KRÁTKÉ SDĚLENÍ

Efektivita terapeutických zařízení pro uživatele drog v Nikaragui, Peru a České republice

HORÁK, M.[1], VERTER, N.[1], SOMERLÍKOVÁ, K.[2]

[1]Ústav jazykových a kulturních studií, Fakulta regionálního rozvoje a mezinárodních studií Mendelovy univerzity v Brně
[2]Ústav demografie a aplikované statistiky, Fakulta regionálního rozvoje a mezinárodních studií Mendelovy univerzity v Brně

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SOUHRN: *V článku prezentujeme publikované výsledky dosavadních studií zaměřených na uplatňování tradičních místně specifických terapeutických postupů při léčbě drogové závislosti. V období 2007–2009 jsme provedli devítiměsíční terénní výzkum v Centru pro odvykací léčbu uživatelů drog a výzkum tradičních léčiv Takiwasi ve městě Tarapoto v Peru. Na základě statistické analýzy záznamů v místním archivu bylo prokázáno, že 27 % pacientů absolvujících v letech 1999–2009 rezidenční léčbu (N=341) bylo na konci devítiměsíční odvykací kúry označeno terapeuty za vyléčené. 43 % z nich z centra dobrovolně odešlo před uplynutím devítiměsíční lhůty předepsané terapeutickým týmem s tím, že se dle svého názoru již závislosti rovněž zbavili. Od září 2013 probíhal také sběr dalších dat v rámci zjišťování míry setrvání v léčbě u aktuálních interních pacientů centra Takiwasi, jakož i čtyř dalších terapeutických komunit: Centro de Especialidades en Adicciones (Managua, Nikaragua), Sejřek, Renarkon a Zařízení sociální intervence Kladno - Dubí. Za tímto účelem byla použita škála Dimensions of Change Instrument (DCI) poskytnutá organizací Phoenix House Foundation, Inc. Statistická analýza poukázala na čtyři klíčové škálové faktory, které byly následně analyzovány a porovnány s výsledky terénního výzkumu a zúčastněného pozorování. Pomocí tohoto postupu bylo také možné ověřit explanatorní potenciál škály, která má být administrována po dobu jednoho roku (do září 2014) jako primární nástroj měření retence. Výsledky studie potvrdily multidimenzionální a multifaktorovou povahu závislosti. Výsledky rovněž svědčí o významu soudržnosti terapeutické skupiny jako nezbytného předpokladu zajištění účinné léčby.*

KLÍČOVÁ SLOVA: EFEKTIVITA – TERAPIE – ZÁVISLOST – INTERNÍ PACIENTI

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Korespondenční adresa: Mgr. et Mgr. Miroslav Horák, Ph.D. / miroslav.horak.ujks@mendelu.cz / Ústav jazykových a kulturních studií, Fakulta regionálního rozvoje a mezinárodních studií Mendelovy univerzity v Brně, Zemědělská 1/1665, 613 00 Brno

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SHORT REPORT

Efficacy of Drug Rehab Centres in Nicaragua, Peru, and the Czech Republic

HORÁK, M.[1], VERTER, N.[1], SOMERLÍKOVÁ, K.[2]

[1]Department of Languages and Cultural Studies, Faculty of Regional Development and International Studies, Mendel University in Brno, Czech Republic
[2]Department of Demography and Applied Statistics, Faculty of Regional Development and International Studies, Mendel University in Brno, Czech Republic

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SUMMARY: This article deals with the published results of previous studies on the application of traditional indigenous medicine in the treatment of drug addiction. We conducted nine months of fieldwork at the Takiwasi Centre for the Rehabilitation of Drug Addicts and for Research on Traditional Medicines, Tarapoto, Peru, during the period between 2007 and 2009. The statistical analysis of reports in the local archive demonstrated that 27% of inpatients in the years 1999–2009 (N=341) were classified by the therapists as cured at the end of the nine-month-long rehabilitation process. 43% of them left the centre voluntarily before the nine months prescribed by the therapeutic team, stating that they had recovered from their addiction. Other data has also been collected since September 2013, while measuring the retention of the current inpatients at Takiwasi, as well as in four other therapeutic communities: Centro de Especialidades en Adicciones (Managua, Nicaragua), Sejrek, Renarkon, and the Kladno-Dubi Centre for Social Intervention, using the "Dimensions of Change Scale" provided by Phoenix House Foundation, Inc. The statistical analysis indicated four key factors on the scale that were later analysed and compared with the results of the fieldwork and participant observation. It also helped us to verify the explanatory potential of the scale, which was going to be applied during the period of one year up till September 2014 as a primary tool for the measurement of the retention.The results of the study verified the multidimensional and multifactorial nature of addiction. The results also reflect the importance of the cohesion of the therapeutic group, which is necessary to ensure the efficacy of rehabilitation.

KEY WORDS: EFFICACY – THERAPY – ADDICTION – INPATIENTS

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Address for correspondence: Miroslav Horák, PhD. / miroslav.horak.ujks@mendelu.cz / Department of Languages and Cultural Studies, Faculty of Regional Development and International Studies, Mendel University in Brno, Zemědělská 1/1665, 613 00 Brno, Czech Republic

1 INTRODUCTION

The aim of this article is to publish the results of anthropological research on drug treatment with the traditional indigenous medicine of the Peruvian Amazon. From 2007 to 2009 we conducted two fieldwork studies in the therapeutic community of the Takiwasi NGO (Tarapoto, San Martín), which lasted for nine months. We investigated the methods used by the therapeutic team, which are based on an original combination of traditional medicine and contemporary psychological methods (e.g. transpersonal psychology, gestalt, Jungian psychology, and psychoanalysis). The research led to an in-depth analysis of the treatment system and its efficacy. The data that was acquired was later presented at international conferences and in the relevant scientific publications.

In January 2013, we conducted a short-term fieldwork study at CEA (Centro de Especialidades en Adicciones), which is located on the outskirts of the Nicaraguan capital, Managua, as a part of the NIKAZAM project (reg. no.: CZ.1.07/2.4.00/17.0028). During the investigation, we found out that the way the therapy in this rehabilitation centre is managed has a similar basis to that used in the Peruvian centre, i.e. it focuses primarily on the spirituality of the inpatients. Thus we started with an analysis of the therapeutic model, measuring its effectiveness by means of the "Dimensions of Change" scale (DCI) within the period of one year starting in September 2013.

The DCI scale was created in 2006 as a tool for measuring inpatient retention in therapeutic communities and was subsequently tested and approved by the RAND Institute in the USA. It has been translated into both Czech and Spanish and is currently used with the written permission of its author, Dr. Maria Edelen Orlando, in Takiwasi, CEA, and three Czech communities: Renarkon, Sejrek, and Kladno-Dubi (Edelen et al., 2008; Edelen et al., 2007). All the research-related activities were made possible thanks to the cooperation and the good relationships between the established centres during the fieldwork.

Despite the great social, cultural, and economic differences among the countries where the communities are located, we were able to understand and support the ideas of the other projects focused on the study of the efficacy of the residential treatment (in particular the Ayahuasca Treatment Outcome Project organised by Takiwasi).

The goal of this article is to compare conceptual differences in the methodological approach of two international rehab centres, as mentioned earlier. It also seeks to identify the main factors that seem to influence the retention of inpatients in the selected therapeutic communities and discuss the key directions for further research that might help in improving the methodological framework of drug addiction treatment in the Czech Republic.

2 APPROACH OF TAKIWASI

The Takiwasi therapeutic community (in Quechua "the house of song") was founded in 1992 by a French physician, Dr. Jacques Mabit, who was devoted to the study and practice of traditional Amazonian medicine. The reason for the establishment of Takiwasi was to provide drug addicts, mostly from South America, with an effective alternative to the more common approaches to drug abuse treatment, based on therapeutic methods combining current trends in psychology with traditional medical methods (Mabit, 2007; Kavenská, 2008).

The main contributions of the programme of the Takiwasi Centre include the therapeutic use of ayahuasca, a mixture of the *Banisteriopsis caapi* and *Psychotria viridis* plants, which is a non-addictive emetic which produces modified states of consciousness. Using ayahuasca induces an unmoving trance characterised by
severe inebriety, physical trembling, perspiration, and discomfort and vomiting. For that reason, its application in Takiwasi is usually carried out under the supervision of physicians and psychotherapists with a vast knowledge of traditional techniques who are able to harmonise a person in such a state (Guimarães dos Santos, 2013).

According to archaeological discoveries, the mixture was already used in ancient times[1] (Brierley & Davidson, 2012; McKenna, Callaway & Grob, 1998). Several scientific studies valued its therapeutic potential, which is well applicable in addiction treatment (Liester & Prickett, 2012). However, the main condition for the application of this substance is for it to be administered in a controlled and ritualised environment (McKenna, 2004).

The Takiwasi protocol also includes the use of other plants, although ayahuasca is the best-known. There are various plants included, e.g. emetic (Rosa sisa – *Tagetes erecta*), dietary (ushapawasha sanango – *Rauwolfia sp.*), and psychoactive (uchu sanango – *Tabernaemontana sananho*).

A therapeutic programme was established in Takiwasi which brought about changes in the personality and behaviour of the patient. All the experiences that the addict went through thanks to the use of ayahuasca or other natural remedies administered in the treatment were thoroughly analysed by the therapists. The therapeutic programme lasts a minimum of nine months and it is performed in the relatively isolated environment of the community. The community is male only and comprises no more than 15 members.[2] Each addict has only one chance to enter the thera-

1/ "There is abundant archaeological evidence, in the form of pottery vessels, anthropomorphic figurines, snuffing trays and tubes, etc., that herbal hallucinogen use was well established in the Ecuadorian Amazon by 1500–2000 B.C." (McKenna in Metzner & Callaway, 1999: 187–214).

2/ If the number of inpatients is exceeded, the therapeutic group may disintegrate (Bruhn, 2009).

peutic programme and all the treatment costs are covered by them (Pérez del Río, 2012).

The therapeutic programme of the Takiwasi Centre is divided into several stages; the transition between them is clearly marked by some of the rituals, which include:

1/ the preliminary phase: evaluation of the patient's motivation, medical examination, and acceptance into the programme;

2/ physical recovery: from the initial isolation and detoxification (eight days) until the end of the second month;

3/ personal restructuring: from the first until the third diet;

4/ existential, social, and family restructuring: from the fourth diet;

5/ social rehabilitation: the reintegration of the patient into society (from the beginning of the seventh month).

6/ follow-up: five years after treatment.

The preliminary phase of the treatment lasts ten days. During this time, contact is established with the applicant and personal information is collected. In the case of foreigners, their language skills are evaluated because the only language the inpatients are allowed to use in the centre is Spanish. The basic requirement for the initiation of the treatment is that the patient must be the one who requests it (not his parents or other family members).

The essential condition for entering the programme is to take full responsibility for the problem of addiction. Anyone who wants to enter only to escape from their external circumstances will not be accepted. If they have the capacity to, the family supports the patient in a moral and economic way.

Another basic requirement is total abstinence. Before the beginning of the programme, psychological tests are conducted. The patient also undergoes a medical examination where contraindications for the administration of herbal medicines are detected. The procedure is repeated at the end of the first month, and after a year. As soon as possible after the patient enters the treatment, anti-parasitic and dental examinations are carried out in the "Sagrada Familia" medical centre, directed by one of the employees of the centre.

The first phase of the rehabilitation begins in isolation, where the person gets rid of the withdrawal syndrome and prepares himself to enter the community.

Detoxification in Takiwasi, based on emetic and purging plants, follows a specific procedure. In contrast with other therapeutic communities where we observed the rehabilitation process, it is not performed in a mental hospital before the residential treatment and it lasts only eight days.

The isolation represents an important period in which the patient confronts his own motivation and re-evaluates his reasons for undergoing a rehabilitation programme. In this process, the supportive role of his individual psychotherapist, who visits him on
a daily basis, is crucial. It is quite common for patients to run away during the initiation phase of treatment (Silverman, DeFulio & Sigurdsson, 2012).

If the patient flees, the treatment is terminated immediately. In the opposite case, he goes through the rite of passage and enters the therapeutic group (Scott, 1998).
As soon as the patient adapts to the daily rhythm of the centre (generally from the second month), he begins to participate in the ayahuasca sessions. These are always performed twice per week, on the second day after detoxification. The content of the patient's ayahuasca experience, which is later discussed in the group, represents the keystone of the psychotherapeutic work in the centre.

The end of the second phase is marked by the first diet. This therapeutic procedure, which is not about losing weight in order to improve one's appearance, is experienced by all patients regularly two or three times during the complete duration of the rehabilitation programme. Involving temporary isolation in the jungle, which usually lasts eight days, the "diet" is characterised by the ritual ingestion of the so-called "plant teachers" under medical supervision (Jauregui et al., 2011).

The third phase of the rehabilitation process is directed to the pursuit of a personal mission in life and serves to restore the lost contact with the transcendental. The recuperation on the physical level has almost finished, so the entire effort is focused on the preparation of future plans and solving family problems. In this sense, the financial independence of the family is paramount.

The more realistic and pragmatic the patient's attitude is, the more he will be affected by the reflections on metaphysical and existential issues that are the subject of nearly all the therapeutic sessions in the fourth phase of the rehabilitation. People who have abandoned the use of drugs are beginning to search for principles they can build their lives on. To facilitate this, various rituals and ceremonies are carried out for them by the staff. The objective of these rituals is to create an environment that is conducive to change. If the patient discovers a spiritual level in his daily life, it provides a strong initial impetus that motivates him to abstain.

Several authors confirm that there is a deep connection between spirituality and the phenomenon of drug addiction (Sremac, 2010). First, there are the so-called "interaction models" that explain the reasons for the origin and development of the addiction, making connections between a number of different factors (biological, psychological, social, and spiritual) (Coombs, 2004). Second, there are numerous scientific studies that show that spirituality and religiosity can have a positive influence on addiction treatment (Borras et al., 2010).

Other activities that are typical of the third phase of the rehabilitation process include group sessions, group dynamics, sports activities, or other thematic workshops (e.g. mask-making, yoga, and family constellations).

The penultimate phase of the rehabilitation, with an approximate duration of two months, represents a period when the patient is prepared to leave the centre and reintegrate into society. The fact that during this time the inpatient goes to work or school does not mean he is excluded from the group therapeutic activities. On the contrary, his presence in the group represents a motivating factor (Sumnall & Brotherhood, 2012).

Arguably, the treatment is not over when the patient leaves the centre. There is follow-up, including a monthly psychological interview, family counselling, and participation in the therapeutic sessions that are provided to the patients who complete the rehabilitation programme or leave it prematurely with the permission of the therapists. If necessary, the patient is offered a short stay in the centre, which has the purpose of reinforcement (Lennox et al., 2013).

Patients from different parts of Peru and the majority of those who come from other countries might be a challenge for Takiwasi as it has no particular facility for subsequent follow-up. The French and the Argentines can take advantage of the external cooperation of the centre with the Maison Qui Chant (Lyon) and Runawasi (Buenos Aires), whose therapeutic models have the same basis.

3 SPIRITUAL CONCEPT OF ADDICTION

We also explored the spiritual concept of addiction, while conducting a nine-month-long field research study at Takiwasi, the Centre for the Rehabilitation of Drug Addicts and for Research on Traditional Medicines (Tarapoto, Peru).

The rehabilitation programme of Takiwasi is based on the assumption of drug use being related to a search for "holiness". The way a patient used drugs before coming to the centre is considered pathological because he did so idiosyncratically, i.e. made decisions wilfully about the dosage, as well as the setting (Hirschman, 1992: 155–179).

For example, when it is confined to appropriate times and places, most people take drinking as a normal form of behaviour. When a person starts to drink on the job, at school, or in the morning, he or she becomes addicted to behaviour which is likely to lead to a drinking problem. Even subcultures or communities that accept the use of illegal drugs might distinguish between acceptable and unacceptable situations (Belin, 2012).

It is also the case of Takiwasi, where controlled drug use in the pursuit of self-transcendence is accepted, as total abstinence or substitution treatment are seen here as being less efficient. The Centre provides a structure in which some spiritual experience, induced by the controlled ritual use of herbal medicines with psychoactive effects traditionally administered by the healers of the Peruvian Amazon (ayahuasca), can be reached. Such rituals are usually performed in a unique way by setting aside a place for healing. They generally include other things: songs, dancing, burning incense, calling on the gods, casting out evil spirits, and the laying on of hands (Welch, 2003). It is of major significance that the rite, which is primarily designed to integrate the drug experience, is not profaned, and the patient's experience is further analysed with different psychotherapists and in group sessions and ergotherapy (Lewis, 2008).

In the Nicaraguan therapeutic community, CEA, the Matrix model, an evidence-based intensive outpatient treatment programme for alcohol and drugs, was modified for the purposes of the community and is now used for treating inpatients. The model originated from the 12-step spiritual concept of Alcoholics Anonymous (AA), developed to meet the needs of cocaine and crack users. Nowadays, it is delivered to a broad spectrum of people with no race/ethnicity, gender, or drug limitations (the majority of CEA patients are heroin and crack users).

The religious aspects of the Matrix model are much less concrete, in contrast with the prevailing Roman Catholic religious beliefs of the Peruvian patients and therapists, as they were derived from a number of sources, especially recent trends in American culture. In AA, the acceptance of an ecumenical religious orientation has led to an appreciation that the formalities of ritual practice may be less important than the values that many religious denominations hold in common (Galanter, 2005).

However, in both cases an acceptance of religious practices has added another dimension to the treatment. The emergence of spiritual recovery programmes is itself a potent vehicle for personal transformation. Nevertheless, the validation of spirituality in the rehabilitation process must take place, and it lies in defining it in empirical terms, e.g. as something "which gives people meaning and purpose in life" (Puchalski et al., 2004).

4 THE CEA APPROACH

The Nicaraguan CEA rehabilitation centre, situated on the outskirts of the capital city, Managua, has been in operation since 2009. It is an organisation whose basic philosophy is to provide everyone with comprehensive treatment on the physical, psychological, emotional, social, and spiritual levels. The absence of the use of herbal medicine from the CEA model is not a limiting factor since the centre shares the same philosophy. Moreover, there are also major similarities in the methodology of the work with addicts.

CEA creates projects aimed at disseminating professional knowledge and raising people's awareness in the area of addictions and their prevention and treatment. Its vision is to organise programmes for the national and inter-

national prevention and treatment of alcoholism and addictions through education and certification of its professionals in accordance with international standards.

The CEA results are based on the twenty years of experience of the Matrix Institute in Los Angeles, where the employees of the centre undergo formal preparation for therapeutic work. Matrix, a cognitive and behavioural model, which is taught at the institute, is recommended in the USA by the National Institute on Drug Abuse (NIDA) as an effective way of treating cocaine addiction. The model has been tested as part of many studies which prove that, with patients addicted to cocaine, alcohol, and other substances, it significantly lowers the consumption of drugs, improves psychological indicators, and increases retention in treatment by up to 38% (Rawson et al., 1995).

The high level of effectiveness of this programme was also confirmed by an internal evaluation which took place in 2013. According to the statistical data, 51% of the 92 patients rehabilitated in CEA in the past three years do not take drugs any longer.

As is the case with Takiwasi, CEA also offers its clients outpatient and inpatient rehabilitation. The latter includes a two-to-four-month stay in a therapeutic community of 15 members, followed by five months of outpatient treatment. In comparison with Takiwasi, the groups in CEA are mixed (there are both male and female patients) (Heffner et al., 2012).

In Takiwasi women are not allowed to enter the rehabilitation programme mainly because of the restrictions pertaining to the use of herbal medicine. The second fundamental reason lies in the fact that according to the Peruvian therapists, the efficacy of treatment in a mixed programme is reduced since the patients have a tendency to transfer their personal issues connected with addiction into partnerships that they have formed in a closed group. In addition, because of their new relationships, some of them are ready to terminate their treatment at any time. However, the centre does not close its doors to those who succumb to relapse. As is the case with CEA, here too the therapists maintain contact with the patients, and they have opportunities to consult them even though they are no longer staying in the centre.

5 METHODOLOGY

5 / 1 Participant observation

A long-term research study spanning the period from 2007 to 2009 was conducted in the Takiwasi centre in Peru with two groups of patients. Participants in all types of therapeutic procedures were prescribed adjuvant care, plant baths, diet, group therapy, etc. (Torres, 2009). We also conducted an art therapy workshop where the methodology of the focus group was applied in the same period under study (Gutiérrez, 2011).

5 / 2 Population 2007-2009

The first group of patients that we met in Takiwasi in 2007 during the preliminary study had only eight members, whereas the second group in 2009 had 14 people. Like most of the therapeutic team, the patients were only men. The reason for that was not chauvinistic. Arguably, the absence of women from the therapeutic group has a practical meaning. If they were present, the patients would probably have had sexual intercourse, which is against the rules of the centre.[3]

The statistical analysis of the reports stored in the local archive demonstrated that from 1992 (the date the centre was established) until 1999 380 people received treatment in Takiwasi. 68% of the patients came from Peru and they were mainly cocaine or cocaine paste users (the San Martín Department is considered the region of the highest cocaine production). Frenchmen accounted for 13% and Argentines for 4% of the population. While there could also be Ecuadorians, Brazilians, Spaniards, etc. among the foreign patients, their rate was not statistically significant (Cabieses, 2010).

The average age of the patients treated in Takiwasi in the last decade was 31 years (just like in the Czech Republic, 15 years was the minimum age for rehabilitation in the therapeutic community) and the oldest inpatient was 64 years old.

Alcoholics (65%) predominated among the inpatients. A significant percentage of the patients were treated for cannabis addiction (54%), which is difficult to cure because of its subtle symptoms. Mabit (1997) proposes a psychosocial profile of a person addicted to marijuana.

In comparison to the period 1992-1999, the rate of cocaine paste consumption in the years spanning the period between 1999 and 2009 dropped from 52% to 39%. On the other hand, there was an increase in the percentage of cocaine addicts, which rose from 9% to 36% (Giove, 2002).

In comparison to other drugs, it can be considered statistically significant that 26% of the inpatients were tobacco smokers. This fact is associated with two major issues. First, it is locally common to consume tobacco together with alcohol or cocaine paste, which leads to polysubstance dependence (Newcomb et al., 2001). Second, it is necessary to take into account the fact that the inpatients are forbidden to use tobacco, as well as any other drugs (e.g. caffeine); any breach of this rule is punished by expulsion. This makes it a completely different case when compared with the situa-

3/ Sexual activity can be hindered before the ritual administration of a hallucinogenic substance in order to control the flow of sexual energy towards a state of inner contemplation. Each loss of this type of energy can be seen as a reduction of the personal experience (Dobkin de Rios, 1990: 204). From another point of view, expulsion from the centre because of the transgression of its cardinal rules reduces the efficacy of the treatment and can result in the patient relapsing.

tion in other therapeutic communities included in this research (e.g. Renarkon).

The inpatients treated in Takiwasi for at least nine months are required to observe a special diet associated with the administration of ayahuasca and other medicinal plants used regularly in the centre. 30% of the inpatients admitted between the years 2007 and 2009 (N=49) experienced the ritual ingestion of hallucinogenic substances, mostly ayahuasca (14%) and San Pedro (8%).

The treatment at the Takiwasi Centre was effective in 27% out of the 340 people treated during the years 1999-2008. This percentage of inpatients passed through the complete process of rehabilitation and was considered to be recovered from their addiction by the therapists. 70% of the inpatients terminated their treatment voluntarily before the end of the programme, but stated that they were recovered too. As this requires verification, we decided to continue our research by using the DCI scale to measure the retention of the current inpatients.

5 / 3 DCI Scale

The DCI scale was administered five times within a year (starting from September 2013), which started by collecting data from inpatients in five therapeutic communities: Takiwasi, CEA, Renarkon, Kladno-Dubi, and Sejrek. In each community there was a person (therapist, director) responsible for the distribution of the scale among the inpatients at the beginning of their rehabilitation and after one, three, six, and nine months (the completion of the full length of the rehabilitation programme represents the symbolic rebirth of an inpatient) (Giove, 2002).

We analysed the data on a continuous basis by applying statistical methods (Tukey's HSD test and the method of confidence intervals) in order to observe the changes in the motivation of the inpatients to complete the rehabilitation programme (Edelen et al., 2007).

The scale contains 54 items divided into eight factors: Community Responsibility; Clarity and Safety, Group Process; Resident Sharing, Support, and Enthusiasm; Introspection and Self-management; Positive Self-Attitude and Commitment to Abstinence; Problem Recognition, and Social Network (six items were excluded from the analysis). This self-report examines the relationship between the duration of treatment, individual assessment of the therapeutic process, and the state of mental and physical health of the inpatient (Edelen, Miles, Osilla & Wenzel, 2008).

The results of the second set of measurements are presented below.

5 / 4 Population in 2013

The characteristics of the total sample from Peru, Nicaragua, and the Czech Republic are taken into consideration here (N=101). According to the distribution by gender, 84% of the inpatients in the communities mentioned above are male. The gender composition of the therapeutic groups is mixed in all the places, except for Takiwasi. In Peru there is a national law which restricts the treatment of female inpatients (Lara-Ponce, 1998). Takiwasi is authorised to accept only men, adults, and drug addicts (Giove, 2002).

The average age of the patients in the sample was 29 years. The oldest inpatient was a 60-year-old man from CEA.

6 RESULTS

Results have been summarized in *Tables 1–4* and *Figures 1–4*.

7 CONCLUSIONS

The statistical analysis of the data collected from the therapeutic communities confirmed a highly statistically significant difference between the opinions of patients who had been undergoing rehabilitation for 0-6 and 3-6 months on item No. 9: "Making the programme work requires everyone to do their share of work" (see Fig. 1). This shows that they attribute different levels of importance to coexistence and cooperation from the beginning to the end of the therapeutic programme.

It also reflects the importance of the cohesion of the therapeutic group, which is necessary to ensure the efficacy of the rehabilitation (Bruhn, 2009). The change in opinion during the third month can be motivated by the illusory assumption of some inpatients who may come to think, in the absence of withdrawal syndrome and physical symptoms of addiction, that they have already been fully rehabilitated.

Another statistically significant difference was proven between the opinions of patients who had been rehabilitated for 1-3 and 1-6 months on item No. 43: "My attitudes, feelings, or behaviours can cause problems with my physical health" (see Fig. 2), and on item No. 45: "My attitudes, feelings, or behaviours can cause problems with going to school or vocational classes" (see Fig. 3). In this respect, another difference was found between the opinions of inpatients rehabilitated for 1-3 months on Item No. 48: "My attitudes, feelings, or behaviours can cause problems with my relations with my family" (see Fig. 4). This reflects the multidimensional and multifactorial nature of addiction. The drug abuse behaviour does not rely only on one isolated factor, but it is also caused and maintained by various contextual circumstances of a biological, psychological, social, and spiritual nature (Horcajadas et al., 2010).

The Matrix model used at CEA and the use of traditional indigenous medicines in drug addiction treatment still represent phenomena which have not been explored sufficiently. However, a better understanding of these approaches may contribute to the broadening of the knowledge in the area of addiction treatment and make it possible

Table 1 / **Tabulka 1**

Multiple comparisons (Tukey-HSD); the data is sorted according to the duration of the treatment in months; mean squared error: 0.736294065955634, degrees of freedom: 95; ** denotes the significantly different pairs. The paired difference test is significant when q Stat > Table q

*Mnohonásobné porovnávání (Tukey-HSD), data jsou roztříděna podle délky léčby v měsících; střední kvadratická chyba: 0.736294065955634, stupně volnosti: 95; ** označuje významně odlišné dvojice. Výsledek párového testu je významný při q Stat > Table q*

Comparison	Difference	Standard Error	q Stat	Table q	Relevance	Less than 95%	More than 95%	RSL
6-0	0.9211	0.2435	5.3500	3.6983	0.0015	0.2844	1.5578	**
1-0	0.4037	0.2276	2.5082	3.6983	0.2924	-0.1916	0.9990	
3-0	0.0195	0.2569	0.1073	3.6983	0.9998	-0.6525	0.6914	
6-3	0.9016	0.2660	4.7931	3.6983	0.0056	0.2059	1.5973	**
1-3	0.3842	0.2516	2.1597	3.6983	0.4255	-0.2737	1.0421	
6-1	0.5174	0.2378	3.0768	3.6983	0.1375	-0.1045	1.1393	

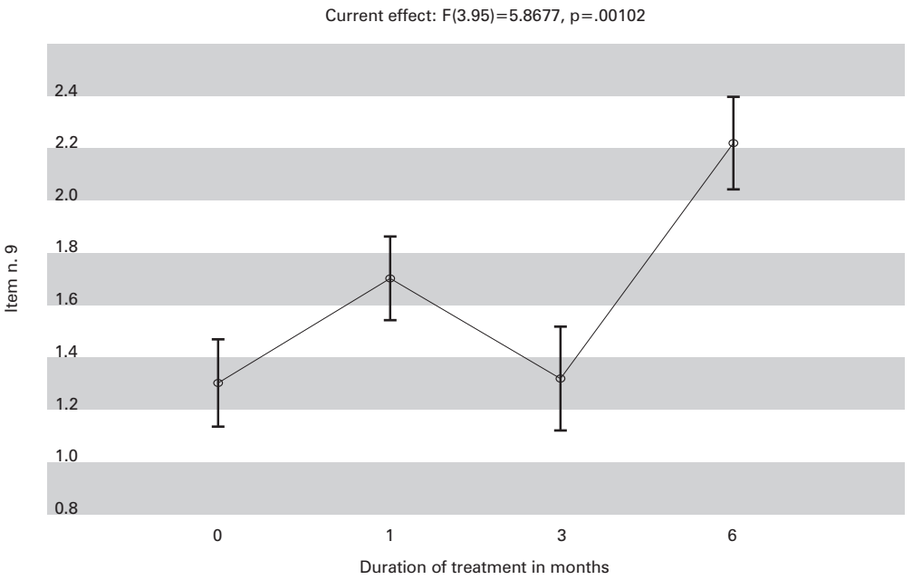

Figure 1 / **Obrázek 1**

Changes in the opinion of the patients on the importance of cohabitation

Změny v názorech pacientů na důležitost spolužití v komunitě

Table 2 / **Tabulka 2**

Multiple comparisons (Tukey-HSD); the data is sorted according to the duration of the treatment in months; mean squared error: 1.45233261976821, degrees of freedom: 96; ** denotes the significantly different pairs. The paired difference test is significant when q Stat > Table q

*Mnohonásobné porovnávání (Tukey-HSD), data jsou roztříděna podle délky léčby v měsících; střední kvadratická chyba: 1.45233261976821, stupně volnosti: 96; ** označuje významně odlišné dvojice. Výsledek párového testu je významný při q Stat > Table q*

Comparison	Difference	Standard Error	q Stat	Table q	Relevance	Less than 95%	More than 95%	Result
3-1	1.0679	0.3511	4.3012	3.6976	0.0158	0.1499	1.9860	**
6-1	0.8345	0.3317	3.5584	3.6976	0.0637	-0.0326	1.7016	
0-1	0.2258	0.3172	1.0066	3.6976	0.8922	-0.6036	1.0553	
3-0	0.8421	0.3609	3.3001	3.6976	0.0976	-0.1014	1.7856	
6-0	0.6087	0.3420	2.5173	3.6976	0.2892	-0.2854	1.5028	
3-6	0.2334	0.3736	0.8835	3.6976	0.9239	-0.7434	1.2102	

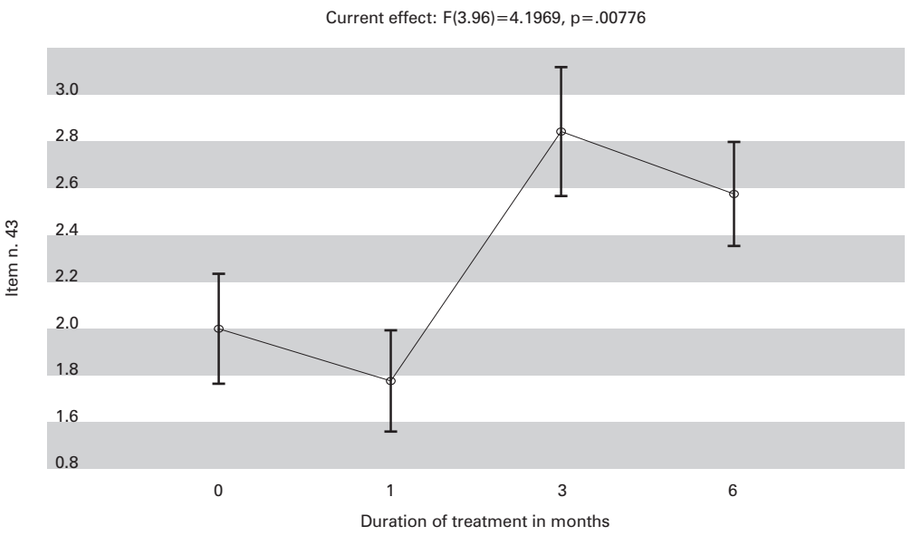

Figure 2 / **Obrázek 2**
Changes in the opinion of the patients on the impact of drug abuse on their physical condition
Změny v názorech pacientů na dopad zneužívání drog na jejich fyzickou kondici

to extend the methodological framework in the Czech Republic. With regard to the acuteness of the current situation of drug abuse, this problem is highly topical and can have a practical impact on increasing the success rate of drug addicts' rehabilitation.

Finally, the impact of spirituality on the efficacy of the drug addiction treatment must be analysed further, as it has been shown that it plays an important role in the context of both the above recovery programmes pursued abroad.

8 DISCUSSION

The therapeutic use of ayahuasca has not been sufficiently studied yet, presumably as it involves ethical and legislative issues. The most notable challenges are the lack of a theoretical and methodological basis. In this respect, it is noteworthy that from a scientific point of view, the application of traditional indigenous medicine in its original context and under specific conditions (in laboratories or spiritual movements) differs dramatically. In this study, we focus solely on the traditional context. Moreover, the treatment at Takiwasi is particularly underpinned by this paradigm.

When studying traditional indigenous medicine without previous experience, a researcher may face several risks that arise mostly from the spread of shamanistic tourism in South America since the 1980s. For this reason, it is relatively difficult to distinguish between the true practitioners of traditional medicine and charlatans (Fotiou, 2010). The Takiwasi Centre engages only specialists in traditional medicine who have also completed academic training (medical doctors, psychologists, physical therapists, etc.). The original combination of traditional and current treatment methods is a great asset to the Centre and deserves very special scientific attention.

After the fifth set of measurements using DCI in September 2014, we are going to have enough data to distinguish between the various factors in the individual communities and compare them. The current results have verified the explanatory value of the DCI scale.

Comparing them with the data collected on the basis of participant observation and the content analysis of semi-structured interviews applied throughout the research can lead to innovations and contributions that can be extremely useful for studying addiction treatment in its various forms and models.

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Table 3 / **Tabulka 3**

Multiple comparisons (Tukey-HSD); the data is sorted according to the duration of the treatment in months; mean squared error: 1.62500438573708, degrees of freedom: 96; ** denotes the significantly different pairs. The paired difference test is significant when q Stat > Table q

*Mnohonásobné porovnávání (Tukey-HSD), data jsou roztříděna podle délky léčby v měsících; střední kvadratická chyba: 1.62500438573708, stupně volnosti: 96; ** označuje významně odlišné dvojice. Výsledek párového testu je významný při q Stat > Table q*

Comparison	Difference	Standard Error	q Stat	Table q	Relevance	Less than 95%	More than 95%	Result
3-1	1.0679	0.3714	4.0663	3.6976	0.0252	0.0968	2.0390	**
6-1	0.9215	0.3508	3.7146	3.6976	0.0485	0.0042	1.8387	**
0-1	0.4851	0.3356	2.0443	3.6976	0.4744	-0.3923	1.3624	
3-0	0.5828	0.3817	2.1593	3.6976	0.4256	-0.4152	1.5809	
6-0	0.4364	0.3617	1.7062	3.6976	0.6243	-0.5093	1.3821	
3-6	0.1465	0.3952	0.5241	3.6976	0.9825	-0.8868	1.1797	

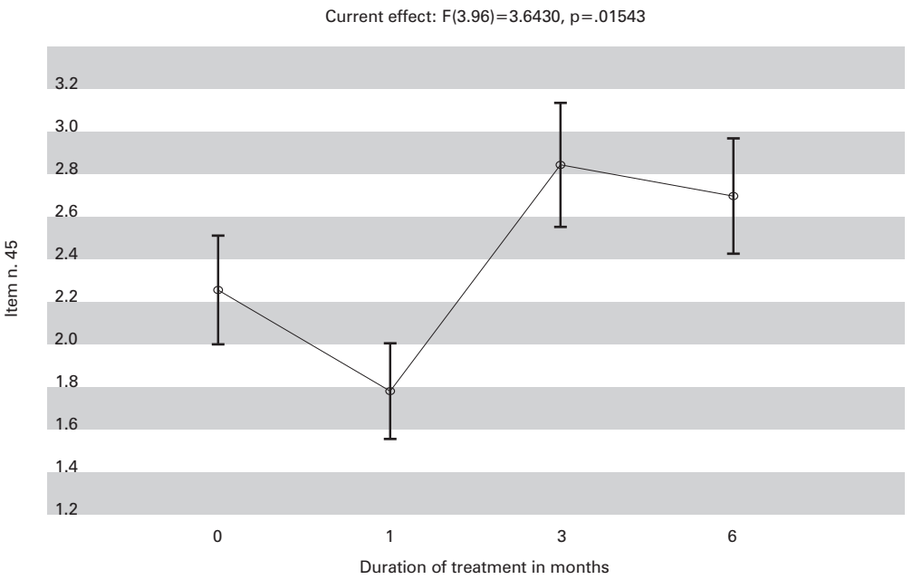

Figure 3/ **Obrázek 3**

Changes in the opinion of the patients on the impact of drug addiction on occupational and student life

Změny v názorech pacientů na dopad drogové závislosti na profesní a studentský život

Table 4 / **Tabulka 4**

Multiple comparisons (Tukey-HSD); the data is sorted according to the duration of the treatment in months; mean squared error: 1.1929569391246, degrees of freedom: 95; ** denotes the significantly different pairs. The paired difference test is significant when q Stat > Table q

*Mnohonásobné porovnávání (Tukey-HSD), data jsou roztříděna podle délky léčby v měsících; střední kvadratická chyba: 1.1929569391246, stupně volnosti: 95; ** označuje významně odlišné dvojice. Výsledek párového testu je významný při q Stat > Table q*

Comparison	Difference	Standard Error	q Stat	Table q	Relevance	Less than 95%	More than 95%	Result
3–1	1.0102	0.3182	4.4893	3.6976	0.0107	0.1781	1.8422	**
6–1	0.6578	0.3006	3.0948	3.6976	0.1338	-0.1281	1.4437	
0–1	0.0024	0.2875	0.0118	3.6976	1.0000	-0.7494	0.7541	
3–0	1.0078	0.3271	4.3577	3.6976	0.0141	0.1527	1.8629	**
6–0	0.6554	0.3099	2.9907	3.6976	0.1558	-0.1549	1.4657	
3–6	0.3524	0.3386	1.4718	3.6976	0.7260	-0.5329	1.2377	

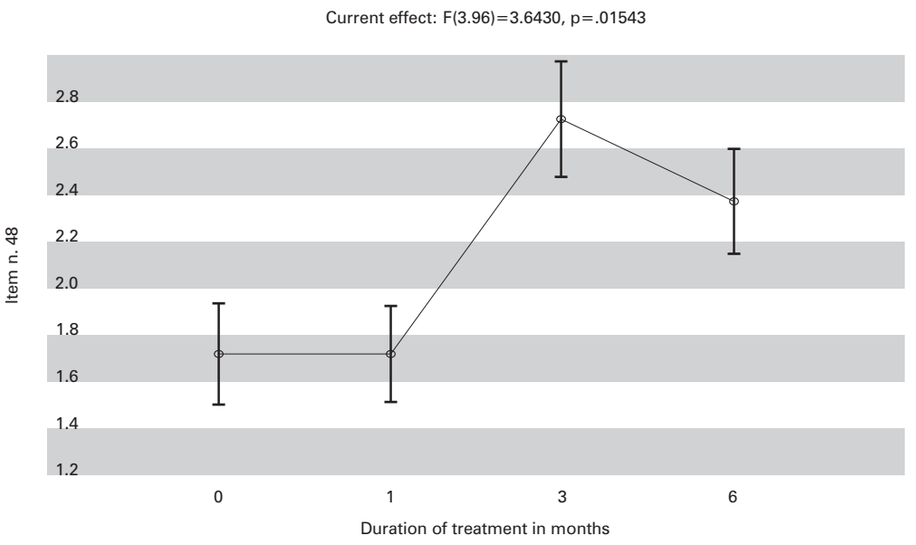

Figure 4/ Obrázek 4
Changes in the opinion of the patients on the impact of drug addiction on their family life
Změny v názorech pacientů na dopad drogové závislosti na jejich rodinný život

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REFERENCES

- Belin, D. (2012). *Addictions – From Pathophysiology to Treatment*. InTech. doi:10.5772/1178
- Borras, L., Khazaal, Y., Khan, R., Mohr, S., Kaufmann, Y. A., Zullino, D., & Huguelet, P. (2010). The relationship between addiction and religion and its possible implication for care. *Subst Use Misuse*, *45*(14), 2357-2410. doi:10.3109/10826081003747611
- Brierley, D. I., & Davidson, C. (2012). Developments in harmine pharmacology — Implications for ayahuasca use and drug-dependence treatment. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, *39*(2), 263-272. doi:10.1016/j.pnpbp.2012.06.001
- Bruhn, J. (2009). *The Group Effect: Social Cohesion and Health Outcomes*. Springer.
- Cabieses, B. H. (2010). The "miracle of San Martín" and symptoms of "alternative development " in Peru. *Drug Policy Briefing*, (34), 1-12.
- Coombs, R. H. (2004). *Handbook of Addictive Disorders: A Practical Guide to Diagnosis and Treatment*. Wiley.

● Dobkin de Rios, M. (1990). *Hallucinogens, cross-cultural perspectives*. Bridport [England]: Lindfield, N.S.W: Prism Press; Unity Press.

● Edelen, M. O., Miles, J. N., Osilla, K. C., & Wenzel, S. L. (2008). Further validity evidence for the dimensions of change in therapeutic community treatment instrument. *Am J Drug Alcohol Abuse*, *34*(3), 285-292. doi:10.1080/00952990802013482

● Edelen, M. O., Tucker, J. S., Wenzel, S. L., Paddock, S. M., Ebener, P., Dahl, J., & Mandell, W. (2007). Treatment process in the therapeutic community: Associations with retention and outcomes among adolescent residential clients. *Journal of Substance Abuse Treatment*, 32(4), 415-421.

● Fotiou, E. (2010). *From Medicine Men to Day Trippers: Shamanic Tourism in Iquitos, Peru*. University of Wisconsin-Madison. Retrieved on April 6, 2014 from http://www.neip.info/downloads/Fotiou_Ayahuasca_2010.pdf

● Galanter, M. (2005). *Spirituality And The Healthy Mind: Science, Therapy, And The Need For Personal Meaning*. Oxford University Press.

● Giove, R. (2002). *La liana de los muertos al rescate de la vida* (1st ed., p. 182). Tarapoto, San Martín - Perú: Takiwasi-DEVIDA.

● Guimarães dos Santos, R. (2013). Safety and Side Effects of Ayahuasca in Humans—An Overview Focusing on Developmental Toxicology. *Journal of Psychoactive Drugs*, *45*(1), 68-78. doi:10.1080/02791072.2013.763564

● Gutiérrez, J. (2011). Grupo de discusión: ¿Prolongación, variación o ruptura con el focus group? *Cinta Moebio*, (41), 105-122. Retrieved on April 6, 2014 from http://www.facso.uchile.cl/publicaciones/moebio/41/gutierrez.pdf

● Heffner, J. L., Blom, T. J., & Anthenelli, R. M. (2012). Differences in Trauma History and Symptoms as Predictors of Relapse to Alcohol and Drug Use. *American Journal on Addictions*, *20*(4), 307-311. doi:10.1111/j.1521-0391.2011.00141.x.Gender

● Hirschman, E. C. (1992). The Consciousness of Addiction: Toward a General Theory of Compulsive Consumption. *Journal of Consumer Research*, *19*(2), 155-179. doi:10.2307/2489326

● Horcajadas, F. A., Castillo, I. I., & Mangado, E. O. (2010). *Manual de adicciones para psicólogos especialistas en psicología clínica en formación* (p. 318). SOCIDROGALCOHOL.

● Jauregui, X., Clavo, Z. M., Jovel, E. M., & Pardo-de-Santayana, M. (2011). "Plantas con madre": plants that teach and guide in the shamanic initiation process in the East-Central Peruvian Amazon. *J Ethnopharmacol*, *134*(3), 739-752. doi:10.1016/j.jep.2011.01.042

● Kavenská, V. (2008). Možnosti využití halucinogenu ayahuasky při léčbě závislostí. *Adiktologie* (8)1, 32-40.

● Lara-Ponce, A. (1998). Who is to Blame? The Discovery of Domestic Drug Problems and the Quest for Recognition of Therapeutic Communities in Peru. In H. Klingemann & G. Hunt (Eds.), *Drug treatment systems in an international perspective: Drugs, demons, and delinquents* (182-195). Thousand Oaks, CA: SAGE Publications. doi:http://dx.doi.org/10.4135/9781483328409.n18

● Lennox, R. D., Sternquist, M. A., & Paredes, A. (2013). A simplified method for routine outcome monitoring after drug abuse treatment. *Substance Abuse: Research and Treatment*, *7*, 155-69. doi:10.4137/SART.S12691

● Lewis, S. E. (2008). Ayahuasca and Spiritual Crisis: Liminality as Space for Personal Growth. *Anthropology of Consciousness*, *19*(2), 109-133. doi:10.1111/j.1556-3537.2008.00006.x

● Liester, M. B., & Prickett, J. I. (2012). Hypotheses Regarding the Mechanisms of Ayahuasca in the Treatment of Addictions. *Journal of Psychoactive Drugs*, *44*(August), 200-208. doi:10.1080/02791072.2012.704590

● Mabit, J. (1997). Marihuana: ¿Ángel o demonio? *Revista TAKIWASI*, (5), 63-77.

● Mabit, J. (2007). Ayahuasca in the treatment of Addictions. In B. R. Thomas & M. J. Winkelman (Eds.), *Psychedelic Medicine (Vol. 2): Evidence for Hallucinogenic Substances as Treatments* (Vol. 2, 87-103). Praeger Ed., USA.

● McKenna, D. J. (2004). Clinical investigations of the therapeutic potential of ayahuasca: rationale and regulatory challenges. *Pharmacology & Therapeutics*, *102*(2), 111-129. doi:http://dx.doi.org/10.1016/j.pharmthera.2004.03.002

● McKenna, D. J., Callaway, J. C., & Grob, C. S. (1998). The Scientific Investigation of Ayahuasca: A Review of Past and Current Research. *The Heffter Review of Psychedelic Research*, *1*, 65-76. Retrieved on April 6, 2014 from http://www.heffter.org/hrivol1.htm

● Metzner, R., & Callaway, J. C. (1999). *Ayahuasca: Hallucinogens, Consciousness, and the Spirit of Nature*. Thunder's Mouth Press.

● Newcomb, M. D., Galaif, E. R., & Locke, T. F. (2001). Substance use diagnoses within a community sample of adults: Distinction, comorbidity, and progression over time. *Professional Psychology: Research and Practice*, *32*(3), 239-247. Retrieved on April 6, 2014 from http://psycnet.apa.org/?&fa=main.doiLanding&doi= 10.1037/0735-7028.32.3.239

● Pérez del Río, F. (2012). En qué cambian los pacientes drogodependientes a los seis meses de tratamiento en la comunidad terapéutica. *Revista de La Asociación Española de Neuropsiquiatría*, *32*(114), 287-303. doi:10.4321/S0211-57352012000200006

● Rawson, R. A., Shoptaw, S. J., Obert, J. L., McCann, M. J., Hassson, A. L., Marinelli-Casey, P. J., & Ling, W. (1995). An intensive outpatient approach for cocaine abuse treatment: The Matrix model. *Journal of Substance Abuse Treatment*, *12*, 117-127.

● Scott, D. G. (1998). Rites of Passage in Adolescent Development?: A Reappreciation. *Child & Youth Care Forum*, *27*(5), 317-335.

● Silverman, K., DeFulio, A., & Sigurdsson, S. O. (2012). Maintenance of reinforcement to address the chronic nature of drug addiction. *Preventive Medicine*, *55*, S46-S53. doi:10.1016/j.ypmed.2012.03.013

● Sremac, S. (2010). Addiction, Narrative And Spirituality: Theoretical-Methodological approaches and Overview. *Vrije Universiteit Amsterdam*, 255-273.

● Sumnall, H., & Brotherhood, A. (2012). *Social reintegration and employment: evidence and interventions for drug users in treatment* (p. 2008). Lisbon, Portugal: European Monitoring Centre for Drugs and Drug Addiction. doi:10.2810/72023

● Thomas, G., Lucas, P., Capler, N. R., Tupper, K. W., & Martin, G. (2013). Ayahuasca-assisted therapy for addiction: results from a preliminary observational study in Canada. *Current Drug Abuse Reviews*, *6*(1), 30-42. Retrieved on April 6, 2014 from http://www.ncbi.nlm.nih.gov/pubmed/23627784

● Torres, J. (2009). Purgahuasca: Aportaciones de la cultura Awajún en el tratamiento de las adicciones. In R. D'Abbadie, C. Mikaelian, P. Díaz, & J. Mabit (Eds.), *Memorias del Congreso Internacional. Medicinas tradicionales, interculturalidad y salud mental. Sección 2. 7.-10. 6. 2009. Tarapoto, San Martín.* (125-130). Tarapoto, San Martín – Perú: Takiwasi.

● Welch, J. (2003). Ritual in Western Medicine and Its Role in Placebo Healing. *Journal of Religion and Health*, *42*(1), 21-33. doi:10.1023/A:1022260610761