Voice of the Psychonauts: Coping, Life Purpose, and Spirituality in Psychedelic Drug Users

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Abstract

Psychoactive drug use shows great diversity, but due to a disproportionate focus on problematic drug use, predominant nonproblematic drug use remains an understudied phenomenon. Historic and anecdotal evidence shows that natural sources of "psychedelic" drugs (e.g., mescaline and psilocybin) have been used in religious and spiritual settings for centuries, as well as for psychological self-enhancement purposes. Our study assessed a total of 667 psychedelic drug users, other drug users, and drug nonusers by online questionnaires. Coping, life purpose, and spirituality were measured with the Psychological Immune Competence Inventory, the Purpose In Life test, and the Intrinsic Spirituality Scale, respectively. Results indicate that the use of psychedelic drugs with a purpose to enhance self-knowledge is less associated with problems, and correlates positively with coping and spirituality. Albeit the meaning of "spirituality" may be ambiguous, it seems that a spiritually inclined attitude in drug use may act as a protective factor against drug-related problems. The autognostic use of psychedelic drugs may be thus hypothesized as a "training situation" that promotes self-enhancement by rehearsing personal coping strategies and by gaining self-knowledge. However, to assess the actual efficiency and the speculated long-term benefits of these deliberately provoked exceptional experiences, further qualitative investigations are needed.

Keywords: psychedelics; self assessment; coping skills; quality of life; spirituality

Contemporary psychoactive drug use is considered to be a complex phenomenon not only because of the wide spectrum of substances involved, but also due to the great diversity in both individual and group patterns of consumption. As our postmodern societies show an eclectic mixture of socioculturally defined forms and norms, the topics of substance use and abuse are also richly interweaving virtually all areas of life, from medicine through politics to religion. However, social discourses on the phenomena of illicit drug consumption predominantly disregard the voices of the drug users themselves, and do not attempt to engage them in dialogue. Simultaneously, public attention is often targeted at only extreme cases of illicit drug use. By singling out tragic episodes or inventing fictional 'junkie' stories, the public media creates a notably disproportionate and problem-oriented view of actual drug usage. Even so, based on sociodemographic surveys and treatment statistics of substance use, it can be estimated that even 90–95% of drug users could be considered as nonproblematic (European Monitoring Centre for Drugs and Drug Addiction 2008; United Nations Office on Drugs and Crime 2006; Kraus et al. 2002). After subtracting the considerable number of trial-only users, it still seems that there exists a relatively large group of casual and regular drug users who can sustain their moderate consumption habits over longer time periods.

Despite their majority status, nonproblematic drug users are typically not foregrounded in drug-related discourses, presumably because they pose relatively little to no personal, social or public health risk. Whereas some studies demonstrate the existence of healthy, normally functioning adults who occasionally use psychoactive drugs (Reneau et al. 2000), nonproblematic drug use remains a less charted territory within social drug research probably also because of the underground nature of illegal drug use. From a medical viewpoint, hallucinatory phenomena have been mostly regarded as signs of mental illness, thus drug-induced hallucinations have been traditionally put into the same category with neuropsychiatric disorders. However, contrasting opinions state that hallucinations are not so qualitatively different from normal experience, but rather should be approached from a psychological viewpoint and seen as lying on a continuum with normality (Aleman & Larøi 2008). In spite of a potentially rich and personally interpretable phenomenal experience for the subject himself or herself, outsiders may also easily dismiss hallucinatory phenomena merely because the vivid perception does not necessarily correspond exactly with any 'real objects or state of affairs in the real world' (Shanon 2003). Yet another reason for not touching the topic could be a culturally enforced moral views that (some) drugs would be intrinsically 'evil' per se. Nevertheless, the possibility of nonproblematic drug use—or of positive drug use—should not be a priori rejected on moral grounds.

Beside the physical properties of a drug and its use (such as dose size, route of administration, etc.), there are numerous personal–psychological and sociocultural–environmental factors (termed *set* and *setting*, respectively) that largely determine the quality of the overall drug experience, as well as its following interpretations (Asaad & Shapiro 1986; Zinberg 1984; Faillace & Szara 1968). Cultural studies indicate that the purposes of psychoactive drug use—both legal and illegal—may also include self-enhancement, in pursuit of an increased personal well-being (Lerner & Lyvers 2006; Prepeliczay 2002). Depending on the primary level of action, a coarse distinction can be made at least between neurocognitive, social, and psychological enhancements. For the first and second categories, plenty of substances are available to improve brain metabolism needed for basic mental functioning, and to dissolve inhibitions hindering social interactions. In the cases of legal and commercially available substances, this self-enhancement is socially well-accepted and even considered as a sign of 'fitness', 'smartness', or 'coolness'. However, self-enhancement of the psychological kind tends

to be a more complex and controversial topic, because it is associated with such higher level human needs as self-actualization, esteem, and self-transcendence (Maslow 1971; 1943). Religious and spiritual practices, creative processes, social cohesion, and self-knowledge all satisfy higher level psychological needs, and thus may contribute to mental well-being. In pursuing these goals, mankind has utilized a number of special psychoactive drugs, which will be briefly introduced next.

Psychedelic Drugs

The class of those psychoactive substances, which are mostly associated with transpersonal and spiritual domains, is termed *psychedelics.* Belonging to a subcategory of hallucinogens, the major psychedelics are: (1) lysergic acid diethylamide (LSD); (2) psilocybin and psilocin from *Psilocybe* spp. 'magic' mushrooms; (3) mescaline from cacti, such as *peyote* (*Lophophora williamsii*) and *San Pedro* (*Trichocereus* spp.); (4) N,N-dimethyltryptamine (DMT) and containing preparations, such as varieties of the brew *ayahuasca,* or the snuff *yopo*; (5) diviner's sage (*Salvia divinorum*); and (6) d-lysergic acid amide (LSA) contained in the seeds of morning glory (*Ipomoea violacea*) and Hawaiian baby woodrose (*Argyreia nervosa*) (Halpern & Sewell 2005; Nichols 2004). In addition to these substances, listings of psychedelics may sometimes include also phenethylamines such as 2C-B (2,5-dimethoxy-4-bromophenethylamine, 'Nexus') and MDMA (3,4-methylenedioxy-methamphetamine, 'Ecstasy'). Potent forms of cannabis with high THC (Δ-9-tetrahydrocannabinol) content, such as selectively cultivated hemp strains ('skunk') and compressed cannabis resin ('hashish'), had been also reported to induce hallucinations occasionally. However, hallucination-inducing plants of the *Solanaceae* family (e.g., mandrake, jimson weed, angel's trumpet, henbane) are not considered as psychedelics but as *deliriants* due to their sleepwalking-like and toxic effects. Albeit partially sharing common mechanisms with the classical LSD-like hallucinogens, dissociative drugs such as phencyclidine (PCP), ketamine, and nitrous oxide (N_2O, 'laughing gas'), are not unanimously viewed as psychedelics.

Neuropsychopharmacological characteristics of many psychedelic hallucinogens, such as LSD and psilocybin, have already been charted since the 1950's (for current reviews, see Passie et al. 2008; Passie et al. 2002). With the notable exception of *Salvia divinorum*, major psychedelics primarily stimulate various serotonin (5-hydroxy-triptamine, 5-HT) receptors, especially subtype 5-HT_{2A} on neocortical pyramidal cells. These psychedelic hallucinogens are

generally considered as physiologically safe, nonaddictive, and virtually impossible to overdose due to their relatively low acute toxicity (Nichols 2004). Under carefully supervised conditions—such as in experimental and therapeutic situations—targeted mental states can be reached in a controlled way with a minimized risk for long-term physiological and psychological aftereffects (Johnson, Richards & Griffiths 2008). Adverse reactions are generally associated with unintentional or unattended usage, a disturbing or overstimulating environment, inadequate preparedness and a careless attitude toward drug use, pre-existing or dormant psychiatric conditions, and earlier or recent unprocessed traumas of the psyche (Strassman 1984). Currently, when a growing interest in cognition-enhancing drugs is converging with a renaissance in psychedelic drug research, the time has come round to study these topics with contemporary methods (Sessa 2008).

Psychedelic Drug Use

Psychoactive drugs may induce temporary and reversible altered states of consciousness by destabilizing and repatterning several psychological subsystems, such as perception, attention, cognition, memory, and sense of self (Farthing 1992; Tart 1975). Neuropsychopharmacological changes may result in profound changes of the subjective experience, such as hallucinations in several modalities, synesthesia, strong emotions varying from terror to awe, encounters and communication with seemingly autonomous entities, space and time distortions, and feelings of oneness, understanding, or insight (Frecska 2007; Prepeliczay 2002). When such mental states are deliberately invoked in a supportive environment with a proper conceptual and ideological background, the resulting exceptional experiences may be interpreted as deeply meaningful religious revelations and spiritual awakenings. Thus it is not surprising that substances of this type have also been used in both traditional and contemporary religious or spiritual practices as sacraments (Baker 2005; Roberts 2001), and referred to by the term *entheogens* (literally: ‘becoming divine within’) (Ruck et al. 1979). Even nowadays, entheogens are consumed at the rituals of the peyotist Native American Church (Stewart 1987), as well as by ayahuasca-using syncretic religions such as Santo Daime and União do Vegetal (Dobkin de Rios 1971). Psilocybe mushrooms are also ritually ingested by numerous indigenous Mexican tribes (Guzmán 2008), but similar mystical experiences with a spiritual significance can be occasioned by psilocybin also in contemporary laboratory settings (Griffiths et al. 2008).

Historical and anecdotal evidence suggests that some people occasionally consume hallucinogenic substances and seek psychedelic experiences with the primary purpose of *autognosis* (literally: 'self-knowledge'). Persons with such a motivation for drug use are referred to as members of the underground subculture of *psychonauts* (literally: 'sailors of the mind/soul'), which have rarely been studied in detail. However, the roots of self-experimenting with drugs can be found in the history of Western psychology, particularly in phenomenologically oriented consciousness research of the early 20th century. Personal exploration of altered states, followed by descriptive introspection, is presented in classical works by philosopher/psychologist William James who used the notorious 'laughing gas', nitrous oxide; by physiological psychologist Heinrich Klüver who self-experimented with mescaline; and by writer Aldous Huxley who wrote his famous essay *The Doors of Perception* about his mescaline experiences. The term *psychonaut* is usually attributed to Ernst Jünger in his reference to the mescaline self-experiments by pharmacologist Arthur Heffter. The accidental discovery of the psychoactive properties of the prototypical hallucinogen LSD was confirmed by a planned and documented self-trial by Swiss chemist Albert Hofmann in 1943. In the 1950s, John C. Lilly's research on himself with sensory deprivation, LSD, and ketamine also set a scholarly example for the self-exploration of the human psyche by means of mind-altering substances and techniques (for autobiographies and biographies, see Nahm & Pribram 1998; Hofmann 1980; Lilly 1972; Jünger 1970; Huxley 1954; James 1902/1994).

Contrasting the above historical information with more conventional views on drug use, the topic of nonproblematic psychedelic drug use indeed seems fascinating and contradictory. In particular, the mechanisms and measurability of the allegedly positive mental changes are especially interesting and challenging. In an attempt to explore the topic, we chose the biopsychosocial model of health (Engel 1977) as the conceptual framework of our present study. In particular, we used the concept of *salutogenesis* by Antonovsky (1961) as our model for research. According to his system, health is a not a state but a process that restores balance by enabling inner resources in an efficient reaction to disturbing external influences. The set of mental practices that quickly respond to stress can be seen as a psychological immune system (Oláh 2005), the proper functioning of which is a prerequisite to mental health. The model also assumes that unusual, exceptional experiences are part of mental health if the individual is able to draw conclusions or to get meaningful answers from these happenings. This view is also

supported by observations of psychotic patients: Response to extraordinary experience seems to depend on cognitive mediation by their beliefs and appraisals (Garety et al. 2001). Meaningfulness of life events thus acts as a protective factor leading to better psychological functioning and an improved quality of life. Findings in cultural anthropology also support the idea of psychedelics being used as 'problem-solving devices' (Baker 1994), as well as 'psychointegrator plants' (Winkelman 1995).

The Present Study

The aim of our present study was to contribute to a deeper understanding of an alleged psychopharmacological self-enhancing phenomenon by assessing a nonproblematic drug user group. Based on anecdotal evidence—such as hundreds of psychedelic drug experience self-reports available online (Erowid 2010)—our initial work hypothesis held that there should be detectable differences in life meaningfulness and coping characteristics between autognostic psychonauts, users of other drugs for other purposes, and drug nonusers. In particular, we expected that psychedelic drug use purposes focusing on self-knowledge are associated with enhancements in life quality more than other drug use purposes, or no drug use. We also anticipated a higher level of spirituality associated with the autognostic use of psychedelics, as compared with other uses of other drugs, or with no drug use.

Method

Survey Technical Solution

As the data gathering method, online survey was chosen for its numerous advantages over traditional paper-based survey (Reips 2002), in particular for the ease of access to rare and specific drug user populations while guaranteeing their anonymity. The general disadvantages of online studies, such as multiple submissions, self-selection, and dropout, were either solved by controlling or defined as irrelevant. For our online psychedelic drug survey, an Internet domain (www.psyd.hu) was purchased, and a web server was started up. Online questionnaire forms were developed by using Webropol software (www.webropol.com), which handles dynamic paging, that is, shows or hides the next questions depending on the previous answers. Webropol was also capable of exporting data into Microsoft Office Excel file format for data preprocessing. The survey consisted of six separate parts to be completed, starting with a page to obtain informed consent, sociodemographic questions, and questions concerning drug usage. In

choosing psychological instruments for the study, international and national comparability was a key issue. Thus, we selected and put online three validated, widely used and acknowledged instruments to measure coping, life purpose, and spirituality: the Psychological Immune Competence Inventory (PICI), the Purpose In Life (PIL) test, and the Intrinsic Spirituality Scale (ISS), respectively.

Participants

Recruiting and Filtering.

The ethical permission of the study was granted by the Ethical Committee of the Institute for Psychology of the Hungarian Academy of Sciences in Budapest. Participants were recruited with the 'snowball' method from multiple pools, such as university mailing lists, social networking billboards, and the discussion group of the Hungarian Psychedelic Community DAATH (www.daath.hu). During the three months of the online survey being open, a total of 796 answer forms were received, of which 667 were adequately completed. To avoid bias from comparing problem users with nonproblem users, a preliminary analysis was conducted on problem use characteristics in the sample. As the results revealed significant differences between the intended comparison groups, we decided to exclude those 78 participants who considered their personal substance use as problematic. Thus the number of participants eligible for grouping was further reduced to 589, including 467 former and current drug users, and 122 drug nonusers. Included participants' age range varied from 13 to 59 years (M = 23.8, SD = 6.4), and gender ratio was 247 females (41.9%) to 342 males (58.1%).

Grouping.

In order to form comparable drug user groups that differ only in their chosen drug types and drug use purposes, we first profiled the psychedelic drug users into two clearly separable groups by computing a simple PSYNDEX ('psychedelic index') score from their psychedelic drug use parameters. This PSYNDEX score consisted of three factors: (a) the number of psychedelic drugs (1 to 6) subtracting the number of nonpsychedelic drugs (1 to 9) while omitting six 'semipsychedelic' drugs (such as deliriants and minor psychedelics), alcohol and tobacco; (b) autognostic drug use purposes (0 to 3) subtracting general drug use purposes (0 to 3) for each psychedelic drug; and (c) importance of the experience (0 to 4) multiplied by the life effects of the experience (-2 to 2), for each psychedelic drug. The PSYNDEX score was calculated for 277 nonproblem users (56 females, 20.2%, and 221 males, 79.8%) who had used

one or more psychedelic drugs. The obtained distribution ranged from -12 to 23 points (M = -0.03, SD = 4.49). The two tails of the range were separated into two roughly equal-sized groups: a high-scoring target group (PSYNDEX > 1 point: 81 participants, 29%) and a low-scoring control group (PSYNDEX < -2 points: 77 participants, 28%), leaving out a wider midrange zone (PSYNDEX -2 to 1 point: 119 participants, 43%).

Group Characteristics.

Based on their psychedelic drug use patterns, participants were grouped into three groups. The 'PSY' target group consisted of the 81 PSYNDEX high-scorers (age range 16–40 years, M = 22.7, SD = 5.2) who thus used mostly psychedelic drugs with primarily autognostic purposes. The first control group 'C1' consisted of the 77 PSYNDEX low-scorers (age range 13–34 years, M = 22.9, SD = 4.8) who used mostly other than psychedelic drugs for primarily nonautognostic purposes. For the second control group 'C2', we chose those 122 participants (age range 16–55 years, M = 26.5, SD = 7.3) who had never tried out psychoactive drugs—with the exceptions of alcohol and tobacco.[1] It is to be noted immediately that due to fundamentally different compositions of the three groups, gender ratios were strongly disproportional between the PSY target group (12 females, 15%, and 69 males, 85%), the C1 control group (23 females, 30%, and 54 males, 70%), and the C2 control group (94 females, 77%, and 28 males, 23%).

Group Matching.

From each of the PSY, C1, and C2 groups, 50 participants were precisely matched with each other on the basis of three sociodemographic factors: (a) age, (b) type of residence (1 to 5, in the order of capital city, shire town, other town, village, or farm), and (c) highest educational level (1 to 8). As indicated above, gender could not and was not used as a matching factor because of the disproportional composition of the original sample. Indeed, a Mann–Whitney test revealed a significant difference (U = 670, Z = -2.304, p = .021, n = 100) in the PSYNDEX scores between males (M = .95, SD = 6.12, n = 74) and females (M = -1.92, SD = 4.91, n = 26) in

[1] Contrary to our expectation, the 'bottleneck' in participant recruiting turned out to be the relatively most drug free C2 control group. Knowing for example the high rate of tobacco consumption in Hungary—29.9% of the adult population smokes cigarettes on a daily basis (Tombor et al. 2010)—it would have been too difficult to find 50 fully abstinent control group members (i.e., persons who neither smoke tobacco nor drink alcohol) in the preferred age range.

those two groups using psychedelics (i.e., PSY target group and C1 control group). Gender ratio was thus disproportional also in the matched groups: The PSY target group consisted of only 9 females (18%) and 41 males (82%), whereas the C1 control group had 17 females (34%) and 33 males (66%), and the C2 control group had 32 females (64%) and 18 males (36%). After matching the 50 participants from each group, all age ranges varied from 18 to 34 years with a mean age of 23.7 years, and standard deviations of 4.6, 3.8, and 3.9 years for the three groups, respectively.

Measures

Psychoactive Drugs.

Our complete assessed drug list along with a categorization is shown in Table 1. It is to be noted here that legal statuses of psychedelics may fundamentally differ from country to country. Whereas LSD, psilocybin, mescaline, and DMT are scheduled by the 1971 United Nations Convention on Psychotropic Substances, the natural sources of the latter three substances (i.e., mushrooms, cacti, and brew ingredients) are generally unscheduled by international and national law. LSA and salvinorin-A, along with their plant sources, are not controlled substances in most countries. However, exceptions to these generalizations are still numerous in the national laws, indicating the worldwide variability in politics-based drug policies—as opposed to scientific evidence-based ones (Nutt et al. 2007). Due to this ambiguity, we had no reason to make any further distinction between legal and illegal substances, nor to analyze our data and to report results grouped by legality in any particular country. The 24-item psychoactive drug list used in our survey was loosely based on the standard drug list of the large cross-national European School Survey Project on Alcohol and Other Drugs (Hibell et al. 2007). However, as having primarily bodily effects, anabolic steroids were excluded from our list. To filter out bogus or misleading answers—be it deliberate or unintended—we also included a fictional drug '*Relevin*' into our questionnaire. The 23 real items of the drug list were divided into three categories: psychedelic drugs (6 items), semipsychedelic drugs (6 items), and nonpsychedelic drugs (9 items). As alcohol and tobacco were used in all three subject groups, they became excluded from categorization.

Table 1: *Drugs with Categorization*

Drug group	Category	Subcategory	Drug
Depressants			Alcohol
			Inhalants
			Sleep medication, tranquilizers, anxiolytics *(without a diagnosis or prescription)*
			Medical drugs and alcohol combined
			Heroin and other opiates
			GHB, GBL
Stimulants			Tobacco
			Ecstasy (MDMA)
			Amphetamine and other stimulants
			Cocaine
Hallucinogens	Deliriants		Jimson weed, angel's trumpet, henbane, etc.
	Dissociatives		Ketamine
			Nitrous oxide (N_2O)
			PCP
	Psychedelics	Minor	Marijuana, hashish
			New synthetic drugs (2C-B, 5-MeO-DMT etc.)
			Ibogaine
		Major	**LSD**
			Psilocybe mushrooms
			Mescaline cacti
			Salvia divinorum
			DMT (ayahuasca, yopo, etc.)
			LSA (morning glory, HBWR, etc.)
Fictional drug			Relevin

Note. Major psychedelics shown in boldface. 2C-B = 2,5-dimethoxy-4-bromophenethylamine; 5-MeO-DMT = 5-methoxy-dimethyltriptamine; DMT = N,N-dimethyltryptamine; GBL = γ-butyrolactone; GHB = γ-hydroxybutyric acid; HBWR = Hawaiian baby woodrose (*Argyreia nervosa*); LSA = d-lysergic acid amide; LSD = lysergic acid diethylamide; MDMA = 3,4-methylenedioxy-methamphetamine; PCP = phencyclidine.

Drug Use Purposes.

In the dominant medical discourse, any unpermitted use of drugs is considered as *abuse* by definition, and categorized as a disorder per se. Self-determined drug use is quite often automatically attributed to *addiction,* without further investigations into its more nuanced psychological causes, purposes, and goals. However, neither addiction nor other typically assumed drug use purposes—such as 'escaping from life troubles' or 'to feel good'—would adequately explain the use of hallucinogens. According to many reports (Erowid 2010), a psychedelic experience is not an easy or enjoyable pastime that could be repeated very often. Moreover, nearly all hallucinogens lack direct dopaminergic rewarding mechanisms that would drive users to keep up dosing these substances for increased mood (Nichols 2004). Thus, our

study aimed to take on a more refined approach to the exploration of drug use purposes. Based on both anthropologic and ethnographic literature (Baker 1994; Blätter 1993) as well as anecdotal evidence from drug experience reports available on the Internet (Erowid 2010), we compiled a 14-item list of possible drug use purposes. While avoiding such general categories as 'Intoxication' or 'Recreation', several choices were included for a subtler and more detailed distinction. The full list of drug use purposes is shown in Table 2. Out of a total of 14 drug use purposes, three were counted as autognostic (or, by extension, introspective): 'Religious or spiritual practices', 'Self-knowledge and self-inspection', and 'Self-medication'.

Table 2: *List of Drug Use Purposes*

Drug use purpose
Religious or spiritual practices
Self-knowledge and self-inspection
Self-medication
Enhancing mood
Avoiding boredom and hopelessness
Offsetting a deficiency
Increasing social contact
Increasing sensation and pleasure
Stimulating artistic creativity/performance
Enhancing physical power
Rebellion or alternative lifestyle
Building personal identity and drawing attention
Expressing membership in a group
Out of curiosity

Note. Autognostic drug use purposes shown in boldface.

Psychological Immune Competence Inventory (PICI).

The concept of psychological immunity refers to the total of personality factors behind an individual's resource capacities for coping. It marks those personal characteristics which enable a person to cope with stress in the long term, and to handle incoming effects in order to enrich personal power instead of damaging it. Psychological immunity is a complex cognitive system that is optimally activated when such external or internal situations occur that may present a threat to the person's mental development, goals, or life (Oláh 2005). Mobilized coping strategies play an important role also in avoiding transition from nonclinical to clinical states in psychotic patients (Garety et al. 2001). The Psychological Immune Competence Inventory is an

operationalized 80-item instrument for measuring such mental resistance on three dynamically interacting subsystems: the Approach–Belief Subsystem (ABS), the Monitoring–Creating–Executing Subsystem (MCES), and the Self-Regulating Subsystem (SRS). The PICI had been used earlier for surveying drug user populations in Hungary (e.g., Demetrovics & Kardos 2001)).

Purpose In Life (PIL) Test.

The applied questionnaire is the Hungarian version of the Purpose In Life test by Crumbaugh & Maholick (1964). It is based on the concepts of Frankl (1963), stating that in order to maintain proper mental health, life events should be experienced as meaningful—even those including adversities and losses to be solved or accepted. The 20-item PIL test measures a protective effect factor that meaningfulness of life has on mental health (Konkoly-Thege & Martos 2006). It had been translated to seven languages and applied in numerous international psychological studies, some of which were relating meaningfulness of life to addictive behavior (e.g., Rahman 2001; Noblejas de la Flor 1997; Nicholson et al. 1994). A particular strength of the Franklian concept is that it also integrates hardship and negative experiences in life. The Hungarian version of the PIL test has an excellent reliability (Cronbach $\alpha = .90$). Scores had been found to be independent of both the age and the economic situation of the respondents, and they show strong correlation with spirituality and intrinsic goals.

Intrinsic Spirituality Scale (ISS).

For quantitative studies of religion and spirituality, several instruments have been developed to assess these overlapping phenomena. For our particular study, we chose to use the Intrinsic Spirituality Scale (ISS), which was developed by Hodge (2003) on the basis of the Religious Orientation Scale by Allport & Ross (1967). The 6-item ISS can be applied to both theistic and nontheistic populations for measuring the guiding capabilities of spirituality in a person's life. ISS has both strong inner consistency (Cronbach $\alpha = .96$) and good reliability (Cronbach $\alpha = .80$). After completing the Hungarian translation, the resulting scale was backtranslated to English by another translator, then sent to the original author for approval. The scale is based on a concept that distinguishes spirituality as the individual's relation with God (or by any other higher transcendental entity), whereas religion is defined as a set of beliefs, practices, and rituals developed by groups of individuals with similar experiences concerning the transcendent reality. The underlying purpose of developing the ISS was to establish a scientifically based and culturally sensitive instrument, not limited only to Judeo–Christianity but

applicable also to practitioners of noninstitutional religions. The relationship between religious or intrinsic spiritual goals and drug use habits had been investigated by numerous studies (Francis 1997; Donahue & Benson 1995; Gorsuch 1995; Benson 1992). These studies had found a negative correlation between religious or intrinsic spiritual goals and drug use: A higher level of spirituality is associated with a lower level of drug consumption. However, as Hodge also points out, the negative correlation found in Christian population samples may not rule out other kinds of results in populations with fundamentally different types of spirituality. As our initial hypothesis predicted higher spirituality scores on nontheistic individuals in our target group, we found it necessary to use the ISS in our study.

Results

Drugs and Drug Use

On the average, 5.4 different drugs were reported as tried out or used by the 667 participants.[2] In the matched groups (n = 150), there was no significant difference between PSY target group and C1 control group members in the average number of different drugs used. None of the respondents reported total abstinence, that is, never tried out any of the 23 drugs (including alcohol and tobacco). Findings strongly support the anecdotal evidence about usage patterns of psychedelic drugs: Autognostic use purposes of psychedelic drugs accounted for 36% of all use purposes of psychedelic drugs, as well as for 51% of autognostic use purposes of all drugs. Consumption percentages of the six psychedelic drugs indicate a rather moderate and discontinuous usage pattern for these substances, with 7% of the participants reporting previous use, and 4% reporting current use of the most popular psychedelic drug, namely LSD.

Self-reported problems associated with substance use were found to have meaningful effects on several scores. In problem users, PICI and PIL scores were significantly lower compared to nonproblem users (r_s = .215 and r_s = .235 respectively, both $p < .001$, both N = 667); however, ISS score was not significantly correlated with problem use. Problem use was significantly more typical for males than for females (Mann–Whitney U = 20111.5, Z = -2.103, p

[2] As a comprehensive analysis of all involved drugs and their use purposes are beyond the scope of the current paper, detailed results from crosstable comparisons will be reported in a separate, forthcoming publication.

= .035, N = 667). Moreover, problem use was also associated with a higher total number of drug types used (U = 18600, Z = -2.790, p = .005, N = 667), especially with a higher number of nonpsychedelic drugs (U = 18528.5, Z = -3.176, p = .001, N = 667), but not significantly related to a higher number of psychedelic drugs. A preliminary group analysis showed that the proportion of problem users was 14% in the PSY target group, 16% in the C1 control group, but only 5% in the C2 control group. These biasing inequalities also justified our initial decision to exclude the 78 problem users from certain comparisons.

Psychological Immune Competence

PICI scores ranged from 111 to 309 (M = 229.79, SD = 35.53, N = 589). On the main PICI scale, there was a weak correlation with age (r_s = .168, p < .001, N = 589), but no significant correlation with gender. Scores on the three PICI subscales (ABS, MCES, and SRS) correlated with age to a lesser extent, and SRS scores for males were significantly higher than for females (U = 36429.5, Z = -2.851, p = .004, N = 589). In comparison with the other scales, PICI scores correlated fairly strongly with PIL scores (r_s = .798, p < .001, N = 589) and weakly with ISS scores (r_s = .117, p < .001, N = 589). With problem users included, PICI scores correlated with PSYNDEX scores (r_s = .137, p = .009, n = 366), but after filtering out problem users the correlation became insignificant. PICI scores did not correlate with the total number of drug types used, nor with the numbers of psychedelic and nonpsychedelic drugs used. There were no significant PICI score differences in the three matched groups.

Purpose In Life

PIL scores ranged from 28 to 137 (M = 101.26, SD = 19.23, N = 589). Gender differences were pronounced, as the PIL score mean was 103.93 for females, but only 99.34 for males (U = 35313.5, Z = -3.398, p < .001, N = 589). However, these gender differences became insignificant in the matched groups. There was also a weak correlation with age (r_s = .212, p < .001, N = 589). PIL scores also correlated with ISS scores (r_s = .187, p < .001, N = 589), but did not correlate with PSYNDEX scores. PIL scores correlated negatively with the total number of drug types used (r_s = -.144, p < .001, N = 589) and with the number of nonpsychedelic drugs used (r_s = -.124, p = .003, N = 589), but did not correlate with the number of psychedelic drugs used. There were no significant differences in the PIL scores of the three matched groups, namely the PSY target group (M = 101.12, SD = 15.84, n = 50), the C1 control group (M = 101.24, SD = 19.38, n = 50), and the C2 control group (M = 104.52, SD = 18.09, n = 50).

Intrinsic Spirituality

In the whole sample, ISS scores ranged from 0 to 60 (M = 30.99, SD = 17.36, N = 589) and were not correlating with age nor gender. Although ISS scores did not correlate significantly with the total number of drug types used nor with the number of nonpsychedelic drugs used, they correlated positively with the number of psychedelic drugs used (r_s = .164, p < .001, N = 589). ISS scores were also positively correlating with PSYNDEX scores (r_s = .339, p < .001, n = 277). Thus, in accordance with our expectation, ISS scores were significantly higher in the PSY target group (M = 42.08, SD = 9.53, n = 50) than in control groups C1 (M = 30.08, SD = 16.01, n = 50) and C2 (M = 26.78, SD = 19.86, n = 50). This finding was confirmed by a Kruskal–Wallis test that found a significant difference ($\chi^2(2, N = 150) = 20.051$, p < .001) between the three groups. Moreover, a Mann–Whitney test verified that significant differences occurred between the PSY target group and the C1 control group (U = 689, Z = -3.870, p < .001, n = 100), and also between the PSY target group and the C2 control group (U = 697.5, Z = -3.811, p < .001, n = 100), but not between the two control groups C1 and C2. In the matched groups, ISS scores for males were significantly higher than for females (U = 2122, Z = -2.108, p = .035, n = 150). A closer inspection for the main source of this difference revealed that C2 control group females (M = 22.0, SD = 20.55, n = 32) had significantly lower ISS scores (U = 166.0, Z = -2.469, p = .014, n = 50) than C2 control group males (M = 35.28, SD = 15.71, n = 18).

Scores from the three instruments (PICI, PIL, and ISS) are shown in Table 3; significant findings are presented in Table 4.

Table 3: *PICI, PIL, and ISS Scores by Group and Gender.*

	PICI		PIL		ISS	
	Male	Female	Male	Female	Male	Female
PSY target group	233		101		42	
(41 males, 9 females)	231	245	99	110	42	41
C1 control group	231		101		30	
(33 males, 17 females)	233	227	102	100	27	35
C2 control group	226		104		27	
(18 males, 32 females)	230	224	104	105	35	22

Note. Scores are from matched groups (n = 50). PICI = Psychological Immune Competence Inventory; PIL = Purpose In Life test; ISS = Intrinsic Spirituality Scale.

Table 4: *Significant Findings in PICI, PIL, ISS, and Problem Drug Use.*

	Number of all drugs	Number of nonpsychedelic drugs	Number of psychedelic drugs	PSYNDEX
PICI	-	-	-	r_s =.137** (*n* = 366)
PIL	r_s = -.144*** (*N* = 589)	r_s = -.124** (*N* = 589)	-	-
ISS	-	-	r_s = .164*** (*N* = 589)	r_s = .339*** (*n* = 277)
Problem Drug Use	*U* = 18600** *Z* = -2.790** (*N* = 667)	*U* = 18528.5** *Z* = -3.176** (*N* = 667)	-	-

Note. PICI = Psychological Immune Competence Inventory; PIL = Purpose In Life test; ISS = Intrinsic Spirituality Scale; ** = p < .01; *** = p < .001.

Discussion

As expected, our results confirmed a great variability and marked differences in the usage patterns of psychoactive drugs, even within participant groups having similar sociodemographic characteristics. Findings also show that the greatest differences are not necessarily between drug users and nonusers, but could be shaped by other factors, such as purpose and meaning of drug use. Thus, drug use seems to be a much-nuanced phenomenon that cannot be approached by oversimplified or problem-oriented generalizations in the lack of detailed data. As the analysis of the PICI scores indicated, the exclusion of problem users may even out subtle differences and lead to insignificant results. Similarly, it can be assumed with reasonable certainty that an opposite approach—focusing only on problem users—may as well yield biased results. It can be indeed difficult to obtain proportional samples, as both problem and nonproblem users may be hidden from health services, authorities, and outreach projects. Moreover, drug user subgroups may be isolated to a degree that would substantially hinder the use of the 'snowball' method in participant recruiting. Still, only a careful examination of the whole continuum of users (from nonproblem to problem) may give a sufficient contrast in data that could shed light on factors behind the differences.

Findings from our study seemingly contradict previous studies about religion and spirituality being protective factors against drug use. It indeed seems probable that a religious or spiritual attitude may keep away practitioners from drug use, especially if abstinence is valued or

required by their community. But on the other hand, purposes of drug use may also be in accordance with certain spiritual goals, thus may provide a sacramental meaning for the consumption act. Combining these two aspects, it could be rather stated that spirituality may act as a protective factor against drug-related *problems*—for both nonusers and users. However, the roles of meaning and community values could be explored only with further studies using qualitative methods. A more comprehensive view on the topic would also require background data on the general level of spirituality in the population, as well as even the clarification of the meaning of spirituality, which might had been an ambiguous and individually interpreted notion for the study participants.

Self-knowledge becomes a part of the mental health process when its techniques are consciously utilized for charting inner resources more deeply. In this sense, autognostic drug use can be seen as a 'training situation', as it deliberately provokes exceptional experiences in order to gain self-knowledge and to rehearse coping strategies. Albeit some possible cognitive–behavioral mechanisms could be postulated, the actual efficiency and benefits of the whole process remains speculative until more detailed and specific studies are carried out. As it seems highly probable that beliefs, meanings, and coping strategies are also culturally transmitted, research needs to be aimed also at social discourses about drug issues. To find out more about these topics, in our next study we plan to interview PSY target group members for a detailed description of their autognostic psychedelic drug use.

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