

See discussions, stats, and author profiles for this publication at: <http://www.researchgate.net/publication/51826676>

# Heaven and hell—a phenomenological study of recreational use of 4-HO-MET in Sweden

ARTICLE *in* JOURNAL OF PSYCHOACTIVE DRUGS · JULY 2011

Impact Factor: 1.1 · DOI: 10.1080/02791072.2011.605699 · Source: PubMed

---

CITATIONS

19

---

DOWNLOADS

216

---

VIEWS

161

2 AUTHORS, INCLUDING:



[Anette Kjellgren](#)

Karlstads universitet

31 PUBLICATIONS 270 CITATIONS

SEE PROFILE

This article was downloaded by: [Karlstads Universitetsbibliotek], [Anette Kjellgren]

On: 30 August 2011, At: 00:48

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



## Journal of Psychoactive Drugs

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/ujpd20>

### Heaven and Hell—A Phenomenological Study of Recreational Use of 4-HO-MET in Sweden

Anette Kjellgren Ph.D.<sup>a</sup> & Christophe Soussan<sup>a</sup>

<sup>a</sup> Department of Psychology, Karlstad University, Karlstad, Sweden

Available online: 29 Aug 2011

**To cite this article:** Anette Kjellgren Ph.D. & Christophe Soussan (2011): Heaven and Hell—A Phenomenological Study of Recreational Use of 4-HO-MET in Sweden, *Journal of Psychoactive Drugs*, 43:3, 211-219

**To link to this article:** <http://dx.doi.org/10.1080/02791072.2011.605699>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.tandfonline.com/page/terms-and-conditions>

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan, sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

# Heaven and Hell—A Phenomenological Study of Recreational Use of 4-HO-MET in Sweden

Anette Kjellgren, Ph.D.<sup>a</sup> & Christophe Soussan<sup>b</sup>

**Abstract**—The psychoactive substance 4-HO-MET (4-hydroxy-N-methyl-N-ethyltryptamine) with psychedelic qualities is one of many legal so-called Internet drugs. The aim of this qualitative study was to establish an understanding of what characterizes its recreational use. Very little is known about the effects of this substance. Twenty-five anonymous Swedish experience reports (from persons aged 18–30 years) from public Internet forums were analyzed using the Empirical Phenomenological Psychological Method. The analysis produced 37 categories that were compiled into nine general themes: (1) motivation, preparation and expectation; (2) initial effects; (3) change of perception; (4) unfiltered awareness and intensified flow of information; (5) lateral cognition; (6) border between subject and object is erased; (7) heaven; (8) hell; and (9) subsiding effects. An understanding of the chronological happenings, called *The Process*, appeared out of the general structure. Drastic changes in cognitive, emotional and bodily functions were described. The motivation for use seemed to be driven by a strong curiosity. The experiences shifted between “heaven” and “hell,” but participants appeared satisfied and ready to repeat the experience. The experiences described show great similarity with classic psychedelic substances as LSD or psilocybin. More research is needed about health hazards or possible therapeutic potentials.

**Keywords**—4-HO-MET, hallucinogen, Internet drug, legal high, psychedelic, research chemical

In recent years the market for drugs has undergone significant changes. In addition to the traditional and established illegal drugs (such as cocaine, heroin, LSD and cannabis) many new psychoactive drugs, especially designed to circumvent existing drug laws, have appeared on the market (Schmidt et al. 2011; Wohlfarth & Weinmann 2010). These substances occur in a variety of forms e.g.

synthetic “party pills” or herb mixtures (sometimes with synthetic chemicals sprayed on), which produce effects similar to traditional drugs (EMCDDA 2010). The use of this type of legal substances, preferentially purchased on the Internet, is primarily a youth phenomenon where men between the age(s) of 16–25 predominate (Hulthén 2010; Vardakou, Pistos, & Spiliopoulou 2010; Babu et al. 2005).

Very little is known about these new compounds, which are rarely the subject of studies on either humans or animals. Therefore, no one really knows about long-term effects, dependency potential, toxicological risks, or possible contraindications. These types of synthetic substances are often sold legally on the Internet under names such

<sup>a</sup>Associate Professor, Department of Psychology, Karlstad University, Karlstad, Sweden.

<sup>b</sup>Psychotherapist candidate, Department of Psychology, Karlstad University, Karlstad, Sweden.

Please address correspondence and reprint requests to Anette Kjellgren, Ph.D., Department of Psychology, Karlstad University, SE-651 88 Karlstad, Sweden; email: Anette.Kjellgren@kau.se

as as *Research Chemicals* (RC), *legal highs*, or *designer drugs*. By creating entirely new substances with effects similar to previously known illegal drugs, the current drug laws are circumvented (Camilleri et al. 2010; Erowid 2010; Sanders et al. 2008; Wax 2002). More than 100 different substances circumventing the law have been synthesized since the late 1990s (EMCDDA 2010; Wohlfarth & Weinmann 2010). These belong to different chemical substance classes such as cathinone derivatives, phenethylamines, tryptamines, synthetic cannabinoids or opioids. Often, descriptions to consumers about ingredients, safety information or warnings about side effects or interactions with other substances are lacking (Schmidt et al. 2011). The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA 2010) has also noted an increased market for synthetic substances that are beyond legal scrutiny.

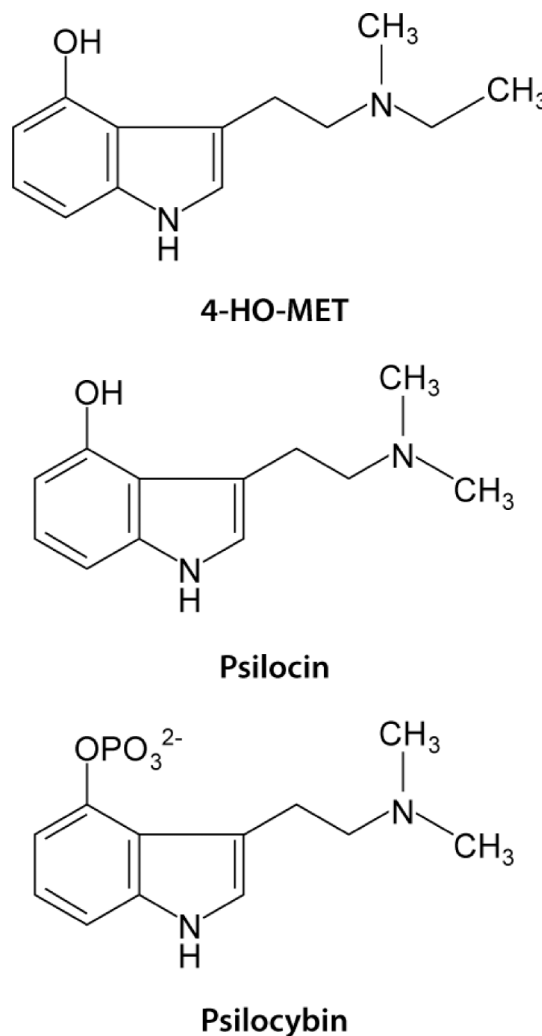
Several of the so-called Internet drugs are psychedelic substances. The high prevalence of these kinds of drugs, particularly synthetic tryptamines and phenethylamines, are explained by Babu and colleagues (2005) as a result of a greatly reduced access to traditional LSD on the market. These new drugs are legally accessible on the Internet without legal consequences for the user. In addition, the published books *Tihkal* about tryptamines (Shulgin & Shulgin 1995) and *Pihkal* about phenethylamines (Shulgin & Shulgin 1997) have created an increased interest worldwide.

According to Sanders and colleagues (2008), the Internet has had a profound effect on the increased availability of drugs through easily accessible information, social networks and Internet shops offering legal alternatives to a global market. Moreover, the low price is most likely a contributing factor to the increased prevalence (Babu et al. 2005). The average price for LSD in Europe is nine Euros (EMCDDA 2010), compared to three Euros per dose for the corresponding research chemical offered in Internet shops.

The focus on the present study is experiences induced by a synthetic tryptamine named 4-HO-MET (4-hydroxy-N-methyl-N-ethyltryptamine) (Figure 1), which was first synthesized in the United States by Alexander Shulgin (Shulgin & Shulgin 1997). The oral dose is usually about 10–20 mg, and estimated duration according to Shulgin is four to six hours. The substance is a white or gray powder and has a bitter and sour taste. Another name for the compound among users is “metocin” (Wikipedia 2010).

This substance is chemically similar to the natural occurring psilocin (4-hydroxy-N, N-dimethyltryptamine, 4-HO-DMT) (Figure 1), found among psychoactive fungi in the genus *Psilocybe*, *Panaeolus* and others (Passi, Seifert, Schneider, & Emrich, 2002) together with psilocybin (Figure 1). The effects of 4-HO-MET are described by Shulgin as similar to psilocin (Shulgin & Shulgin 1997: 481):

**FIGURE 1**  
Chemical Structures of 4-HO-MET, Psilocin, and Psilocybin



Qualitatively a lot like psilocin. I started within the first half-hour, and at the max, I felt the same alteration of color and form, and at times, sound was felt. As with psilocin, the experience was wave-like, with an alteration of effects between near-normal perceptions at one minute, only to be swept up in a swirl of altered concept the next minute.

Naturally occurring psychedelics (e.g. ayahuasca, ibogaine, psilocybin mushrooms and peyote) have a long history of use within a medical or religious context (e.g. Kjellgren, Eriksson & Norlander 2009; Sanders et al. 2008; Nichols 2004; Doblin 2000; Luna & Amaringo 1993). These traditional psychedelic substances are well studied and generally regarded as physiologically safe, without substantial risk of abuse or dependence (Nutt, King &

**TABLE 1**  
**Number of Hits in Total, and Number of Reports After the First and Second Sampling**

Website	Language	Number of Hits	First Sampling	Second
www.google.se	English	8	1	0
www.bluelight.ru	English	5	2	0
www.shroomery.org	English	1	1	0
www.erowid.org	English	7	2	0
www.neurosoup.com	English	0	0	0
www.research-chemicals.net	English	0	0	0
www.lycaeum.org	English	0	0	0
www.kärlekochrespekt.org	Swedish	2	1	0
www.magiskamolekyler.org	Swedish	8	1	0
www.flashback.org	Swedish	142	31	25
Total		173	39	25

Phillips 2010; Sanders et al. 2008; Nichols 2004). But regarding these new synthetic substances, information is scarce (Sanders et al. 2008). A search (done in December 2010) on 4-HO-MET in the major article databases PubMed, PsycInfo, Science Direct and Scopus generated no results. Also no hits were found in Erowid's on-line library about psychoactive substances. The only easy way to find information about this substance is by visiting the frequently occurring Internet discussion forums, where users anonymously discuss and recount their experiences.

Since new substances such as 4-HO-MET apparently seem to be growing in popularity as a recreational drug among young people, and the scientific studies on the effects are lacking, there is a great need for investigations.

### AIM

The aim of this qualitative study was to establish an understanding of what characterizes the experience of recreational use of the psychoactive substance 4-HO-MET, by searching information from public Internet forums.

### METHOD

The analysis of the gathered material was performed by using the Empirical Phenomenological Psychological Method (EPP) of Karlsson (1995). This method is based in Husserl's phenomenology, which is basically a philosophy with elements of hermeneutics. The EPP method is suitable for exploring and describing people's experiences and its perceived meaning. The analysis is characterized by openness to the data and being without preconceived bias.

### Gathering of the Data

The descriptions of experiences with 4-HO-MET forming the basis of this study were obtained by searching for anonymous and publicly published texts, called trip reports, on the Internet. Initially Google search (all

languages) was used to find reports of experiences, where the words *4-HO-MET*, *trip report*, *experience*, and *report* were used individually and in combinations. The first 30 hits returned by Google were explored in greater depth, and in total eight descriptions of the use of 4-HO-MET were found.

This was considered to be too few, so to increase the amount of relevant information we determined to use Google search to find the most common international websites providing opportunities for anonymous users to publish their experience reports. This was done by expanding the list of keywords to: *entheogenic*, *psychedelic*, *hallucinogen*, *drug*, *psychoactive* and *substance*. Nine such sites (seven in English, two in Swedish) were found, e.g. Erowid, Bluelight, Flashback (see Table 1).

Each such site was manually searched with its local search engines to find adequate experience descriptions of 4-HO-MET, resulting in 173 hits. In the first sampling, experiences or descriptions induced by a combination of substances were irrelevant, which is why all descriptions that were not exclusively attributed to the use of 4-HO-MET were dismissed. The number of experience reports from the sites in English was further reduced by the fact that many texts were published at more than one site (duplicates). In total the first sampling reduced the number of hits to 39. A summary of search results before and after the first sampling for each site is seen in Table 1.

Reports written in English with exclusive use of 4-HO-MET constituted in the end only five pages of text, which was considered inadequate. This meant that the original idea of analyzing experience descriptions written preferably in English was abandoned in favor of descriptions written in Swedish, where descriptions were more abundant.

During the second sampling 14 reports were excluded due to incomplete or unreadable language (see Table 1). Finally, 25 anonymous reports remained (for the subsequent phenomenological analysis), being published on the

website [www.flashback.org](http://www.flashback.org), which is a popular website in Sweden with over 450,000 members. The total number of pages of written texts from these 25 reports was 82. These reports also described (beside the experiences with 4-HO-MET) the ingested dose, and in most cases also the persons' age and sex.

### Participants

The reports were written by 25 anonymous individuals (23 men and two women). The ages ranged from 18 to 30 years (median = 22 years). The ingested amount of 4-HO-MET was between 20 mg and 180 mg; dosages around 25 mg appeared to have been the most common. Two reports lacked dosage specifications. The most common route of administration was oral (21 people), but also nasal ingestion occurred (three people). One person had not indicated the route of administration. All participants had published their reports for public access on the Internet discussion forum.

### Analysis

The 25 reports were transferred to a Word file for detailed analysis in five steps according to Karlssons (1995) EPP-method.

**Step 1.** The participants' descriptions were read carefully in order to get a good overview and understanding of the material. The reports were read three times without following a specific sequence. The purpose of this reading was to distinguish relevant psychological phenomenon without testing validity or any specific hypothesis.

**Step 2.** The text was divided into smaller units, called meaning units (MU), without regard to grammatical rules or conventions. These divisions were performed every time the participants' descriptions changed the substantial meaning of the text. An example yielding two MUs: (1) "It was a bit difficult to walk straight" (2) "and I was very distracted by the beautiful green blue sky and the clouds which looked exactly like an Indian who held a pipe." This step yielded 501 MUs.

**Step 3.** All MUs were transformed from the participants' language to the language of the researcher. This was done without a specific approach, but everyday language was preferred to the use of psychological jargon. The purpose of this step was to highlight and raise the implicit and underlying meaning of a phenomenon to its explicit level. Here are the transformed MUs from the examples above: (1) the participant described motion difficulties. (2) the participant described himself as distracted by altered visual perceptions.

**Step 4.** The transformed MUs were brought together into coherent structures or categories by examining and sorting through their characteristics and similarities. A total of 37 categories were formed. A key aspect throughout the categorization process was to understand what

**TABLE 2**  
**Names of the 37 Categories and Number of MUs**  
**from the Phenomenological Analysis**

1. Purpose, Aim and Intentions (17 MUs)
2. Preparations (13 MUs)
3. Anticipation and Nervousness Prior to Substance Effects (11 MUs)
4. Bodily Vibrations (9 MUs)
5. Initial Effects (21 MUs)
6. Altered Visual Perception (24 MUs)
7. Altered Auditory and Gustatory Perception (9 MUs)
8. Altered Bodily Perception (14 MUs)
9. Reduced Ability to Move (8 MUs)
10. Physical Effects (8 MUs)
11. Distractability (14 MUs)
12. Difficulties in Comprehending and Expressing Meaning and Sense (21 MUs)
13. Altered Perception of Time and Space (15 MUs)
14. Susceptibility to the Environment (13 MUs)
15. Overwhelming Intensity (15 MUs)
16. Loss of Control (8 MUs)
17. Anxiety, Fear and Paranoia (21 MUs)
18. Strategies for Coping with the Experience (23 MUs)
19. Directed Focus/Attention (12 MUs)
20. Inner Reflection on the Present State (11 MUs)
21. New Perspectives (8 MUs)
22. Enjoyment and Well-Being (12 MUs)
23. Euphoria (15 MUs)
24. Love (9 MUs)
25. Laughter (14 MUs)
26. Experienced Difficulties to Distinguish Between Inner and Outer (11 MUs)
27. Meetings and Interactions (11 MUs)
28. Material and Dead Things Come to Life (6 MUs)
29. Inner Reflection of The Constitution of Reality (13 MUs)
30. Unity Experiences (12 MUs)
31. Insights into Personal Psychological Patterns (16 MUs)
32. New Inner World (11 MUs)
33. Regain Control (7 MUs)
34. Missing the Effects (10 MUs)
35. Subsiding Effects (22 MUs)
36. "Hangover" (14 MUs)
37. Retrospective Reflections (25 MUs)

the phenomenon is (noema) and how the phenomenon is expressed (noesis). The categories took shape through repeated consulting of the raw data, while the big picture in the category was checked and maintained. Each category was described by a synopsis. See Table 2 for a list of all 37 categories.

**Step 5.** During the final step, the focus shifted from the situational structure of local categories to more general themes or structures. The purpose was to raise the

level of abstraction. This step resulted in nine themes: *motivation, preparation and expectation; initial effects; change of perception; unfiltered awareness and intensified flow of information; lateral cognition; border between subject and object is blurred; heaven; hell; and, subsiding effects.*

### Reliability and Validity

To control for reliability the Norlander Credibility Test (NCT), specially designed for phenomenological analyses was used (Edebol, Bood & Norlander 2008; Asenlöf et al. 2007). Out of the 37 categories, ten were randomly selected. From these ten categories, five corresponding transformed MUs were selected at random. Two assessors then independently assigned each of these transformed MUs to the categories. The outcome was 96% agreement with the original source for the first assessor and also 96% for the second, yielding a mean of 96%. This result is above average compared to earlier research. According to Karlsson (1995), high validity is ensured by strictly following the stages in EPP.

## RESULTS AND DISCUSSION

The purpose of this qualitative study was to establish an understanding of what characterizes the experience of recreational use of the psychoactive substance 4-HO-MET. All information regarding experiences with this substance was based on information gained from public Internet discussion forums.

During the phenomenological analysis 37 categories emerged (Table 2), which were related and subordinated into nine general themes: (1) *motivation, preparation and expectation*; (2) *initial effects*; (3) *change of perception*; (4) *unfiltered awareness and intensified flow of information*; (5) *lateral cognition*; (6) *border between subject and object is blurred*; (7) *heaven*; (8) *hell* and (9) *subsiding effects*. Each theme is discussed below, and then described in a general context.

### Motivation, Preparation and Expectation

The first theme (categories: 1, 2, 3) summarizes the experiences of motivation, preparation and expectation of the drug intake. Participants in general described their drug intake as a recreational use with the intent to enrich everyday life. A curiosity about psychoactive substances and a wish to explore and experience nonordinary states were presented, along with a bittersweet mixture of both anticipation and nervousness. A few did not prepare themselves at all before ingestion, while the majority of participants read or talked with friends about the effects and experiences that could be expected. In addition, the importance of structure and a secure environment for the experience were emphasized.

### Initial Effects

The second theme (categories: 4, 5, 9) describes the participants' initial drug effects. The effects evolved gradually towards greater intensity and with some individual differences. The first effect noticed seemed to be a tingling sensation in the body, followed by a reduced ability to move. Other initial bodily effects were chills, lassitude, heat, and increased heart rate. Thereafter the participants expressed vague undefined feelings that something felt different from before, followed by restlessness, mental activation, and nervousness.

### Change of Perception

The third theme (categories: 6, 7, 13) includes the participants' perceptions of changes in visual, auditory and gustatory perception. These perceptual changes were progressive and affect participants in different scale and degree depending on the intensity of the experience. In an incipient stage visual impressions changed in sharpness, contrast and color tones. Auditory changes in the form of a high and transient "ringing in the ears" reminiscent of tinnitus were noticed. Flavors and sounds also seemed deeper and more comfortable than before.

Eventually intensified perceptual changes occurred where objects move in wavelike patterns and vibrate beyond their contours. Simple visual patterns became apparent, first with eyes closed and later also with open eyes. These patterns gradually shifted into more complex fractal-like forms. A more intense period of perceptual changes followed, where participants visually experienced the emergence of concrete images and objects, both with eyes open and closed. Meanwhile, existing objects were interpreted as something else, or melted together and mixed with other items. Three-dimensional objects could now be seen with open eyes. An example from one site states: "The whole room was plunged under water. Everything was wavy and objects leaked beyond their contours. Reality began to crack into white light. Angels, spirits and other things came and disappeared in rifts."

During the same period, participants portrayed auditory perceptual changes where sounds were distorted or experienced as melting together and disappearing or arising out of nothing. Flavors evoked strong emotional reactions and gave rise to new and unexpected associations. Furthermore a decreased ability to perceive the traditional concepts of time and space (distance and depth) were described.

The phenomenon synaesthesia, in which two senses are mixed were described by the participants, where e.g., flavors could be heard or sounds could be seen. All these experiences show a great similarity with the classic psychedelics such as psilocybin or LSD, and indicate that a significantly altered state of consciousness had been induced.

### Unfiltered Awareness and Intensified Flow of Information

The fourth theme (categories: 11, 12, 15, 19) describes participants' experiences of unfiltered attention and intensified flow of information. Perception, thoughts and feelings are increasing in strength and frequency, forming a steady stream of information beyond conscious control ("flooding"). Participants were not able to turn off this overload of information.

Some described themselves as continually distracted by different foci and free-floating attention, leading to concentration difficulties and failing memory. Simple and everyday activities were also more challenging to perform. A reduced ability to understand normal obvious context and meaning of text and numbers was experienced. In addition, participants exhibited a reduced capacity to meaningfully express their thoughts, feelings or desires.

Even if the impressions were intense, some participants depicted the ability to direct this unfiltered attention and uninterrupted focus on the immediate experience. This feeling of extreme mindfulness or "here-and-now state" was described as a highly positive experience, and often seemed to overshadow the tough periods that also occurred.

### Lateral Cognition

The fifth theme (categories: 20, 21, 29, 31) describes an increased ability to discover new perspectives, questioning previously self-evident concepts and assimilating insights and knowledge. Cognition switched from being controlled by the logical and linear processes to a more creative thinking, free from established ideas and patterns. Reality as it was commonly understood was deconstructed, and previous conceptions of influence on cognition were reduced and instead transformed into what De Bono (1970) calls a process of lateral thinking. This process of restructuring and relief from the earlier restrictive patterns installed a flow of ideas, humor and insights.

New insights regarding their own psychological patterns arose. Habitual ways of thinking, feeling and behaving were made visible and questioned from an observed and distanced perspective. An example of this was: "How could I ever have thought anything negative about myself?" In addition, participants exhibited a greater capacity to explore new perspectives and meaning from films, music or interactions. Also, participants began to question and reflect on the nature of reality and their own relationship and place in it. An example was: "I was philosophizing on everything between heaven and earth, believed that the film was as a reflection of reality, and that it was highly political."

These types of cognitive changes and amplification of hitherto unconscious psychological patterns commonly occur under psychedelic influence; this is considered to be a potential source for therapeutic success in so-called psychedelic therapy (e.g. Shulgin & Shulgin 1995; Grof

1980) during clinically safe conditions. An increased interest in this type of therapy is emerging (e.g. Griffiths & Grob 2010; Morris 2008; Sessa 2008).

### Blurred Subject-Object Border

The sixth theme (categories: 8, 14, 26, 27, 28 30, 32) summarizes inner subjective experiences in relation to the objective outer reality. The normal and evident borders between inner and outer reality started to dissolve. Participants depicted how their inner subjective state was more easily influenced, susceptible and vulnerable to the suggestive power of objective reality. Music had a striking effect on the mental and emotional state. The same applied to meetings and interactions with other people, who exercised a strong influence on the inner state. In addition, participants also showed a heightened ability to identify with and tune in to others' emotional states.

Another frequently occurring phenomenon of subjective diffusing boundaries was changes in body image, which felt altered or expanding. Also the feeling of "leaving the body" was described: "It is as if a part of my body can be three meters away, one part high up and one part way down."

Under the more powerful influence of the substance, boundaries completely dissolved and participants found themselves fully identified with and engulfed by the new internal worlds, as illustrated by the following quotation: "The eyes have returned to watch my birth into their world. The souls of these eyes speak to me in different absurd Swedish dialects. Although I do not understand what they say I realize that I have now completely left my own world and entered into theirs."

During the most intense experiences of dissolution, experiences of unity and identification with everything arose, often described in terms of a religious, spiritual or transpersonal context.

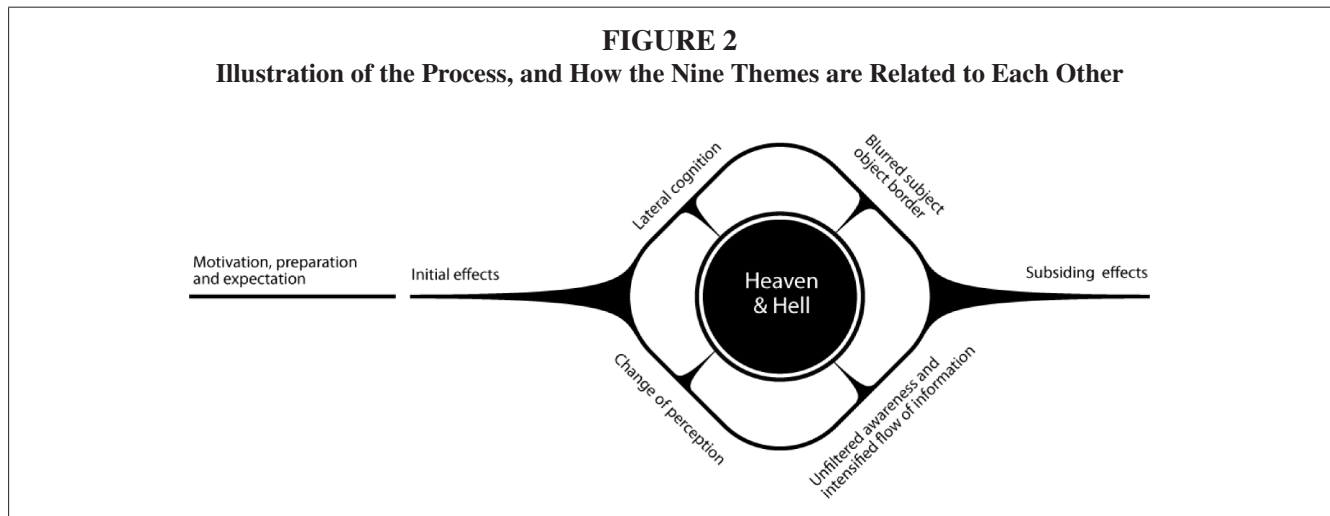
### Heaven

This theme (categories: 22, 23, 24 25) summarizes pleasant and harmonious states. Participants experienced significant feelings of euphoria, elation and heightened energy, as well as effortless enjoyment and pleasure. An example was: "I felt an incredible freedom and euphoria of the bicycle ride, and I took a long detour just because it was so incredibly wonderful." Laughter and humor were frequent among participants' experiences and described as triggered by everything or nothing. It was sometimes described as if the laughter was impossible to curb. The pleasures and the euphoric state were experienced as undemanding and something that could just be effortlessly accepted.

Furthermore, intense feelings of deep affection and appreciation were depicted. An all-encompassing love that could be directed towards other individuals, groups, or life itself was described, as exemplified by the following quote:



**FIGURE 2**  
**Illustration of the Process, and How the Nine Themes are Related to Each Other**



“all of a sudden, I felt filled with the all-powerful love to the whole world in general and also to my friends.”

### Hell

The eighth theme (categories: 10, 16, 17, 18) describes consistently discordant experiences of struggle, loss of control and discomfort. Participants portrayed a more open and nondefensive personality. This is confirmed by Grof (1980), who points out that psychological defenses are reduced under the influence of psychedelics. On a certain threshold the intensity of the experience resulted in discomfort, chaos and loss of control. Participants stressed despair at not finding a way back and tried to mentally control or restrict the experience. It was impossible to keep a distance from the overwhelming intensity; anxiety, fear and paranoia arose. During the most powerful moments of discomfort participants also experienced somatic sensations of heat, sweating, cold, tension or increased heart rate. Reality as it is usually perceived disappeared. An example describes this: “I get chills and my heart beats very rapidly, which excites me even more, I no longer know what to do to get out of here. The whole damn reality is completely skewed; all I’ve ever known or done is no more, no security, nothing.”

A repertoire of strategies trying to manage the experience was described; some methods were ineffective, others worked. Trying to deal with logical reasoning, or fight the experience produced an almost opposite effect. Others were seeking support from friends and some used physical techniques such as breathing to control the experience. The most effective technique seemed to be accepting and resting in what was happening. It could be assumed that the more experienced users were more able to employ such techniques than the more inexperienced.

One of the real risks posed by ingestion of psychedelics (in addition to legal consequences, overdosing or impure drugs), is that of making fatal errors

during acute intoxication. If a person feels such strong negative or frightening effects, there is obviously a greater risk of hazardous or dangerous activities. For unprepared or inexperienced users the risks are probably greater than for an experienced person or during supervised sessions.

### Subsiding Effects

The last theme (categories: 33, 34, 35, 36, 37) summarizes what happens when the effects wear off and participants return to everyday states. In general, during the waning drug effect the mental, emotional and physical processes were restored in a progressive or alternating pace. Many reported a sense of relief returning to the familiar structure of reality. But there were also participants who expressed sadness and emptiness when the effects wore off. Also, some of the participants described transient discomfort in the aftermath of the effect’s impact. These include headaches, mental and physical fatigue and insomnia, in some cases up to three days after ingestion. Whether this was a direct pharmacological effect due to the substance, or induced by, e.g. sleep deprivation, stress or exhaustion cannot be determined.

A process of retrospective reflection was described, which appears to integrate the content of experiences into everyday life. In general, satisfaction with the experience was depicted in these reflections, but some participants went a little further and described some transformative or life-changing experiences. An interesting note is that the degree of heaven vs. hell subsequently played little role in the participants’ high assessment, as exemplified by the following quote: “Even though I periodically felt really bad psychologically and sometimes physically, it was an incredible experience I would like to repeat.”

### The Process

From the general structure described by the nine themes, an understanding emerged of the chronology during the intoxication (Figure 2).

The temporal aspects are initially characterized by different motivations and an exciting mix of anticipation and nervousness from the decision to “throw oneself into the unknown.” Then the initial effects begin with various bodily sensations and psychological effects in which a sense of deviation from normality begins to be addressed. When the psychoactive effects are fully developed a complex picture of pervasive experiences emerge. These can fluctuate between the extremes of heaven and hell, which appear to be mediated and influenced by perceptual changes, boundless states, intensified impressions, unfiltered perception and a greatly altered cognition switching to lateral from the logically linear (as described above). No condition is stable but seems to gradually or abruptly change into each other and to switch character. The experiences are far from the everyday condition and appear to be barely possible to describe in words.

It is both interesting and alarming that relatively young people, with little reflection and knowledge, plunge into these transformative experiences. Most participants had taken the 4-HO-MET on their own without proper guidance or supervision. Some persons used the drug in a relatively safe home environment, but others went out into the public sphere. Also, participants were unsure of the exact amount of substance ingested and some also partook without the possibility of knowing its purity. For all drugs, and in particular for the psychedelics, it is well known that the experience is very much characterized by the person's expectations (set) and the circumstances around drug intake (setting) (Metzner 1998).

It is therefore suggestive that the motivation and determination to use 4-HO-MET seems to be driven by strong curiosity and desire to experience it, which with takes priority over any uncertainty that is associated with the use of it. The participants give the impression of being motivated by a youthful spontaneity to do it regardless of rules, regulations and normal conventions. No documented injuries or accidents are as yet (as far as we know) documented for the substance 4-HO-MET, which could possibly indicate that it is as pharmacologically safe as psilocybin. Since specific advice or instructions on harm reduction are not common in Sweden, it is certainly no easy task for a young person to know how to maximize security and minimize risks if the person decides to ingest a psychedelic substance for recreational use. To make the substance 4-HO-MET illegal would certainly make it more difficult to access (and more expensive) on the market. Illegalization might create a plethora of additional new synthetic substances, with even more unknown or potentially hazardous properties into the market.

The curiosity and longing that were described seem to be an expression of a search and interest in life's diverse forms and the individual's place in it. With today's secularization in the western world, existential issues associated with rituals and initiations into adulthood are no longer

available, though the needs of the individual probably still exist. Contemporary religions and dogmatic traditions offer answers from a book, but seldom give any chance to experience what is preached. The use of psychoactive substances may be a manifest expression of a need to experience something different and more existential than the limited everyday self. Some authors also suggest that the longing for experiencing altered states of consciousness is a natural drive analogous with e.g. hunger or sex (e.g. Weil 1998)

The practice of using consciousness-altering substances has followed mankind for millennia, but mostly within a cultural context and under the guidance for ritual or initiatory purposes (Metzner 1998). The modern Western world is dominated by materialism, science and objectivity. The use of psychoactive substances gives access to an inner world, so it is perhaps not surprising that the market for Internet drugs is dramatically increasing. The participants seem to be less concerned about whether the experience is powerful love or agonizing terror, as long as there is an inner experience. The desire for such experiences is illustrated by a quotation from Humpry Osmond (discussed by Hopkins Tanne 2004). “To fathom Hell or soar angelic, Just take a pinch of psychedelic.”

#### Further Research and Limitations

Since experimenting with different drugs seems to have a great attraction for people, and so many new so-called Internet drugs with still unknown risks and effects have become available, there is a strong call for further documentation.

This study cannot claim to be representative or be generalized to a wider population, but it is probably the first study in the world specifically focused on the effects of the compound 4-HO-MET. An obvious weakness of this study is that all participants were anonymous and perhaps also some uncertainty whether 4-HO-MET was the substance ingested. Another evident shortcoming of the present study is that no follow-up of the participants is possible. Nor can it be ensured that all data are true or have validity. However, the compound 4-HO-MET has similarity (both structurally and pharmacologically) with psilocin or psilocybin, and the experiences described in the present study appear to be largely identical with the experiences of these substances. Also many negative experiences were reported, something which contradicts suspicions that the descriptions were made in a glorifying or “drug romantic” spirit. Therefore, there is reason to believe that people's accounts most likely are correct and genuine.

It is interesting that Sweden seemed to be so over-represented on the Internet in terms of descriptions and experiences of this particular substance. We could not find enough English-language descriptions to perform this study. Why is 4-HO-MET so common in Sweden (at least from what can be seen by the frequency of reports on the discussion forums)? There are only a few Swedish

Internet shops selling this substance and there is no specific marketing targeting the Swedish market. By international standards, Sweden has harsh and repressive drug legislation and monitoring, also personal use is criminalized. One possible idea could be that the availability of illegal substances with similar effects (e.g. LSD) is low, and therefore the drug market is directed to more easily accessible legal substances, where the risks of legal sanctions are small (as was earlier pointed out by Babu et al. 2005). Also the taboo against general discussions of drug-induced experiences in Sweden might invite anonymous discussions on the Internet.

Ideas for further research could be performing international comparative studies on the prevalence and effects of 4-HO-MET. It is also important to fully consider the long-term effects like dependency potential, possible toxicological risks or contraindications, and also to document injuries or accidents. Also, the compound's possible therapeutic potential within a clinical context should not be forgotten, since a therapeutic potential of similar substances has earlier been shown (e.g. Griffiths & Grob 2010; Morris 2008; Sessa 2008). Whether this substance will gain increased popularity and continue to spread or disappear from the market is yet to be seen.

## REFERENCES

- Asenlöf, K.; Olsson, S.; Bood, S. & Aring, & Norlander, T. 2007. Case studies on fibromyalgia and burn-out depression using psychotherapy in combination with flotation-REST: Personality development and increased well-being. *Imagination, Cognition and Personality* 26 (3): 259-71.
- Babu, K.; Boyer, E.W.; Herson, C. & Brush, E. 2005. Emerging drugs of abuse. *Pediatric Emergency Medicine* 6 (2): 81-84.
- Camilleri, A.; Johnston, M.R.; Brennan, M.; Davis, S. & Caldicott, D.G.E. 2010. Chemical analysis of four capsules containing the controlled substance analogues 4-methylmethcathinone, 2-fluoromethamphetamine, a-phthalimidopropiophenone and N-ethylcathinone. *Forensic Science International* 197: 59-66.
- De Bono, E. 1970. *Lateral Thinking: Creativity Step By Step*. New York: Harper & Row.
- Doblin, R.E. 2000. The regulation of the medical use of psychedelics and marijuana. Doctoral dissertation Harvard University Cambridge, Massachusetts.
- Edebol, H.; Bood, S. & Aring, & Norlander, T. 2008. Case studies on chronic whiplash associated disorders and their treatment using flotation-REST (Restricted Environmental Stimulation technique). *Qualitative Health Research* 18, 480-88.
- Erowid. 2010. *Tryptamine-FAQ*. Available at: [http://www.erowid.org/psychoactives/research\\_chems/](http://www.erowid.org/psychoactives/research_chems/)
- European Monitoring Centre for Drugs and Drug Addiction (EMCDD). 2010. New drugs and emerging trends. *The State of the Drugs Problem in Europe. Annual Report 2010*. Available at: [http://www.emcdda.europa.eu/attachements.cfm/att\\_120104\\_EN EMCDDA\\_AR2010\\_EN.pdf](http://www.emcdda.europa.eu/attachements.cfm/att_120104_EN EMCDDA_AR2010_EN.pdf)
- Griffiths, R.R. & Grob, C.S. 2010. Hallucinogens as medicine. *Scientific American* 12: 76-79.
- Grof, S. 1980. *LSD Psychotherapy*. Alameda, CA: Hunter House.
- Hopkins Tanne, J. 2004. Humphry Osmond. *British Medical Journal* 328: 713.
- Hultén, P. 2010. *Internetdroger—Faror som lurar i missbruksvärlden* [Internet drugs—Dangers in the drug abuse world]. Örebro: SeminariumD10 Drogfokus. Available at: [http://www.drogfokus2010.se/drogfokus2010/filer/Seminarium\\_D10\\_-\\_Nya\\_Internetdroger\\_\\_\\_faror\\_som\\_lurar\\_i\\_missbruksvarlden.pdf](http://www.drogfokus2010.se/drogfokus2010/filer/Seminarium_D10_-_Nya_Internetdroger___faror_som_lurar_i_missbruksvarlden.pdf)
- [Swedish]
- Karlsson, G. 1995. *Psychological Qualitative Research from a Phenomenological Perspective*. Stockholm: Almqvist & Wiksell International.
- Kjellgren, A.; Eriksson, A. & Norlander, T. 2009. Experiences of encounters with ayahuasca -“the vine of the soul.” *Journal of Psychoactive Drugs* 41 (4): 309-15.
- Luna, L.E. & Amaringo, P.C. 1993. *Ayahuasca Visions – The Religious Iconography of a Peruvian Shaman*. Berkeley: North Atlantic Books.
- Metzner, R. 1998. Hallucinogenic drugs and plants in psychotherapy and shamanism. *Journal of Psychoactive Drugs* 30: 333-41.
- Morris, K. 2008. Research on psychedelics moves into the mainstream. *Lancet* 371: 1491-92.
- Nichols, D.E. 2004. Hallucinogens. *Pharmacology & Therapeutics* 101: 131-81.
- Nutt, D.J.; King, L.A. & Phillips, L.D. 2010. Drug harms in the UK: A multicriteria decision analysis on behalf of the Independent Scientific Committee on Drugs. *Lancet* 376: 1558-65.
- Passie, T.; Seifert, J.; Schneider, U. & Emrich, H.M. 2002. The pharmacology of psilocybin. *Addiction Biology* 7: 357-64.
- Sanders, B.; Lankenau, S.E.; Jackson Bloom, J. & Hathazi, D. 2008. “Research chemicals”: tryptamine and phenethylamine use among high-risk youth. *Substance Use Misuse* 43 (3-4) 389-402. Available at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2536767/>
- Schmidt, M.M.; Sharma, A.; Schifano, F. & Feinman, C. 2011. Legal highs on the net—Evaluation of UK-based websites, products and product information. *Forensic Science International* 206 (1-3): 92-97.
- Sessa, B.J. 2008. Are psychedelic drug treatment seeing a comeback in psychiatry? *Progress in Neurology and Psychiatry* 12 (8): 5-10.
- Shulgin, A. & Shulgin, A. 1997. *Tihkal—The Continuation*. Berkeley, CA: TransformPress.
- Shulgin, A. & Shulgin, A. 1995. *Pihkal—A Chemical Love Story*. Berkeley, CA: TransformPress.
- Vardaku, I.; Pistos, C. & Spiliopoulou, Ch. 2010. Drugs for youth via Internet and the example of mephedrone. *Toxicology Letters* doi:10.1016/j.toxlet.2010.12.014
- Wax, P.M. 2002. Just a click away: Recreational drug web sites on the Internet. *Pediatrics* 109: e96.
- Weil A. 1998. *The Natural Mind*. New York: Houghton Mifflin Company.
- Wikipedia. 2010. 4-HO-MET: Available at: <http://sv.wikipedia.org/wiki/4-HO-MET>
- Wohlfarth, A. & Weinmann W. 2010. Bioanalysis of new designer drugs. *Bioanalysis* 2 (5): 965-79. Retrieved 30 dec 2010 from <http://www.ncbi.nlm.nih.gov/pubmed/21083227>