Journal of Scientific Exploration, Vol. 22, No. 3, pp. 359–370, 2008 0892-3310/08

RESEARCH

Phenomenology of N,N-Dimethyltryptamine Use: A Thematic Analysis

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Abstract—N,N-dimethyltryptamine (DMT) is an endogenous hallucinogenic compound in the same chemical class as the more common psilocybin and the neurotransmitter serotonin. Despite previous experimental research assessing the subjective effects of DMT (e.g., Strassman et al., 1994), no qualitative studies have been conducted. Consequently, 19 DMT users were asked to provide thorough descriptions of the subjective effects of DMT via an online survey. A thematic analysis using various principles of phenomenological methodology elicited nine comprehensive constituent themes that ostensibly captured the essential aspects of the DMT-induced state.

Keywords: N,N-dimethyltryptamine—phenomenology—thematic analysis

Introduction

N,N-Dimethyltryptamine (DMT) is an endogenous hallucinogenic compound in the same chemical class as the more common psilocybin or ''magic mushroom'' and the neurotransmitter serotonin (Ciprian-Ollivier & Cetkovich-Bakmas, 1997). Traditionally, DMT was ingested in a psychotropic brew referred to as *Ayahuasca*, or in any number of snuffs made from the plants of the Amazon region (Strassman, 2001). The use of such plant hallucinogens is one variant of a group of practices known collectively as shamanism, a tradition dating back 100,000 years or more (Furst, 1972). *Ayahuasca* is typically ingested by a shaman in order to ''travel'' to the ''spirit world'' and access information (e.g., the remote location of a plentiful food source) not usually attainable by the social group that granted them privileged status (Krippner, 2002; Walsh, 1989), or perform certain tasks, such as curative rituals, for the benefit of other community members (Harner, 1973). Alternatively, non-shaman members of the community, usually males, may ingest the brew in order to undertake a similar

journey for their own benefit, or to accompany and assist the shaman (Weiss, 1973). Consequently, *Ayahuasca* was characteristically used in a social and functional context (i.e., information gathering, etc.), rather than recreationally. In some of these indigenous cultures the shaman was considered powerful only under the influence of *Ayahuasca*, indicating the significance placed on the drug itself (Siskind, 1973).

Chemical knowledge of DMT began with its synthesis by Manske in 1931. It was only after this synthesis that DMT was found to be an active ingredient in the aforementioned brews and snuffs, and an endogenous constituent of the human body and brain (Jacob & Presti, 2004). In the mid-20th century, due to its presence in the human body, DMT was hypothesized to have some role in abnormal mental states such as near-death experiences (NDEs) and schizophrenia (Strassman, 2001). Despite a subsequent period of research inactivity due to DMT's inclusion on the Controlled Substances Act in 1970 (Strassman, 1996), experimental studies investigating this endogenous hallucinogen are, once again, being conducted (e.g., Rabin et al., 2002; Strassman & Qualls, 1994). Additionally, DMT is currently used in a recreational and pseudo-spiritual context in the western world (Riba et al., 2001). However, despite the various avenues for research into this psychoactive substance, very little is actually known about the subjective effects of DMT.

Notwithstanding the limited knowledge of DMT's subjective effects, there are several reasons for studying DMT. For example, DMT's integral role in indigenous healing rituals (McKenna, 2004) has served to catalyse interest amongst contemporary medical (e.g., Strassman, 2001) and psychological researchers (e.g., Ciprian-Ollivier & Cetkovich-Bakmas, 1997). Given DMT's purported healing potential, it may prove beneficial to further investigate the nature of the phenomenological effects associated with this hallucinogenic substance. Additionally, despite its brief duration (McKenna, 1991), the alteration in human phenomenology induced by DMT is perhaps more pervasive than any other known psychoactive substance (Strassman & Qualls, 1994). Consequently, DMT is arguably a valuable ''tool'' for investigating the varieties of human conscious experience.

While an abundance of research concerning the physiological effects of DMT on laboratory animals exists (e.g., Rabin et al., 2002), prior research on DMT is, as previously stated, particularly sparse in the area of subjective experience. In the only English language study of the subjective effects of pure DMT to date,[1] Strassman et al. (1994) used a newly developed questionnaire referred to as the Hallucinogen Rating Scale (HRS) to quantitatively assess the experiences of 12 participants injected with DMT. Strassman et al.'s primary rationale for studying the subjective effects of DMT was to supplement previous physiological studies (e.g., Strassman & Qualls, 1994). Twelve participants entered a repeated-measures double-blind randomized controlled trial using a saline placebo and four doses (0.05, 0.1, 0.2, and 0.4 mg/kg) of intravenous DMT. Participants were administered the HRS and interviewed subsequent to the placebo and each

hallucinogenic dose. Strassman et al. (1994) grouped HRS items into pre-determined clinical clusters (i.e., somaesthesia, affect, perception, cognition, volition, and intensity) and analyzed dose effects. It is noteworthy, however, that the interview data collected by Strassman et al. (1994) was not qualitatively analyzed nor was it grouped according to the pre-determined clinical clusters of the HRS. Instead, quotes from the interviews were used merely to provide examples of phenomena that were ''affective,'' ''cognitive,'' ''volitional,'' and so on (Strassman, 2008).

In this context, it is salient that, to date, the methods used to study DMT have been primarily quantitative and, thus, *proof*-focused; that is, aimed at the replication of a specific effect (e.g., the presence of auditory hallucinations). In contrast, phenomenological methodology is qualitative and *process*-focused, thereby allowing one to investigate ''the way things are experienced by the experiencer, and ... how events are integrated into a dynamic, meaningful experience'' (Hanson & Klimo, 1998: 286). That is to say, phenomenological methodology aims to examine the content of one's experience, prior to any reflective interpretation, thereby maintaining its essential meaning without imposing external criteria decided upon by the researcher (Elite, 1998). This method of eliciting full and precise descriptions from participants and then analyzing them for common themes avoids the restriction placed on participants' responses by closed response format questionnaires.

The aim of the present study, therefore, was to use various principles of phenomenological methodology to qualitatively investigate the subjective effects of DMT.

Method

Participants

The 19 DMT users who participated in the present study were self-selected. Participants ranged in age from 16 to 41 ($M = 23.26$, $SD = 5.92$) and 18 (94.7%) were male. The number of times that participants had ingested DMT ranged from one (21.1%) to greater than 100 (5.3%). The time lapsed between participants' last ingestion of DMT and completing the online questionnaire ranged from two days (10.5%) to two years (5.3%). Eighteen participants (94.7%) routinely engaged in some kind of preparation prior to ingesting DMT (e.g., meditation, regulating the environment). Furthermore, 18 participants claimed to have knowledge of the subjective effects of DMT prior to their initial ingestion of the substance.

Materials

Participants completed an online questionnaire consisting of items pertaining to demography (e.g., age, gender), DMT use (e.g., ''How many times have you

previously ingested DMT?'', ''What is the length of time between your last use of DMT and this interview?''), and set and setting (e.g., ''Do you regulate your environment to enhance your DMT experience?''). The aforementioned items were extrapolated from Liester et al.'s (1992) study of the phenomenology of 3,4-methylenedioxymethamphetamine use. Additionally, the online questionnaire consisted of the following open-ended item: ''Please describe in as much detail as possible your subjective experience of the DMT-induced state. Use as many words as you need, the greater the depth of response the better.''

Procedure

The data collection phase of the research was conducted entirely anonymously via the internet. The aforementioned questionnaire was posted on eight different internet forums dedicated to the discussion of psychedelic drugs or related topics. Participants clicked on a link that guided them to a webpage outlining the requirements of the questionnaire. If they chose to participate in the study they followed another link at the bottom of this page that took them to the questionnaire.

Due to the anonymous nature of the data collection it was not possible to follow strict phenomenological methodology, which requires both a face-to-face, real-time dialogue between the researcher and the participant, coupled with a follow-up interview to verify the themes that are extracted by the researcher (e.g., Elite, 1998). Consequently, the present study was more akin to a thematic analysis utilising various principles of phenomenological methodology.

Thematic Analysis of Original Protocols[2]

Following standard phenomenological methodology (e.g., Matsu-Pissot, 1998), our thematic analysis consisted of the following steps:

1. The original protocols were read thoroughly several times to develop an understanding of the DMT-induced state.
2. *Salient phrases, statements or sentences* that referred to the subjective effects of DMT were extracted *within* each protocol (West, 1998).
3. *Extracted salient statements* with the same meaning were organized and translated in a way that maintained the underlying essence of each participant's experience, thus, allowing the development of *constituent themes within* each original protocol (Elite, 1998).
4. These constituent themes were then examined *across* protocols and those themes judged to have the same meaning were organized into *comprehensive constituent themes* (Elite, 1998).
5. The comprehensive constituent themes were evaluated to determine if any overlapping comprehensive constituent themes could be collapsed.
6. Finally, the comprehensive constituent themes were integrated into one final paragraph to form a *fundamental structural definition* that

captured the essential aspects of the DMT-induced state (Matsu-Pissot, 1998).

Results and Discussion

Comprehensive Constituent Themes

The analysis revealed nine comprehensive constituent themes:

1. Hallucinations – visual, physical, auditory
2. Entering other realities, sometimes including having contact with other sentient beings, which were described as true or real experiences rather than hallucinations
3. Lucidity
4. Affective distortions
5. Ineffability
6. Extreme intensity
7. Spirituality, learning or being taught about truths of the universe/self
8. Distortion in sense of time, space, self
9. Sense of familiarity

1. *Hallucinations – visual, physical, auditory*. This theme pertains to phenomena that participants regarded as non-veridical perceptions. Hallucinations were predominantly visual, although kinaesthetic hallucinations (e.g., bodily vibration) and auditory hallucinations (e.g., ''8-bit-super-nintendo-like music'') were also common. Visual hallucinations were generally of two types: distortions of the external world; or colours, patterns, and lights. One participant stated that,

> The room erupted in incredible neon colors, and dissolving into the most elaborate incredibly detailed fractal patterns that i [sic] have ever seen.

Another participant emphasized the dynamic complexity of the visual hallucinations:

> My visual field was consumed with disturbances, and they quickly escalated in intensity. There was all kinds of morphing, bending, rippling, and breathing of objects when my eyes were opened. The entire room was crawling with beautiful geometric hallucinations.

2. *Entering other realities, sometimes including having contact with other sentient beings, which were described as true or real experiences rather than hallucinations*. Participants described being transported to another ''world,'' ''reality,'' or ''universe,'' whereby one's ordinary waking experience was completely supplanted by what may be referred to as ''DMT hyperspace.'' It is perhaps noteworthy that these ''realms'' were attributed greater veridicality than experiences associated with ordinary waking consciousness. Furthermore, this

sense of veridicality persisted after the resolution of the DMT experience, thus suggesting that the experiences possessed a degree of evidential force. Interestingly, these ''realms'' were often purportedly inhabited by entities that tended to fulfil the positive performative function of imparting information about themselves and the universe. This theme is consistent with phenomenological reports of NDEs, which often include travelling to another ''place'' and meeting sentient beings, typically in the form of ''deceased persons'' (Kelly, 2001; Lange et al., 2004). It is also arguable that such entities are analogous to the ''helping spirits'' encountered during shamanic journeying experiences (Rock, 2006). Furthermore, participants often attributed an exosomatic ontological status to these entities; that is, the entities were considered to be autonomous or independent of the percipient's mind-body states. For example, in the present study, one participant stated that

> I was greeted with a chrysanthemum in vivid limeish green and deep red, which then opened up into another plane, or dimension of existence, or some type of parallel conscious living part of the universe.

Another participant reported interacting with entities that purportedly wished to impart knowledge:

> I realized there were some female entities swirling around me and one of them was actually showing me this mandala.

The veridicality of the DMT-induced state relative to ordinary waking consciousness and other psychedelic states was also underscored:

> I have seen crazier stuff on psychedelics that lost its credibility, however DMT is the only thing that radiates undeniable truth.
>
> This was more ''real'' than anything I have ever experienced.

3. *Lucidity*. A lucid awareness was maintained for the duration of the DMT-induced state. Consequently, participants were able to fully appreciate the experience as if in an ordinary waking state. For example, one participant highlighted that

> I was completely sober and lucid in another realm of consciousness.

4. *Affective distortions*. Participants stated that intense positive (e.g., euphoria) and negative (e.g., anxiety) alterations in affect occurred subsequent to the ingestion of DMT. Indeed, the most dramatic shifts in affect tended to occur during the onset of the initial DMT ''rush.'' This result is comparable with a theme elicited in a recent study conducted by Rock et al. (in press), whereby research mediums reported alterations in affect during ostensible communication with discarnate entities. In the present study, one participant recalled that

It felt as if my blood pressure had shot up for a nanosecond and [my] body alerted my mind "Oh no! Something is wrong!" I had that feeling anyway, but it passed as quickly as it came.

Another participant stated that negative affect was supplanted by positive affect subsequent to the DMT "rush":

After the initial peak, as my ego began to return to its normal state, negative thoughts ceased and were replaced with feelings of general peace and contentment.

In contrast, one participant emphasized overpowering positive affect that was superseded as the DMT-induced state intensified:

I had an overwhelming feeling of bliss and giggles while on the come up, and during the peak, it was so intense that humor was almost obsolete.

5. *Ineffability*. One characteristic of the DMT experience was ineffability. That is, participants expressed difficulty "capturing" the essence of this experience using linguistic terms. This finding is also analogous to phenomenological reports of NDEs, wherein percipients often express frustration due to an inability to adequately describe their experience (Greyson, 2006). It was apparent that the English language, which is underpinned by linear and binary segmentation, was an ineffective means of communicating an experience that was not necessarily linear or dualistic. Indeed, it appeared that there were few parallels between participants' pre-existing conceptual-linguistic frameworks and the DMT experience. By way of illustration, one participant asserted that

The experience on DMT is so strange and varied that it is very hard to really describe it well.

Another participant expressed an inability to co-map the DMT-induced state with his/her earthly experience:

The DMT-induced state is unlike anything I have ever experienced on this planet.

6. *Extreme intensity*. Participants reported that DMT-induced phenomenology became extremely intense within minutes of ingestion, thereby precipitating a loss of volitional control which, in turn, contributed to feelings of anxiety. Furthermore, participants emphasized being besieged by DMT-induced cognitions, which temporarily impeded one's ability to ascertain the significance of the experience. Indeed, one participant stated that

There is so much information coming at you at once that it is very hard to comprehend and make sense of at the time.

Another participant underscored that the overpowering nature of the DMT-induced state was unprecedented:

I become overwhelmed like never before.

7. *Spirituality, learning or being taught about truths of the universe/self.* Participants regularly gained insight into themselves and the nature of reality. Insights were retained and incorporated into users' lives after resolution of the DMT experience. Alternatively, this theme was simply expressed as a profound religious or spiritual experience. This result is consistent with the phenomenology of NDEs, which are often described as intensely religious, with the potential to exert a profound and enduring effect on the lives of the percipients (Greyson, 2006; Lange et al., 2004). For instance, in the present study one participant recalled,

> Existing in this manner was the most joyful, religious, loving, happy, beautiful experience I have ever felt.

Another participant suggested that the DMT-induced experience was akin to ''enlightenment'' by referring to

> a higher intelligence that I now discovered I could tap into. It was like a religious experience, where I had a glimpse of what enlightenment could mean.

Furthermore, one participant purportedly gained metaphysical insights including knowledge pertaining to the structure of the universe:

> All I remember is I was shown how our physical three dimentional [sic] reality fits into the reality of the bigger universe that lies behind our three dimentional [sic] universe.

8. *Distortion in sense of time, space, self* (e.g., dissociation from body, sense of self as ''all'' or ''everywhere''). Participants routinely referred to the dissolution of Einsteinian space-time during the DMT-induced state. Furthermore, participants asserted that their personal self or ego-identity was transcended, thereby implicitly suggesting that the DMT-induced state qualifies as a transpersonal experience. This finding is consistent with the results of a phenomenological study of ''deep'' states of meditation conducted by Gifford-May and Thompson (1994), which elicited themes pertaining to transcendence beyond the normal physical and mental boundaries of the self, and a different sense of reality. In the present study, one participant highlighted the transcendence of temporal categories and person-hood:

> This is a journey where all time is transcended and all identity is transcended, all connection with earth is completely severed and forgotten.

Another participant stressed the non-existence of space-time but also formulated a distinction between his/her ''mental'' and ''physical self'':

> It was [as] if my mental self was floating in space, where neither time nor space existed, looking down upon my physical self as it actually was.

In contrast, some participants experienced distorted self-sense in terms of dissociation from one's physical body. By way of illustration, one participant reported the extinction of bodily existence coupled with the perpetuation of his/her mind in an oceanic ''space'' where ideas and emotions co-existed with nothingness:

> Nothing existed but my mind in a vast ocean or abyss of ideas and hope and love and nothingness all at the same time.

9. *Sense of familiarity*. Paradoxically, despite the few parallels between participants' conceptual-linguistic frameworks and the DMT experience, users tended to report a sense of familiarity with DMT ''hyperspace,'' as though they had been there before or perhaps resided there for their whole life. Indeed, one participant highlighted that

> There is always a familiar feeling about the place, even the first time i [sic] had it i [sic] knew this was my place and i'd [sic] been here before, if not my whole life.

The paradoxical nature of this sense of familiarity was expressed by another participant:

> Accompanying this strange feeling is the paradoxical feeling that one has been here before.

Fundamental Structural Definition

The fundamental structural definition that may be extrapolated from these comprehensive constituent themes is this: the essential aspects of DMT-induced experiences were (1) visual, physical, and auditory hallucinations; (2) entering other realities, sometimes including having contact with other sentient beings, which were described as veridical perceptions; (3) lucidity, (4) affective distortions; (5) an ineffable quality; (6) extreme intensity resulting in confusion or one being overwhelmed; (7) learning or being taught about truths of the universe/self; (8) distortion in sense of time, space, self; and (9) a sense of familiarity.

Methodological Shortcomings and Suggestions for Future Research

First, the results of studies investigating hallucinogens may be confounded by possible response bias due to illegal subject matter (Liester et al., 1992). We attempted to address this issue by engaging in anonymous data collection and making it clear to participants that this was the case. Nevertheless, other forms of response bias, such as an inherent positive bias towards the drugs that the participants were choosing to use, may have been retained in the present study. Additionally, it is perhaps noteworthy that 94.7% of participants in the present study were male. Consequently, a gender bias may have influenced the comprehensive constituent themes that were elicited. Future research may wish

to replicate and extend the present study by sampling an equal number of females and males with the aim of investigating gender differences with regards to DMT-induced phenomenology. Second, retrospective reports may be subject to inaccurate recollection of experiences (Rock et al., in press). Indeed, the current study's design did not control for the time elapsed between the prior ingestion of DMT and completion of the questionnaire. Additionally, the current study's methodology could not control for the participants' mental sets prior to the ingestion of DMT or the environmental settings where the ingestion of DMT occurred. Finally, the present study's data was collected via an online questionnaire. However, proponents of qualitative methodology (e.g., Giorgi, 2000) often argue that a face-to-face dialogue between researcher and participant is the most efficient process of extracting the integral constituents of an experience. Indeed, face-to-face interviews may have elicited other essential aspects of DMT-induced experiences.

It would be edifying to replicate and extend the current study's findings by utilising a complementary mixed-method approach. More specifically, future research may wish to supplement a qualitative assessment (e.g., a thematic analysis of semi-structured interview data) of the essential aspects of DMT-induced experiences with a quantitative evaluation using a self-report instrument such as the *Profile of Mood States – Short Form* (POMS-SF; McNair et al., 1992) or the *Altered States of Consciousness Questionnaire* (OAV; Dittrich, 1998). The essential aspects of the DMT-induced state that the POMS-SF or OAV fail to ''tap'' may be ''captured'' by semi-structured interviews, and vice-versa. By triangulating these methods, one may be able to provide a more comprehensive account of DMT-induced phenomenology.

As previously stated, the present study revealed that the DMT-induced state may be conceptualized as a spiritual experience whereby the percipient apperceives ostensible truths about the universe or self. Consequently, it may be prudent to conduct physiological studies to investigate differences in endogenous DMT-levels during spiritual practices (e.g., *Bhakti* yoga; devotion to a Personal God) versus control conditions designed to facilitate phenomenological effects indicative of ordinary waking consciousness (e.g., merely sitting quietly with one's eyes open; see, for example, Pekala, 1991). Such research will be crucial in clarifying the role of endogenous DMT with regards to spiritual or religious experiences.

Conclusion

The present study was the first to qualitatively analyze the phenomenology of DMT use. In contrast to previous proof-focused research (e.g., Strassman & Qualls, 1994), the current study adopted a process-focused approach, which elicited nine essential aspects of the DMT-induced state. A comprehensive understanding of the phenomenology of the DMT-induced state may, in turn,

assist researchers seeking to evaluate the ostensible therapeutic potential of this endogenous hallucinogen.

Notes

[1] Some studies on the subjective effects of DMT have been published in German but English translations do not exist (e.g., Bickel et al., 1976).

[2] Given the voluminous nature of many of the original protocols, including this material would have lengthened the present article excessively. Consequently, the original protocols of the 19 DMT users are available on request directly from the authors.

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