for instance was completely uneventful, yet it was in stark contrast to his second session which began with classic visions of colourful geometric patterns (Shannon, 2010, p. 88), followed soon after by a powerful form of self-reflection tied to his own family history:

P1: I saw like a movie of everything I'd done. It was showing me things, especially with my kids. It moved me a lot because I got into my eldest son's mind, and I, had the feeling that he had when he saw me that way. I was in his mind, looking at me and his mother arguing, and me smashing stuff. I felt what he felt. So when the session finished, I was aware. And crying, like I never did in my life, I was crying like I was the worst criminal ever. I could see the damage I was

doing. And basically all the sessions were like this. They were all showing me something.

In other cases ayahuasca was explained as having the capacity to bring developmental traumas to the surface, allowing one to process and emotionally heal from them:

P5: The ayahuasca helps you see where you are hurt. I mean you can know, “oh yeah I’m addicted”, and yeah there’s bad energies, demons, whatever. But you’re not going to get cured until you know *why*. So you realize at what point you got hurt, what was the traumatizing scenario, and then you’ve got to grow up from that. OK it happened, shit happens. I’m not going to be fucking suffering from this, and you let it go.

[...]

In the ayahuasca that shit came up, and I started crying really badly; crying out for my mother, and I just couldn’t believe [speaking about a deeply traumatic experience] [...] And, it helped me, it helped it surface, and clear it out. And actually I’m a lot relieved, like if I would have told you about this a month ago, I would have been probably crying and feeling like shit, right now I can actually say I’m more relieved, and, better. So yeah, it does help you a lot.

Also mentioned by patients was the combination of ayahuasca sessions with therapy, where material from the sessions is later worked on with a therapist:

P4: It’s really been a lot of ups and downs. The ayahuasca is always a very good ally to centre myself a bit more, to not be distracted by issues in the convivencia, and to remain focused on my own problems and what I need to work on. Combined with the therapy I see that it’s a great help. The session can be really strong, but in the days after you realize how much progress it brings you to do this work with the ayahuasca, the therapist, and everything. It’s like five years of basic psychotherapy in Europe as they do it, you know it’s such a giant path that you make.

Even though patients often recounted deeply impactful experiences with ayahuasca, they tended to have a grounded perspective, seeing ayahuasca as a supportive element, or opportunity, rather than as a panacea:

P9: For some people the treatment just doesn’t work. You have to play your part, you have to want a better life. I know that I could leave here, but I also know that I’m getting better. I really want to be strong and happy in my life, and I’m going to give everything I have to do it. For the best results you have to give all of who you are. The ayahuasca won’t do the treatment for you—I’m one hundred percent positive about that.

This attitude is probably related to the long-term nature of the treatment, as evidenced in the case of P3, whose feelings about the most important part of the treatment changed over time. Initially considering ayahuasca to be the most useful component, he later decided that living together with the other patients in conjunction with therapy was most important:

P3: Early on I might have said the ayahuasca [was the most helpful], but if I had to say now, it would be the convivencia. My core problem has been a social phobia, so the therapy and the convivencia has helped me a great deal. [...] We all have to get up in the morning with a lot of strength and fight every day. It’s not easy, and the healing is not magic. It’s not a “session of ayahuasca and then you’re cured”. No, this doesn’t exist.

### 2.2.2. Purges

Prior to being permitted to drink ayahuasca, Takiwasi patients engage in regular purges (*purgas*) where they consume a purgative

plant preparation along with large amounts of water, which induces emesis:

P1: When I arrived here, I was very sceptical. Lots of mosquitoes were biting me, and then they gave me the purge. The first one was saúco, and I’d never done that in my life—drink a plant, drink water, and then vomit. Drink water and vomit again. I was looking outside and seeing all this green [jungle plants], and I said, “Man, where have I ended up?”.

The use of purgative plants as a medical practice has been described for a number of Peruvian Indigenous peoples (see Jauregui et al., 2011; Jovel, Cabanillas, & Towers, 1996; Sanz-Biset & Cañigueral, 2013), and among the Matsigenka the ayahuasca vine *Banisteriopsis caapi* is known as *kamarampi*—or “vomiting medicine” (Shepard, 1998, p. 323). Indeed, from time to time in Takiwasi, decoctions of *B. caapi* are used in purging rituals. This material is known in the centre as “purgahuasca”, and it is taken in much larger quantities (Horák et al., 2021) compared to ayahuasca (which contains *N,N*-dimethyltryptamine; DMT). According to the centre’s records, around half of the patients that take purgahuasca experience some form of visionary effect (Politi, Friso, Saucedo, & Torres, 2020), despite the absence of DMT.

As in other Peruvian contexts, purging in Takiwasi is seen to cleanse or purify the body, ridding one of accumulated burdens in a physiological but also spiritual sense. Practitioners in Takiwasi believe that such purgative preparations, while having general health benefits which vary by plant, are also useful for addressing issues arising from substance abuse (such as craving). With certain plants these purges can take on an extreme nature (especially with a plant known locally as *yawar panga*), although paradoxically the process can be subsequently valued by patients:

P4: The first one [yawar panga] just knocked me out. I puked quite a lot during the purge, and after that I could chill in bed a bit. Then the therapist came to give me cinnamon tea. One sip completely destroyed me—I puked and went to the bathroom for four hours and I couldn’t stop. I wanted to die, it was horrible, horrible. You get up and you puke bile. Yeah, it was really a tough one. But also, it’s the most efficient one. And that’s the good point. I can say that the second and third times I had yawar panga I was much, much mellower, much better.

P1: But when I purged the yawar panga, I nearly died. After vomiting all the water in the session, I went to isolation and kept vomiting from six until two in the morning. And these eight hours, it was just bile. I couldn’t speak the next day because my throat was burnt. But I’d never felt so good, I felt like my blood and my body were somehow cleaned. And then with the purges, I started to shake off all the abstinence feelings.

The concept of the body being “cleaned” through purging was referenced by multiple patients. P2, who actually found the purges to be the most effective part of the treatment, also extended this logic to the ayahuasca sessions:

P2: [The purges] were very effective. I think the purge was actually the main part of the treatment for me.

Int: More so than the ayahuasca sessions?

P2: Yes, but I see the ayahuasca like a purge as well because it cleaned out my body—which was very, very dirty—and it just felt so good to throw that out.

Purges are seen in Takiwasi as essential preparation for future sessions with ayahuasca, and thus they work together in a complementary manner. Indeed, the aspect of purging—effected through physical expulsions but often co-occurring with psychological “purging” (e.g., catharsis or abreaction)—runs as a theme across many of the Amazonian



plant-based techniques employed in Takiwasi (e.g., see also Fotiou & Gearin, 2019; Sanz-Biset & Cañigüeral, 2013):

P3: For me Takiwasi has been like a laboratory, but one where I am obliged to study myself. And this aspect has permitted me to analyse my problems. It's given me a magnifying glass. To look at what's happening to me. To feel. To see what's happening physically, emotionally, energetically, and spiritually. These are the four areas that I've been able to analyse. To analyse my problems and then search for tools to alleviate them. Some activities help me to feel calmer; reading, meditating, going to church, these sorts of things. But they are not my cure. Where is the cure for me? It's in speaking it. In remembering it and retelling it. In vomiting it, in dieting it, in purging it.

### 2.2.3. Diets

Plant diets (*dietas*) are a distinctly Peruvian Amazonian medical practice (Gearin & Labate, 2018; Jauregui et al., 2011; Luna, 1984a) in which the dieter combines behavioural, alimentary, and social restrictions along with the intake of specially prepared plant substances over a lengthy period of time (usually with the oversight of a traditional healer). In traditional use these diets are complex and multi-purposed (e.g., including the learning of medicine itself; Berlowitz et al., 2022; Fotiou, 2017; Luna, 1984b; O'Shaughnessy & Berlowitz, 2021; Sanz-Biset & Cañigüeral, 2011), but for the patients in Takiwasi they function overall as milestones where therapeutic material and prior treatment experiences can be integrated. There are a variety of plants used for different purposes (Rumlerová et al., 2021), depending on the patient:

P1: Some of the dieta plants are psychoactive, others not, but somehow, they work. Physically and psychologically. You have the most vivid dreams ever on the dieta, you digest information there and you make decisions. You also see the therapist three times a week. The dieta is like a pillar where you consolidate that stage of your treatment. I see that as crucial.

In Takiwasi, diets take place in a secluded area of jungle land (the *chacra*) away from the main centre. Each patient is isolated to a small hut (*tambo*) and they are visited on a regular basis by a traditional healer who brings very basic food and medicinal plant preparations, and a psychotherapist with whom they discuss their experiences. Very little activity is actually carried out by the patient, and the combination of social isolation in the jungle, reduced food intake, consumption of traditional plant preparations, and general lack of access to recreational activities tends to provoke introspection and a range of emotional responses, and patients sometimes recounted vivid dreams which had deep personal and therapeutic significance:

P6: For me the dietas are the best part of the treatment. Some of the plants are for fears, some for grounding your thoughts, with others you have dreams or memories about things that happened in the past which are at the root of your problem. That can be difficult because you might receive some information that is very distressing for you. But it's not a miracle plant. I think that you have to want to work and cure yourself with all your energy and passion.

In general, patients spoke highly about the diets, particularly for their capacity to recover forgotten aspects of the self and one's personal history, and the possibility to have that information integrated more thoroughly:

P7: Ayahuasca, purgahuasca, even the purges, they help you in a more ethereal kind of way. But dietas help you ground yourself actually. I think the best thing that happened to me here was the dietas. They gave me a chance to explore myself. You know, the few things that I managed to open up from my childhood didn't come from the ayahuasca—they came from the dietas.

### 2.3. Within-treatment changes

One broad theme that was salient in the data was within-treatment change. Although the changes discussed under this theme can generally be classed as therapeutically positive, there is still a lack of longitudinal outcome data for Takiwasi patients, making it difficult to link these results to post-treatment effectiveness. Regardless, the patients interviewed tended to describe personal and interpersonal changes that they attributed to the treatment. In some cases this related specifically to drug use and an altered perspective on their life prior to treatment:

P6: I think I'm strong now. I've really had an intense experience with plants, and I'm prepared to do difficult things. For example, I finished the first ayahuasca session on the floor, like, "Please, kill me!". Now I'm prepared to pass through bad moments. I know that I will never fully lose the depression in my life, but I'm not going to start taking drugs or going to bed when I feel down.

Int: Whereas before it overwhelmed you?

P6: It's like a tendency in my family. But you have to draw a line. Before I came to Takiwasi, when I got down, I went straight down. Now that's more gradual.

Int: And you used to drink when that happened?

P6: Yeah, drinking or snorting cocaine. I wanted to escape from my reality. I would say now that I was very immature. I lived my life as a kid, like Peter Pan. I didn't like my life, so I created an artificial reality. OK, I went to work, but when I got home I was taking drugs. I wanted to go to nightclubs and parties and take ecstasy all the time, 24 hours. And what was I doing with my life? I never asked myself that.

Similarly, P1 described a new perspective on his pre-treatment life situation, referencing his past tendency to combine illicit drug use with pornography, and its negative impact on his family and social life:

P1: I couldn't express myself, I was in a deep depression, and the drug was really a world that I was ashamed of. I was a husband at that time, I'm still a father, and it's hard for a father to be eight hours masturbating himself on the computer, and then not being able to go to work, and feeling jealous of the other guys that play with their kids because you're not able to.

I really wanted get away from my life, of what I was feeling. That's how I was. When I first came to Takiwasi, I didn't know what I wanted in life, why I was on earth. I didn't know if I liked red or blue or white or black, I didn't know anything. I was just a piece of functioning brain and I couldn't think, actually. I was just existing. I didn't have any meaning, and now I do.

I wasn't friendly at all before, I was just a guy that was like, fighting and arguing with everyone. And this consciousness and patience and understanding, it's just something that changed my life I think. One thing that's very special to me is my kids. When I was on drugs they were a problem, as everything in my life was. But I don't see now as I used to.

While P1 did not attribute these changes only to the use of ayahuasca, he did feel that it was vital to his process, particularly focusing on its ability to induce change at a deeply emotional and non-rational level:

P1: I think I wouldn't be able to do that without ayahuasca. Because it showed me things inside that I didn't know about. I think I could do therapy for ten years and not be aware of the things that one ayahuasca session showed me. You can see things as they are, the raw things as they are. It's difficult to explain because the experience is, intrinsic, it stays in you. It's not intellectual. Like, you couldn't explain it in a paper, because it comes with a feeling! So that is a

whole feeling experienced, and you don't have a different attitude because your intellect says so—you feel that the attitude has changed inside. It's something that comes from the heart, not from the mind. It's different.

There were also patient reports of changes that did not relate specifically to drug use, but concerned positive changes in behavioural self-regulation, or emotional and interpersonal well-being:

P9: I used to eat a lot of fast food. Or like a bowl of rice with an egg—took me two minutes to do it. When I came back from the dieta, I changed my relationship with food. Before I was eating because my body was forcing me to. After the dieta, I eat because it's caring for my body and giving me energy. Caring for my body is caring for my life. It went little by little. Doing sport, eating better. I realized that kind of stuff here in Takiwasi.

P6: Now here in Takiwasi I'm starting to learn how to do it, or to say, "You can be loved. You can receive love". Why not? Because all my life I thought that I didn't deserve love, from anybody, including myself. And that creates a lot of suffering. But I'm changing it. I recognize that I had problems with drugs, but I had problems that were there before that too, and here I'm working on those kinds of problems without pills or antidepressants.

Despite these self-reported changes for patients, there was one patient who noticed significant change in others, but experienced minimal treatment effects for himself, even though he did stay in treatment for an extended amount of time:

P8: You see [P9], he came here very skinny, always crying because people are not fair; he was very much a child. But he left the treatment like a man, with a good body. For me I don't see a difference. Physically, I'm the same. People who come here, like [P9], their face takes on maturity—but I have the same face. I look at my photo from the beginning, and I'm the same.

Int: And you feel the same?

P8: Yeah. I feel a little better, but not too much. For me the treatment is not some, "Wow, big thing". No, it's like, the same thing. [...]

The plants didn't have a big effect, like I say. I feel more sensitive with sounds, with smell, some stuff like that, the five senses. But I don't feel a lot of change.

Echoing this statement was P9, who noted that some patients had not seemed to change or benefit from the treatment, asserting that they were "the same guys" from entry through to treatment exit.

### 3. Discussion

Multiple quantitative studies of the Takiwasi addiction treatment programme have suggested within-treatment therapeutic effects (Berlowitz et al., 2019; Giovannetti et al., 2020; O'Shaughnessy et al., 2021), but there has been a lack of published work providing context for the experiences of inpatients going through the treatment. This seems especially important in the case of Takiwasi, as the treatment is lengthy and involves a complicated application of Amazonian (and other) techniques. The qualitative accounts that we provide here offer some preliminary contextual data for understanding how the treatment may unfold for inpatients.

Although observational quantitative studies strictly rule out the attribution of causality, the qualitative data that we present here do describe a treatment context with therapeutic effects, at least as seen from the perspectives of patients. Similar to the views of the healers at the centre (Berlowitz et al., 2017), there was no consensus among our participants regarding the most important or impactful part of the treatment—at different turns patients found ayahuasca sessions (in

conjunction with therapy), plant purges, and dietary retreats to be helpful in their therapeutic process. Indeed, these are three major Amazonian components used in Takiwasi, and the variety of patient views regarding their value accords with practice in the centre, where components are understood as operating within an integrated whole. For example, purges are seen to clean and prepare the body in a way that is useful for those suffering from addictions, but they are also meant to allow for more profound work with ayahuasca, which in turn provides richer material for therapy—the outcomes of which likely impact on the content of subsequent ayahuasca sessions. Diets, the first of which do not occur for a number of months for new patients, act as integration points, but also function to generate new material which feeds back into the entire therapeutic process after the diet is completed.

However, it is notable that not every long-term patient reported benefits or positive change from this integrated process, and thus the treatment modality may be more suitable for certain patient profiles (Berlowitz, Walt, et al., 2020). It is unclear how exactly these might be defined, but there is some suggestion that the treatment may be more applicable for those with greater addiction severity and a history of failed treatment attempts (Berlowitz, Walt, et al., 2020). In terms of treatment dropout, preliminary analyses have suggested age (O'Shaughnessy et al., 2021), nationality (Berlowitz et al., 2019), and student status (Defelippe et al., 2019) as potential predictors, but analyses using larger samples as well as qualitative work would be helpful in that regard. Furthermore, longitudinal research is needed on outcomes for patients, particularly in terms of primary outcomes and treatment effectiveness once they leave the centre and return to independent living (for an example of such an approach, see Rush et al., 2021).

One limitation of the present study is the narrowness of the qualitative sample, which is small and moreover consists of patients who persevered with the treatment (on average staying 275 days). Our sample is thus largely biased towards those who felt they were gaining some benefit from the treatment, and who had consistently made the decision to stay. Thus it is important to note that the experiences of patients who leave earlier in the treatment may be quite different.

When considered alongside the available quantitative observational data, the presentation of patient experiences at Takiwasi strengthens the case for Amazonian medicine as a viable treatment option for substance abuse, at least for certain patients. Yet despite the existence of a growing body of literature pointing to ayahuasca as a therapeutic tool applicable to substance abuse disorders and beyond (Apud, 2021; Hamill et al., 2019; Loizaga-Velder & Verres, 2014; Rodrigues et al., 2021; Talin & Sanabria, 2017; Thomas, Lucas, Capler, Tupper, & Martin, 2013), in Takiwasi it is difficult to attribute therapeutic effects to ayahuasca alone, given the complex and idiosyncratic nature of the treatment. Patients themselves often expressed scepticism that ayahuasca would act as a panacea for their problems, seeing it instead as a useful component of the treatment overall.

Within the frame of Amazonian medicine more broadly, the patients' scepticism of ayahuasca as panacea stands in contrast with the fact that ayahuasca has by far captured the most scientific and public attention (Cohen, 2014; Dobkin de Rios, 2006; Labate & Cavnar, 2014; Winkelman, 2005). Much of this attention has revolved around therapeutic potentials, yet in the realm of medicine, the translation of ayahuasca into a context-independent therapeutic object serves to not only reduce and simplify rich Amazonian traditions (Berlowitz et al., 2022; Berlowitz, Torres, et al., 2020; Luna, 2011; O'Shaughnessy & Berlowitz, 2021), but moreover obscures the traditionally ambiguous nature of South American shamanism (Harner, 1993; Luna & Amaringo, 1999; Whitehead & Wright, 2004; Wilbert, 1990; Århem, 2004), and the importance of the social and the semiotic in determining outcomes with psychedelic substances more generally (Hartogsohn, 2017; Langlitz, Dyck, Scheidegger, & Repantis, 2021). Ethnographic and qualitative work will be necessary for better understanding the implications of ayahuasca use across various therapeutic contexts, although the study of Takiwasi also suggests that focusing on ayahuasca alone would likely impede a fuller appreciation of

the scope and possibilities inherent in Amazonian medicine and its diverse forms.

### Author contributions (CRediT)

- David O'Shaughnessy: Conceptualization, Methodology, Investigation, Formal analysis, Writing – Original Draft.
- Zoltán Sarnyai: Supervision, Writing – Review & Editing.
- Frances Quirk: Supervision, Writing – Review & Editing, Funding acquisition.
- Robin Rodd: Supervision, Writing – Review & Editing.

### Ethical statement

- 1) this material has not been published in whole or in part elsewhere;
- 2) all authors have been personally and actively involved in substantive work leading to the manuscript, and will hold themselves jointly and individually responsible for its content.

### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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