Phenomenology and content of the inhaled $N$, $N$-dimethyltryptamine ($N$, $N$‑DMT) experience

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Understanding the phenomenology and content of the inhaled $N$, $N$-dimethyltryptamine ($N$, $N$‑DMT) experience is critical to facilitate and support ongoing research and therapeutic models targeting mental health conditions and central nervous system pathology. A qualitative analysis was conducted of all $N$, $N$-DMT experiences posted to the r/DMT Reddit community over a 10-year period from 2009 to 2018. A total of 3778 experiences from 3305 posts were included in this study. A median dose of $N$, $N$-DMT of 40.0 mg (interquartile range [IQR], 27.5 to 50.0) and a median experience duration of 10 min (IQR, 5.0 to 15.0) were identified. The most common somatic effects were somaesthesias ($n = 1415$, 37.5%) and an auditory ringing ($n = 583$, 15.4%). Visualizations predominantly consisted of fractals, shapes, patterns ($n = 1231$, 32.6%) and vivid colours ($n = 953$, 25.2%). Entity encounters were reported in 45.5% ($n = 1719$) of the experiences and involved predominantly a feminine phenotype ($n = 416$, 24.2%); deities ($n = 293$, 17.0%); aliens ($n = 281$, 16.3%); creature-based entities ($n = 158$, 9.2%, including reptilian and insectoid beings); mythological beings ($n = 144$, 8.4%, including machine elves); and jesters ($n = 112$, 6.5%). Entity interactions were predominantly positive ($n = 600$, 34.9% of encounters) involving benevolent, comforting, protecting, or outwardly caring interactions. A companion-type, pedagogical, or guide-type interaction was identified 32.4% of encounters ($n = 557$). Common typology, architectural, and structural features of the “DMT world” included descriptions of alternate or higher dimensions ($n = 952$, 25.2%); rooms ($n = 582$, 15.4%, including the “waiting room” ($n = 105$, 2.8%)), and a tunnel ($n = 390$, 10.3%). Features of mystical and ego-dissolution experiences were common. Additional rewarding aspects were identified, including a sense of familiarity and the acceptance/removal of the fear of death. Challenging and difficult responses were less frequent but also documented. Statements of profundity were identified in 232 experiences (6.1%), including pronouncing the experience or an aspect of the experience as the most “beautiful” or feeling the most “beautiful” of their life ($n = 47$, 1.2%). This study identified common phenomenological themes and content of naturalistic inhaled $N$, $N$-DMT experiences. Major thematic domains included (1) physical and somatic experiences; (2) visualizations and imagery; (3) entity encounters including entity phenotype, descriptors, attributes, disposition, and characteristics of the interaction; (4) typology, architectural features, structural characteristics, and scenery of the “DMT world”; (5) alterations in consciousness (including mystical experiences, out-of-body experiences, and ego-dissolution); (6) emotional responses (including positive, rewarding, difficult, and challenging); and (7) statements of profundity.

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**N, N-Dimethyltryptamine (N, N-DMT)** is a naturally occurring classic psychedelic with psychoactive properties that are mediated primarily via the serotoninergic pathway and serotonin 2A (5-HT2A) receptor agonism. Plant-based DMT has been used for centuries for ritual healing ceremonies and spiritual practices. Early reports of DMT use derive from indigenous communities in the Amazon basin and involve the oral consumption of *Ayahuasca* - a Quechua term translated as “vine of the souls” or “vine of the dead.” N, N-Dimethyltryptamine is typically orally inactive due to a deamination process facilitated by visceral monoamine oxidase enzymes. The technology of the *Ayahuasca* brew orally activates the plant DMT alkaloids by combining them with plants containing beta (β)-carboline alkaloids, a reversible monoamine oxidase inhibitor (MAOI).

Alternate routes of DMT administration, such as inhaled, intravenous, intramuscular, intranasal, and per-rectum reduce the first pass effect resulting in an increase in bioavailability, a more rapid onset, and shorter duration of effect compared to oral administration. Using data from the Global Drug Survey (an anonymous online global survey; n = 22,289), Winstock et al. observed that overall lifetime use of DMT was relatively low (8.9%) and the predominant reported route of administration amongst individuals who used DMT was inhaled (92.2%).

Early but growing efforts attempt to characterize the phenomenological experience following exogenous DMT administration. Common emerging themes include mystical-type experiences; transcendence and connectedness; increased noesis (ascertaining direct or intuitive knowledge); alterations in consciousness and the sense-of-self; vivid imagery and perceptual changes; emotional effects; death and rebirth; the divine, spirituality, and religiosity; and encounters with autonomous entities and beings. The early understanding of the DMT experience was largely supported by editorial, non-peer-reviewed, or popular science publications and reports. However, recent efforts have been undertaken to substantiate these works with more rigorous systematic methodologies, with few studies specifically examining inhaled-DMT, conducted a unblinded followed by a double-blind randomized controlled trial of intravenous-DMT-fumarate in twelve volunteers. A significant dose–response effect of DMT was observed in all six domains of the Hallucinogen Rating Scale (HRS) including: somaesthesia, affect, perception, cognition, volition, and intensity. To note, the HRS was developed through interviews with individuals experienced with inhaled DMT.

Benny Shanon explored the subjective and perceptual effects of 245 *Ayahuasca* experiences, including 67 of his own experiences. Shanon identified common patterns and attempted to “draw a map” of the *Ayahuasca* experience incorporating themes including, but not limited to, general effects; open-eye visuals; structural typology; the contents and themes of visions; non-visual perceptions; and consciousness. Cott and Rock conducted a survey-based method in 19 DMT users and documented 9 themes that captured the essential aspects of the DMT-induced state following “ingestion,” including hallucinations; entering other realms and contacting other sentient beings; lucidity; affective distortions; ineffability; intensity; spirituality and learning about truths; distortions in sense of time, space, and self; and familiarity.

In a retrospective survey-based study, Griffiths et al. examined the single most memorable “God encounter experience” in individuals who used N, N-DMT (n = 606) and *Ayahuasca* (n = 435). A total of 73% and 65% of the N, N-DMT and *Ayahuasca* experiences, respectively, fulfilled criteria of a complete mystical experience and a large proportion of both cohorts rated the experience as among the most personally meaningful and spiritually significant lifetime experiences.

Davis et al. systematically studied the account of the single most memorable entity encounter after inhaled N, N-DMT use in 2561 individuals. Almost all of the individuals in this study reported an emotional response to the encounter to which profound and enduring ontological changes in worldview were attributed. Timmermann et al. conducted a fixed-order, placebo controlled, single blind intravenous DMT administration study in 13 participants and established that DMT induced consistent visual, somatic, emotional, and ‘higher-level’ metacognitive effects; and noted similarities between DMT experiences and near-death experiences (NDE). More recently, Michael et al. performed a thematic analysis from semi-structured interviews of 36 inhaled naturalistic DMT experiences (dose 40–75 mg). The most prominent theme from this study involved an encounter with “sentient entities that were experienced as beyond”, occurring in 94% of the experiences.

The shared qualities amongst DMT and certain non-drug induced altered states of consciousness, in concurrence with the growing evidence of an endogenous mammalian source of DMT, has led to the increasingly accepted hypothesis that endogenous DMT may be responsible for particular alternate states of consciousness. However, it is not clear that endogenous DMT release occurs in sufficient concentrations or with sufficient selectivity to produce pharmacological effects.

There currently exists a paucity of knowledge describing how psychedelics are used in naturalistic settings in Western societies. A greater understanding of the patterns of use of inhaled N, N-DMT in naturalistic settings and the broader user population will aid in the explication of the expanding research findings. Inhaled N, N-DMT sometimes occasions profound “ontological shock” experiences prompting a reconsideration of the very nature of reality, and such experiences are associated with enduring positive changes in attitudes, moods, and behavior. Given the unusual and consequential nature of these experiences, the current study sought to provide new information about the phenomenology and content of inhaled N, N-DMT experiences by systematically analyzing thousands of N, N-DMT experience reports from online postings over a 10-year period. A greater understanding of the inhaled N, N-DMT experience is critical to further our understanding of the properties and potential of this compound. Such learnings could inform current and future research and therapeutic applications in the management of central nervous system and mental health conditions, and, potentially, catalyze interest in and insights into broader ontological questions pertaining to consciousness and the human psyche.
Materials and methods

Data source and collection. All posts to the “DMT” community page (“r/DMT”) on Reddit from database inception in 2009 through to 2018 inclusive (10 years), were screened for inclusion in this study. Reddit is an online social network, news aggregator, and host of forums for communities with common interests to share, discuss, and comment on a topic⁴⁵,⁴⁶. Data from Reddit has been aggregated previously to inform peer-reviewed research⁴⁶–⁴⁸. The r/DMT community is a public forum for the discussion and sharing of information pertaining to DMT and is a rich community-based open-access resource, which includes individuals reporting and describing DMT experiences.

Archived posts to the r/DMT community were accessed via Pushshift: a big-data storage project, comprehensive search engine, and real-time analytics tracker for the website Reddit⁴⁹. At the time of this study, Pushshift met the standards for the terms of use of the Reddit application programming interface (API).

The title of all posts to the r/DMT community within the study period were manually screened and included for full post review if the post had the potential to include a self-reported \(N\), \(N\)-DMT experience (see Fig. 1). All relevant posts that were identified after the initial screen underwent full independent manual review to assess candidacy for final study inclusion.

Posts were included within the final study cohort if the post included a firsthand description of any aspect of an inhaled \(N\), \(N\)-DMT experience. Posts were excluded based on the following criteria: (1) the route of administration was not inhaled (i.e., oral, intravenous, intramuscular, rectal, or intra-nasal); (2) the reported DMT alkaloid was not “DMT”, “\(N\)-DMT”, or “freebase DMT” (i.e., 5-MeO-DMT and 4-ACO DMT were excluded); (3) the post solely referenced or linked to an external website, video, audio file, or image; (4) the post failed to describe any experience or subjective response to \(N\), \(N\)-DMT; (5) the post was non-English; or (6) the post was a duplicate or deleted. Non-English posts were identified but all contained enough information to be excluded based on alternate criteria (i.e., only included a link, image, and/or video). Therefore, zero experiences were excluded for being non-English. All plant-based accompaniments (i.e., Changa, enhanced leaf, and joints or spliffs) were included in this study. Plant-based accompaniments are largely used to improve to vaporization yield and reduce burning the crystalline \(N\), \(N\)-DMT, although it is recognized that Changa also includes...
MAOI-containing plants. Multiple unique N, N-DMT experiences reported within a single post were coded as independent and separate experiences.

**Content analysis, statistics, and research ethics.** All included posts and experiences underwent independent full manual review. The following data were systematically collected for all posts: month and year of posting, Reddit author username, title, and word count. The following data were systematically collected if available for all experiences: age at time of experience, author gender, previous inhaled N, N-DMT use, previous psychedelic use, data pertaining to the setting of the experience, plant source used for DMT extraction, the device used for administration, the reported N, N-DMT dose and number of inhalations, the duration of experience, and concomitant psychoactive substance use.

A grounded theory inductive qualitative analytic coding approach was used for all included experiences using NVivo 12 (12.6.0). Independent meaningful units (MU) were coded and organized into categorical themes. Opportunity for code review, MU development, and thematic development were afforded to four authors (DWL, RCH, CT, and RG) after the completion of the coding of 50, 300, and 1000 experiences. The following thematic categories were developed: (1) physical and somatic experiences; (2) content of visualizations and imagery; (3) entity encounters including entity phenotype, descriptors, attributes, disposition, and characteristics of the interaction; (4) typology, architectural features, structural characteristics, and scenery of the “DMT world”; (5) alterations in consciousness; (6) emotional responses (including positive, rewarding, difficult, and challenging); and (7) statements of profundity.

Additionally, four validated scales for documenting cardinal aspects of the psychedelic experience were completed, including the Mystical Experience Questionnaire (MEQ) and the Challenging Experience Questionnaire (CEQ), God Encounter Questionnaire (GEQ), and Ego-Dissolution Inventory (EDI). The MEQ, CEQ, and EDI were completed for all experiences while the GEQ was completed for all reported entity encounters. To note, the included questionnaires are validated for self-report and not for third-party assessment. However, due to the relative novelty of this field of study and the paucity of validated scales, we felt the application of these questionnaires in this study was still appropriate to facilitate and structure the analysis of the respective features occasioned by DMT. As such, items within the questionnaires were not completed as a rank or scale, but merely as a binary outcome identifying the presence or absence of the questionnaire items within a particular experience.

Statements of profundity were coded and defined as endorsements pronouncing the experience or an aspect of the experience as “the most [X] experience of my life” or “…the most [X] I have felt in my life…” where [X] was coded as the descriptor. For statements that include multiple descriptors, the order in which the descriptor appeared within a statement was also coded.

**Research ethics board approval.** Institutional research ethics board (REB) approval for human research protocols (University of Toronto REB protocol number 39101) was obtained for the collection, analysis, and dissemination of the data and content included within this study.

**Results**

A total of 30,652 r/DMT reddit posts were identified and screened over the 10-year period from 2009 to 2018, of which 3305 posts containing 3778 unique inhaled N, N-DMT experiences were included in this study (see Fig. 1). Two-thousand nine-hundred and thirty-four posts (88.8%) included a report of a single experience, 297 posts (9.0%) included two experiences, and 74 posts (2.2%) included 3 or more experiences.

The included 3305 posts were created by 2277 Reddit authors, with a median age at the time of the experience of 23.0 years [interquartile range (IQR), 20.0 to 29.8; reported in 118 experiences (3.1%)], and a median word count of 311 (IQR, 160.0 to 568.0; see Table 1). The gender of the author was identified in 237 experiences (6.3%), including 189 males (5.0%) and 48 females (1.3%). The location in which the experience occurred was reported in 1138 experiences (30.1%), of which the location was most frequently inside (n = 969, 25.6%) within a bedroom or living room (n = 492, 13.0%); while 169 experiences (4.5%) were reported as occurring outside. Music was reportedly used in 408 experiences (10.8%) and the presence or absence of a sitter was identified in 948 experiences (25.1%); of which 157 experiences (4.2%) were completed alone.

A median reported N, N-DMT dose of 40.0 mg (IQR 27.5–50.0) with a median of 3.0 inhalations (IQR 2.0–3.0) per experience were reported in 1347 (35.7%) and 1087 (28.8%) of the experiences, respectively. The plant source of the N, N-DMT was identified in 129 experiences (3.4%), including 95 (2.5%) experiences involving N, N-DMT extracted from *Mimosa hostilis* root bark and 34 (0.9%) from *Acacia confusa* root bark. A pipe or glass-pipe (n = 598, 15.8%) was the most frequent reported device used to self-administer the N, N-DMT. Identified plant-based material accompaniments included the “sandwich method” (containing the DMT between other plants to avoid losing intake due to vaporization produced by directly burning the substance; n = 259, 6.8%); Changha (n = 165, 4.4%); and enhanced-leaf, joints, or blunts (n = 21, 0.6%). The median experience duration, estimated from 538 experiences (14.2%) was 10 min (IQR 5.0–15.0).

No previous inhaled N, N-DMT experience (i.e., first-time-use during the index experience) and one previous inhaled DMT experience were identified in 1008 experiences (26.6%) and 324 experiences (8.6%), respectively (see Table 1). Seventy-six experiences (2.0%) involved the Reddit authors reporting no previous psychedelic use prior to the index experience. Previous experience with lysergic acid diethylamide (LSD) was most frequently reported (n = 550, 14.6%), followed by psilocybin (n = 383, 10.1%), and MDMA (n = 80, 2.1%). Concomitant psychoactive substance use was identified in 536 experiences (14.2%), most frequently involving cannabis (n = 243, 6.4%), followed by LSD (n = 129, 3.4%), alcohol or benzodiazepines (n = 101, 2.7%), MDMA (n = 40, 1.1%), and psilocybin (n = 30, 0.8%). To note, a separate analysis of the data was conducted excluding experiences with reported concomitant psychoactive substance use (n = 3242). No meaningful differences in the distribution
| Variables                                      | N (%) or median (IQR) |
|-----------------------------------------------|-----------------------|
| Posts, n (%)                                  | 3305 (100.0)          |
| Authors, n (%)                                | 2277 (68.9)           |
| Deleted author, n (%)                         | 351 (10.6)            |
| Experiences, n (%)                            | 3778 (100.0)          |
| Word count, median (IQR)                      | 311.0 (160.0, 568.0)  |
| Age (years), median (IQR)                     | 23.0 (20.0, 29.8)     |

**Gender**

|                      |                     |
|----------------------|---------------------|
| Male                 | 189 (5.0)           |
| Female               | 48 (1.3)            |

**Setting, n (%)**

|                          |                     |
|--------------------------|---------------------|
| Inside (including inside NOS) | 969 (25.6)    |
| Bedroom or living room   | 492 (13.0)         |
| Vehicle                  | 23 (0.6)            |
| Bathroom, shower, or bath| 10 (0.3)            |
| Outside (including outside NOS) | 169 (4.5) |
| Forest, jungle, beach, or tent | 39 (1.0) |
| Backyard, garden, park, or cemetery | 22 (0.6) |
| Music                    | 408 (10.8)          |

**Sitters**

|                          |                     |
|--------------------------|---------------------|
| Alone                    | 157 (4.2)           |
| Not alone or sitter present | 791 (20.9)    |

**Dose (mg), median (IQR)**

|                          |                     |
|--------------------------|---------------------|
| 0.0                      | 40.0 (27.5, 50.0)   |
| 0.1                      | 3.0 (2.0, 3.0)      |

**Extraction source**

|                          |                     |
|--------------------------|---------------------|
| Mimosa hostilis root bark | 95 (2.5)         |
| Acacia confusa root bark  | 34 (0.9)           |

**Device, n (%)**

|                          |                     |
|--------------------------|---------------------|
| Pipe or glass pipe NOS   | 598 (15.8)          |
| Vaporizer NOS            | 253 (6.7)           |
| Bong                     | 185 (4.9)           |
| Dab rig                  | 155 (4.1)           |
| Home-made device (‘machine’ or bottle-pipe) | 138 (3.6)  |

**Plant-based accompaniments, n (%)**

|                          |                     |
|--------------------------|---------------------|
| Sandwich method          | 259 (6.8)           |
| Changa                   | 165 (4.4)           |
| Enhanced leaf, joint, or blunt | 21 (0.6)  |
| Trip duration (min), median (IQR) | 10.0 (5.0, 15.0) |

**Previous inhaled DMT use, n (%)**

|                          |                     |
|--------------------------|---------------------|
| 0                        | 1008 (26.6)         |
| 1                        | 324 (8.6)           |
| Multiplef                | 620 (16.4)          |
| Yes NOS                  | 631 (16.7)          |

**Previous non-inhaled DMT psychedelic use, n (%)**

|                          |                     |
|--------------------------|---------------------|
| No previous psychedelic use | 76 (2.0)       |
| LSD                      | 550 (14.6)          |
| Psilocybin               | 383 (10.1)          |
| MDMA                     | 80 (2.1)            |
| Otherh                  | 150 (4.0)           |
| Yes NOS                  | 66 (1.7)            |

**Concomitant psychoactive substance use, n (%)**

|                          |                     |
|--------------------------|---------------------|
| Cannabis                 | 243 (6.4)           |
| LSD                      | 129 (3.4)           |
| Alcohol or benzodiazepines | 101 (2.7)     |
| MDMA                     | 40 (1.1)            |
| Psilocybin               | 30 (0.8)            |
| Otheri                  | 33 (0.9)            |
Table 1. Demographic data of the included posts and N, N-DMT experiences. Reported in 118 experiences (3.1%), 1347 experiences (35.7%), 1087 experiences (28.8%), and 538 experiences (14.2%). Greater than one previous inhaled DMT experiences or multiple previous experiences NOS. Does not summate to 100% due to multiple identified within an index experience. Including Salvia, 2C Class, Ayahuasca, 25B-NBOMe, ketamine, mescaline (or peyote), alpha-methyltryptamine, and ibogaine. Including ketamine, stimulants, cocaine, opioid, or mescaline. 4-AcO-DMT 4-Acetox-N,N-dimethyltryptamine, 5-MeO-DMT 5-methoxy-N,N-dimethyltryptamine, DMT dimethyltryptamine, IQR inter-quartile range, LSD lysergic acid diethylamide, MDMA 3,4-methylenedioxy methamphetamine, mg milligrams, min minutes, NOS not otherwise specified.

of codes or themes were identified in experiences with concomitant psychoactive substance use excluded (see Tables 1, 2, 3, 4, 5, 6, 7, 8).

**Physical and somatic experiences.** Somaesthesias (i.e., bodily sensations or kinesthetic hallucinations) were identified in 1415 experiences (37.5%) including a body vibration, buzz, or tingling (n = 1026, 27.2%); body “high” or body euphoria (n = 209, 5.5%); and body “load” (n = 180, 4.8%; see Table 2).

An out of body experience (OBE; including floating out of body, body dissolving, spirit/soul leaving body, falling away from body) was reported in 655 experiences (17.3%). A sensation of accelerating, falling, or moving at a high velocity was identified in 332 experiences (8.8%).

Temperature dysregulation was identified in 191 experiences (5.1%) with a sensation of warmth (n = 151, 4.0%) more frequently endorsed than cold (n = 40, 1.1%). An unpleasant taste was reported in 186 experiences (4.9%). Pain (body, abdominal, or oropharyngeal) was endorsed in 69 experiences (1.8%); head pressure, headache, or migraines in 53 experiences (1.4%); and diaphoresis in 31 experiences (0.8%).

An auditory ringing-type sound was reported in 583 experiences (15.4%). Descriptors for this sound included ringing, buzzing, vibrating, humming, static, crackling, “electric”, popping, a high pitched or tinny tone, droning, pulsing, hissing, whining noise, and an auditory carrier wave.

Amnestic events were identified in in 582 experiences (15.4%). Partial amnesia of the experience was reported in 513 experiences (13.6%) while full amnesia and “blackouts” were reported in 69 (1.8%) and 46 (1.2%) experiences, respectively. A loss of awareness to being under the influence of N, N-DMT during the actual experience was identified in 46 experiences (1.2%).

Motor effects were identified in 105 experiences (2.8%), most commonly a sense of paralysis (n = 51, 1.3%), followed by convulsive- or athetoid-type movements (n = 39, 1.0%) and motor incoordination or balance impairment (n = 15, 0.4%).

Dizziness or light headedness were endorsed in 70 experiences (1.9%). Synaesthesia (including audiovisual synaesthesia) was identified in 47 experiences (1.2%). Facial or oropharyngeal paraesthesias were endorsed in 18 experiences (0.5%).

Predominant gastrointestinal complaints included nausea (n = 107, 2.8%) and emesis (n = 69, 1.8%). A sense of fecal urgency was reported in 8 experiences (0.2%), while urinary urgency or incontinence was reported in 24 experiences (0.6%).

A sense of tachycardia or dysrhythmia was reported in 79 experiences (2.1%), while a cough or lung harshness; dyspnea, tachypnea, or apnea; chest pressure; choking sensation; and breathing difficulty not otherwise specified (NOS) were reported in 70 (1.9%), 18 (0.5%), 17 (0.4%), 10 (0.3%), and 69 (1.8%) of experiences, respectively.

**Content of visualizations and imagery.** The most frequently reported visualizations included fractals, geometric shapes, and patterns (n = 1231, 32.6%; including kaleidoscopes (n = 85, 2.2%), mandalas (n = 44, 1.2%), chrysanthemums (n = 32, 0.8%), and sacred geometry (n = 22, 0.6%)) and vivid, novel, neon, beautiful, or hyperintense colours (n = 953, 25.2%; see Table 3).

Four-hundred and ninety-nine experiences (13.2%) described open eye visuals (OEVs) including room and wall distortion (n = 175, 4.6%), pixilation (n = 39, 1.0%), and tracers or halos (n = 20, 0.5%). Cartoon-type visuals were reported in 113 experiences (3.0%) and the description of faces or eyes were identified in 90 experiences (2.4%).

Ancient and/or cultural-associated imagery (i.e., ancient Egyptian or indigenous Meso-/South American) was reported in 80 experiences (2.1%). Visions of relatives (dead or alive) and visions of ‘previous lives’ were described in 75 (2.0%) and 31 (0.8%) experiences, respectively. Additional content of visualizations and imagery are listed in Table 3.

**Changes to visual perception.** Changes in visual perception included a shaky or vibrating vision (n = 139, 3.7%; see Table 3); visual clarity (n = 66, 1.7%); visual field expansion, seeing with eyes closed or with a third eye (n = 65, 1.7%); and a perceptual veil or curtain lifting/falling (n = 26, 0.7%).

**Entity encounters and entity phenotype.** One of the most salient themes of the N, N-DMT experiences involved encounters and interactions with seemingly autonomous entities, occurring in 45.5% (n = 1719) experiences. Encounters with an archetypal feminine entity were most frequent (n = 416, 24.2% of entity encoun-
ters; see Fig. 2) and included a goddess or feminine deity (n = 43, 2.5%); Gaia, Mother Ayahuasca, or Mother Nature (n = 34, 2.0%); and a female entity or feminine presence not otherwise specified (NOS; n = 339, 19.7%).

The next most frequent entity phenotype was that of deities, divine beings, and demi-gods encountered in 293 experiences (17.0%); most frequently identified were the Devil, Satan, demons, or death-type entities (n = 55, 3.2%) followed by “God” (n = 48, 2.8%). Hindu deities, Buddhist (including Buddha) deities, and ancient Egyptian deities were encountered in 40 (2.3%), 37 (2.2%), and 16 (0.9%) experiences, respectively. Angels or seraphim were encountered in 18 experiences (1.0%), while Jesus or Mary Magdalene were identified in 9 experiences (0.5%). See Fig. 2 for additional encountered deity-type entities.

### Table 2. Physical and somatic responses to N,N-DMT. DMT dimethyltryptamine, NOS not otherwise specified, OBE out-of-body experience.

| Coded units and themes | Documented in experience, n (%) | All experiences (n = 3778) | Experiences with no reported concomitant psychoactive substance use (n = 3242) |
|------------------------|--------------------------------|---------------------------|--------------------------------------------------------------------------------|
| **Somatic**            |                                |                           |                                                                                |
| Somaesthesias          | 1415 (37.5)                    | 1212 (37.4)               |                                                                                |
| Body vibration, buzz, or tingling | 1026 (27.2)                  | 878 (27.1)                |                                                                                |
| Body “high” or euphoria | 209 (5.5)                      | 174 (5.4)                 |                                                                                |
| Body “load”            | 180 (4.8)                      | 160 (4.9)                 |                                                                                |
| OBE, floating, dissociation, or body dissolving | 655 (17.3)           | 531 (16.4)                |                                                                                |
| Acceleration, falling, or moving at high velocity | 332 (8.8)               | 263 (8.1)                 |                                                                                |
| Temperature dysregulation | 191 (5.1)                     | 167 (5.2)                 |                                                                                |
| Warmth                 | 151 (4.0)                      | 134 (4.1)                 |                                                                                |
| Cold                   | 40 (1.1)                       | 33 (1.0)                  |                                                                                |
| Unpleasant taste       | 186 (4.9)                      | 167 (5.2)                 |                                                                                |
| Pain (body, abdominal, or oropharyngeal) | 69 (1.8)                     | 58 (1.8)                  |                                                                                |
| Head pressure, headache, or migraine | 53 (1.4)                   | 47 (1.4)                  |                                                                                |
| Diaphoresis            | 31 (0.8)                       | 28 (0.9)                  |                                                                                |
| **Auditory-ringing type sound** | 583 (15.4)              | 583 (18.0)                |                                                                                |
| Ringing, buzzing, humming, or vibrating sound | 474 (12.5)             | 406 (12.5)                |                                                                                |
| Static, crackling, ‘electric’, or popping sound | 69 (1.8)                  | 58 (1.8)                  |                                                                                |
| High pitched tone or tiny tone | 40 (1.1)                  | 36 (1.1)                  |                                                                                |
| **“Neurologic”**       |                                |                           |                                                                                |
| Amnestic events        | 582 (15.4)                     | 582 (17.9)                |                                                                                |
| Partial amnesia        | 513 (13.6)                     | 513 (15.8)                |                                                                                |
| Full amnesia           | 69 (1.8)                       | 69 (2.1)                  |                                                                                |
| Black out              | 46 (1.2)                       | 40 (1.2)                  |                                                                                |
| Loss of awareness to being under the influence of DMT | 46 (1.2)                  | 36 (1.1)                  |                                                                                |
| Motor effects           | 105 (2.8)                      | 92 (2.8)                  |                                                                                |
| Paralysis              | 51 (1.3)                       | 44 (1.4)                  |                                                                                |
| Convulsive or athetoid movements, shivering, or shaking | 39 (1.0)                 | 34 (1.0)                  |                                                                                |
| Motor incoordination or balance impairment | 15 (0.4)                  | 14 (0.4)                  |                                                                                |
| Dizziness or light headedness | 70 (1.9)                   | 60 (1.9)                  |                                                                                |
| Synaesthesia           | 47 (1.2)                       | 42 (1.3)                  |                                                                                |
| Facial or oropharyngeal paraesthesias | 18 (0.5)                  | 14 (0.4)                  |                                                                                |
| **Gastrointestinal**   |                                |                           |                                                                                |
| Nausea                 | 107 (2.8)                      | 90 (2.8)                  |                                                                                |
| Emesis                 | 69 (1.8)                       | 55 (1.7)                  |                                                                                |
| Fecal urgency          | 8 (0.2)                        | 8 (0.2)                   |                                                                                |
| **Cardiorespiratory**  |                                |                           |                                                                                |
| Tachycardia or dysrhythmia | 79 (2.1)                     | 68 (2.1)                  |                                                                                |
| Cough or lung harshness | 70 (1.9)                      | 60 (1.9)                  |                                                                                |
| Dyspnea, tachypnea, or apnea | 18 (0.5)                    | 17 (0.5)                  |                                                                                |
| Chest pressure or discomfort | 17 (0.4)                     | 15 (0.5)                  |                                                                                |
| Choking sensation      | 10 (0.3)                       | 9 (0.3)                   |                                                                                |
| Breathing difficulty NOS | 69 (1.8)                     | 59 (1.8)                  |                                                                                |
| **Genitourinary—urinary urgency or incontinence** | 24 (0.6)                  | 20 (0.6)                  |                                                                                |
Aliens, celestial beings, and extra-terrestrials were encountered in 281 experiences (16.3%). Included within this thematic phenotype were beings made of light or energy and jeweled beings (n = 74, 4.2%); geometric, fractal, or hyperdimensional entities (n = 61; 3.5%); grey aliens (n = 18, 1.0%); and aliens or celestial beings NOS (n = 130; 7.6%).

Animal-based and creature-based entities were reported in 158 of the entity experiences (9.2%), encompassing reptilian or serpentine entities (n = 51, 3.0%); tentacled entities, octopus-like, squid-like, and jellyfish-like entities (n = 42, 2.4%); insectoid, praying mantis, or arachnoid entities (n = 40, 2.3%); and feline entities (n = 25, 1.5%).

Mythological beings were described in 144 experiences (8.4%). Machine elves were encountered in 50 experiences (2.9%); elves NOS in 30 (1.7%); faerie, sprites, nymph, spirits, or wisps in 20 (1.2%); giants, trolls, gnomes, imps, or goblins in 14 (0.8%); therianthropes, chimeras, and hybrids in 14 (0.8%); dragons in 10 (0.6%); and witches, wizards, or a bearded individual in 6 (0.3%).

A jester, joker, or clown was described in 112 encounters (6.5%).

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Table 3. Content of imagery and visualizations of the N, N-DMT experiences and changes to visual perception. *Including Islamic, Hindu, Tibetan, North American Indigenous, tribal NOS. NOS not otherwise specified.*

| Coded units and themes | Documented in experience, n (%) | All experiences (n = 3778) | Experiences with no reported concomitant psychoactive substance use (n = 3242) |
|------------------------|---------------------------------|---------------------------|---------------------------------|
| Fractals, shapes, or patterns | 1231 (32.6) | 1017 (31.4) |
| Fractals or geometric shapes | 1218 (32.2) | 1004 (31) |
| Kaleidoscope | 85 (2.2) | 65 (2.0) |
| Mandala | 44 (1.2) | 44 (1.4) |
| Chrysanthemum | 32 (0.8) | 21 (0.6) |
| Sacred geometry | 22 (0.6) | 19 (0.6) |
| Patterns NOS | 325 (8.6) | 262 (8.1) |
| Colours: Vivid, novel, neon, beautiful, hyperintense | 953 (25.2) | 780 (24.1) |
| Open eye visuals (OEVs) | 499 (13.2) | 499 (15.4) |
| Room and wall distortion (dissolving/melting/warping/breathing) | 175 (4.6) | 148 (4.6) |
| Pinnacles | 39 (1.0) | 31 (1.0) |
| Tracers and halos | 20 (0.5) | 15 (0.5) |
| OEVs NOS | 463 (12.3) | 383 (11.8) |
| Visual distortion NOS | 121 (3.2) | 104 (3.2) |
| Cartoon visuals | 113 (3.0) | 84 (2.6) |
| Faces or eyes | 90 (2.4) | 75 (2.3) |
| Ancient and/or cultural-based imagery | 80 (2.1) | 65 (2.0) |
| ’Aztec’ or ‘Mayan’ visuals | 38 (1.0) | 33 (1.0) |
| Egyptian visuals | 33 (0.9) | 24 (0.7) |
| Other | 9 (0.2) | 8 (0.2) |
| Visions of past experiences or relatives (dead or alive) | 75 (2.0) | 60 (1.9) |
| Writing, symbols, scripture, or hieroglyphs | 73 (1.9) | 66 (2.0) |
| Webs or grids | 50 (1.3) | 41 (1.3) |
| Visions of previous lives | 31 (0.8) | 25 (0.8) |
| Digital or alien visuals | 30 (0.8) | 27 (0.8) |
| Flower(s) or lotus | 28 (0.7) | 25 (0.8) |
| Tentacles | 23 (0.6) | 21 (0.6) |
| Visuals folding-in on themselves | 21 (0.6) | 18 (0.6) |
| Animal visuals | 17 (0.4) | 12 (0.4) |
| Skulls, skeletons, or other human anatomy | 13 (0.3) | 10 (0.3) |
| Satanic visuals | 12 (0.3) | 12 (0.4) |
| Closed eye visuals (CEVs) NOS | 352 (9.3) | 262 (8.1) |
| Changes to visual perception | 139 (3.7) | 120 (3.7) |
| Visual clarity | 66 (1.7) | 62 (1.9) |
| Visual field expansion, seeing with eyes closed or with third eye | 65 (1.7) | 50 (1.5) |
| Veil or curtain lifting/falling | 26 (0.7) | 24 (0.7) |
Cultural-specific entities were encountered in 75 experiences (4.4%); most commonly ancient Egyptian deities and entities (n = 33, 1.9%); indigenous Meso-/South American entities (n = 25, 1.5%); Asian or Thai entities (n = 11, 0.6%); and Greek, Germanic, or Norse entities (n = 6, 0.3%).

Other phenotypes included a robot or machine entity (n = 115, 6.7%); a shaman, guide, nurse, or caretaker (n = 29, 1.7%); a gate keeper, golem, or guard (n = 18, 1.0%); and a conductor or entity with a top-hat or tuxedo (n = 11, 0.6%).

Other entity descriptors included humanoid (n = 112, 6.5%); shadowy, silhouette, dark, or black entities (n = 85, 4.9%); children (n = 36, 2.1%); faceless (n = 34, 2.0%); blue entity (n = 30, 1.7%); white, red, green, or golden entity (n = 27, 1.6%); face-only or masked entity (n = 16, 0.9%); and tall slender entity (n = 11, 0.6%).

### Table 4. Entity attributes, disposition, and characteristics of the entity interaction. *a In addition to entity attributes identified in the God Encounter Questionnaire (see Table 5).

| Coded units and themes | Documented in experience, n (%) | Entity encounters with no reported concomitant psychoactive substance use (n = 1453) |
|------------------------|---------------------------------|-----------------------------------------------|
| **Positive**           | All entity encounters (n = 1719) | Entity encounters with no reported concomitant psychoactive substance use (n = 1453) |
| Positive               | 600 (34.9)                      | 600 (41.3)                                    |
| Benevolent (i.e. kind, compassionate, altruistic) | 527 (30.7)                      | 527 (36.3)                                    |
| Comforting, protecting, or outwardly caring | 230 (13.4)                      | 168 (11.6)                                    |
| Welcoming              | 177 (10.3)                      | 174 (12.0)                                    |
| Loving or embracing    | 139 (8.1)                       | 120 (8.3)                                     |
| Dancing, singing, partying | 122 (7.1)                      | 104 (7.2)                                     |
| Healing                | 51 (3.0)                        | 48 (3.3)                                      |
| Sexual, intimate, or sensual | 29 (1.7)                      | 24 (1.7)                                      |
| Happy, friendly, or excited | 26 (1.5)                      | 20 (1.4)                                      |
| Provision of nourishment | 13 (0.8)                      | 12 (0.8)                                      |
| Affusion or aspersion-type action or pouring liquid on individual | 10 (0.6)                      | 10 (0.7)                                      |
| Companion-, pedagogical-, or guide-type interaction | 557 (32.4)                      | 544 (37.4)                                    |
| Guiding, touring, or showing | 457 (26.6)                      | 337 (23.2)                                    |
| Testing or offering a choice (including option to live or die) | 77 (4.5)                      | 64 (4.4)                                      |
| Controlling or altered the visuals of the experience | 58 (3.4)                      | 46 (3.2)                                      |
| Transferred knowledge | 52 (3.0)                        | 45 (3.1)                                      |
| Beckoning or summoning | 47 (2.7)                        | 41 (2.8)                                      |
| Encouraging            | 24 (1.4)                        | 23 (1.6)                                      |
| Offered gifts or information | 18 (1.0)                      | 15 (1.0)                                      |
| **Negative or difficult** | 196 (11.4)                      | 196 (13.5)                                    |
| Menacing, malicious, evil, threatening, violent, attacking, intimidating, or bullying | 92 (5.4)                      | 75 (5.2)                                      |
| Angry, unfriendly, unhappy, disappointed, frustrated, or sad | 57 (3.3)                      | 42 (2.9)                                      |
| Rejecting, denying, or unwelcoming | 45 (2.6)                      | 36 (2.5)                                      |
| Torturing or raping    | 14 (0.8)                        | 12 (0.8)                                      |
| Teared apart or eaten/consumed by entity | 11 (0.6)                      | 9 (0.6)                                       |
| **Medical-type interaction** | 154 (9.0)                      | 154 (10.6)                                    |
| Examining, observing, scanning, or analyzing | 141 (8.2)                      | 111 (7.6)                                     |
| Implantation of device | 59 (3.4)                        | 51 (3.5)                                      |
| Surgery, procedure, operation, injection, or experimentation | 56 (3.3)                      | 53 (3.6)                                      |
| Exploration or probing | 34 (2.0)                        | 29 (2.0)                                      |
| **Neutral or other**   | 181 (10.5)                      | 181 (12.5)                                    |
| Playful or mischievous | 77 (4.5)                        | 68 (4.7)                                      |
| Forehead touched or manipulated | 16 (0.9)                      | 13 (0.9)                                      |
| Chest touched or manipulated | 11 (0.6)                      | 10 (0.7)                                      |
| Language and communication | 163 (9.5)                      | 141 (9.7)                                     |
| Novel or alien language | 152 (8.8)                      | 131 (9.0)                                     |
| Communication via emotions, colours, or vibrations | 11 (0.6)                      | 10 (0.7)                                      |

Cultural-specific entities were encountered in 75 experiences (4.4%); most commonly ancient Egyptian deities and entities (n = 33, 1.9%); indigenous Meso-/South American entities (n = 25, 1.5%); Asian or Thai entities (n = 11, 0.6%); and Greek, Germanic, or Norse entities (n = 6, 0.3%).

Other phenotypes included a robot or machine entity (n = 115, 6.7%); a shaman, guide, nurse, or caretaker (n = 29, 1.7%); a gate keeper, golem, or guard (n = 18, 1.0%); and a conductor or entity with a top-hat or tuxedo (n = 11, 0.6%).

Other entity descriptors included humanoid (n = 112, 6.5%); shadowy, silhouette, dark, or black entities (n = 85, 4.9%); children (n = 36, 2.1%); faceless (n = 34, 2.0%); blue entity (n = 30, 1.7%); white, red, green, or golden entity (n = 27, 1.6%); face-only or masked entity (n = 16, 0.9%); and tall slender entity (n = 11, 0.6%).

**Entity attributes, disposition, and characteristics of the interaction.** The attributes, disposition, and characteristics of the entities and the encounters were identified and coded (see Table 4). Positive interactions occurred in 600 encounters (34.9%) and most frequently involved a benevolent (i.e., kind, compassionate, altruistic, etc.) interaction (n = 527; 30.7%); followed by an interaction characterized as comforting, protecting,
Table 5. God Encounter Questionnaire (GEQ).

| Questionnaire items | Documented in experience, n (%) | Entity encounters with no reported concomitant psychoactive substance use (n = 1453) |
|---------------------|---------------------------------|-----------------------------------------------|
| Details of encounter |                                 |                                               |
| Went into the experience with the intention of encountering that which was encountered | 38 (2.2) | 32 (2.2) |
| The encounter was initiated by that which was encountered (not by [the author]) | 1681 (97.8) | 1421 (97.8) |
| Senses with which you interacted during the encounter |                                 |                                               |
| Visual | 1520 (88.4) | 1289 (88.7) |
| Auditory | 475 (27.6) | 413 (28.4) |
| Tactile/bodily sensation | 257 (15.0) | 222 (15.3) |
| Taste or smell | 3 (0.2) | 3 (0.2) |
| Extra-sensory | 429 (25.0) | 361 (24.8) |
| Communication |                                 |                                               |
| There was communication (1-way or 2-way exchange of information) | 1279 (74.4) | 1099 (75.6) |
| Communication was a 2-way exchange of information | 442 (25.7) | 375 (25.8) |
| Communication was a 1-way exchange of information (from the entity to the author) | 826 (48.0) | 714 (49.1) |
| Communication was a 1-way exchange of information (from the author to the entity) | 11 (0.6) | 13 (0.9) |
| Communication type |                                 |                                               |
| Visual (e.g. gestures) | 937 (54.5) | 801 (55.1) |
| Verbal-auditory | 489 (28.4) | 427 (29.4) |
| Somatic (e.g. touch/kinesthetic) | 250 (14.5) | 215 (14.8) |
| Extrasensory-telepathic | 361 (21.0) | 303 (20.9) |
| Immediate results of the encounter |                                 |                                               |
| Had an emotional response during the encounter | 1583 (92.1) | 1349 (92.8) |
| That which was encountered had an emotional response during the encounter | 394 (22.9) | 326 (22.4) |
| Ascertained a message, task, mission, or insight from the encounter | 792 (46.1) | 673 (46.3) |
| Acquired predictions about the future | 6 (0.3) | 4 (0.3) |
| Attributes to that which was encountered |                                 |                                               |
| Benevolent | 527 (30.7) | 441 (30.4) |
| Intelligent | 1238 (72.0) | 1066 (73.4) |
| Sacred | 238 (13.8) | 181 (12.5) |
| Conscious (i.e. self-aware) | 1602 (93.2) | 1364 (93.9) |
| Eternal | 175 (10.2) | 140 (9.6) |
| All-knowing | 320 (18.6) | 266 (18.3) |
| Agency (e.g. could it affect outcomes, events, or material objects in this reality) | 232 (13.5) | 197 (13.6) |
| Petitionable (e.g. in response to prayer or petition, it might change events or circumstances) | 452 (26.3) | 384 (26.4) |
| Positively judgmental (e.g. inclined toward strong approval or reward) | 800 (46.5) | 680 (46.8) |
| Negatively judgmental (e.g. inclined toward strong disapproval or harsh punishment) | 308 (17.9) | 256 (17.6) |
| Additional interpretation of that which was encountered |                                 |                                               |
| That which was encountered existed, as least in part, in some other dimension or reality | 1504 (87.5) | 1282 (88.2) |
| Was completely the same as that which was encountered | 48 (2.8) | 33 (2.3) |
| That which was encountered continued to exist after the encounter | 1117 (65.0) | 944 (65.0) |
| Coded units and themes                          | Documented in experience, n (%) | All experiences (n = 3778) | Experiences with no reported concomitant psychoactive substance use (n = 3242) |
|-----------------------------------------------|---------------------------------|---------------------------|--------------------------------------------------------------------------------|
| Alternate or higher dimensions               | 952 (25.2)                      | 154 (4.8)                 |                                                                                 |
| Hyperspace                                    | 646 (17.1)                      | 624 (19.2)                |                                                                                 |
| 1- or 2-dimensional experience               | 30 (0.8)                        | 24 (0.7)                  |                                                                                 |
| 4- or 5-dimensional experience               | 56 (1.5)                        | 47 (1.4)                  |                                                                                 |
| Alternate, hyper-, or multi-dimensional NOS  | 220 (5.8)                       | 83 (2.6)                  |                                                                                 |
| Room(s)                                       | 582 (15.4)                      | 574 (17.7)                |                                                                                 |
| Waiting room                                  | 105 (2.8)                       | 93 (2.9)                  |                                                                                 |
| Sterile, clean and/or functional room         | 88 (2.3)                        | 77 (2.4)                  |                                                                                 |
| Medical room, operating room, examination room, or hospital | 60 (1.6) | 53 (1.6) |                                                                                 |
| Office space, classroom, or school            | 13 (0.3)                        | 12 (0.4)                  |                                                                                 |
| Laboratory or control room                   | 6 (0.2)                         | 5 (0.2)                   |                                                                                 |
| Nursery, crib, or spa                        | 5 (0.1)                         | 3 (0.1)                   |                                                                                 |
| Kitchen or cafeteria                         | 4 (0.1)                         | 4 (0.1)                   |                                                                                 |
| Geometric, fractal, or multi-coloured room    | 79 (2.1)                        | 66 (2.0)                  |                                                                                 |
| White or bright room                          | 39 (1.0)                        | 32 (1.0)                  |                                                                                 |
| Dark, black, or black-and-white room         | 20 (0.5)                        | 16 (0.5)                  |                                                                                 |
| Pink, golden, or blue room                   | 19 (0.5)                        | 17 (0.5)                  |                                                                                 |
| Room or large room NOS                       | 232 (6.1)                       | 196 (6.0)                 |                                                                                 |
| Tunnel or tunnel-type structure               | 390 (10.3)                      | 341 (10.5)                |                                                                                 |
| Void (white, golden, black, or NOS)          | 233 (6.2)                       | 188 (5.8)                 |                                                                                 |
| Landscape and landscape features             | 229 (6.1)                       | 170 (5.2)                 |                                                                                 |
| Alien, fractal, or golden landscape          | 46 (1.2)                        | 30 (0.9)                  |                                                                                 |
| Urban landscape, cities, towns               | 39 (1.0)                        | 27 (0.8)                  |                                                                                 |
| Fields                                        | 26 (0.7)                        | 21 (0.6)                  |                                                                                 |
| Jungle, forest, or ancient forest            | 22 (0.6)                        | 18 (0.6)                  |                                                                                 |
| Beach, ocean, lake, or island                | 16 (0.4)                        | 13 (0.4)                  |                                                                                 |
| Desert or savannah                           | 12 (0.3)                        | 7 (0.2)                   |                                                                                 |
| Tree(s) or tree of life                      | 12 (0.3)                        | 12 (0.4)                  |                                                                                 |
| Garden, fountain, waterfall, or pool         | 10 (0.3)                        | 8 (0.2)                   |                                                                                 |
| Mountains                                     | 9 (0.2)                         | 7 (0.2)                   |                                                                                 |
| Landscape NOS                                | 37 (1.0)                        | 27 (0.8)                  |                                                                                 |
| Astronomical themes (stars, planets, celestial bodies, or galaxies, or outer space NOS) | 212 (5.6) | 170 (5.2) |                                                                                 |
| White, bright, or beam/stream of light       | 130 (3.4)                       | 110 (3.4)                 |                                                                                 |
| Machinery, clockwork, gears, or wheels       | 78 (2.1)                        | 61 (1.9)                  |                                                                                 |
| Ancient or cultural-specific architectural themes | 70 (1.9) | 58 (1.8) |                                                                                 |
| Egyptian themed typology                     | 33 (0.9)                        | 22 (0.7)                  |                                                                                 |
| Indigenous Meso-/South American structures   | 30 (0.8)                        | 30 (0.9)                  |                                                                                 |
| Ancient Greco-Roman or Norse typology        | 7 (0.2)                         | 6 (0.2)                   |                                                                                 |
| Carnival, circus, or playhouse               | 53 (1.4)                        | 44 (1.4)                  |                                                                                 |
| Vehicles                                     | 49 (1.3)                        | 44 (1.4)                  |                                                                                 |
| Spaceship                                    | 37 (1.0)                        | 33 (1.0)                  |                                                                                 |
| Train, roller coaster, or vehicle NOS        | 12 (0.3)                        | 11 (0.3)                  |                                                                                 |
| Pyramid(s)                                   | 44 (1.2)                        | 35 (1.1)                  |                                                                                 |
| Place of Worship (temple, altar, cathedral, mosque, or monastery) | 31 (0.8) | 28 (0.9) |                                                                                 |
| Hell                                         | 31 (0.8)                        | 23 (0.7)                  |                                                                                 |
| Domed or large spherical area                | 22 (0.6)                        | 19 (0.6)                  |                                                                                 |
| Heaven or Nirvana                            | 21 (0.6)                        | 14 (0.4)                  |                                                                                 |
| Alien-, future-, or advanced-technology     | 18 (0.5)                        | 18 (0.6)                  |                                                                                 |
| Other buildings or structures*               | 111 (2.9)                       | 100 (3.1)                 |                                                                                 |
| Objects                                      | 352 (9.3)                       | 289 (8.9)                 |                                                                                 |
| Spherical objects, globes, or orbs           | 46 (1.2)                        | 37 (1.1)                  |                                                                                 |
| Cubes or containers (colourful, Rubik's cubes, fractal cubes) | 30 (0.8) | 29 (0.9) |                                                                                 |
| Continued                                    |                                 |                           |                                                                                 |
or outwardly caring in 230 encounters (13.4%); welcoming (n = 177, 10.3%); loving or embracing (n = 139, 8.1%); and dancing, singing, or partying (n = 122, 7.1%).

The Reddit author reported being healed by an entity in 51 entity encounters (3.0%). A sexual, intimate, or erotic interaction was documented in 29 experiences (1.7%) and a happy, friendly, or excited interaction in 26 experiences (1.5%). An interaction involving the Reddit author being provided nourishment occurred in 13 experiences (0.8%). An affliction-type or aspersion-type action or the entity pouring liquid on the Reddit author was described in 10 experiences (0.6%).

A companion-type, pedagogical, or guide-type interaction was identified in 557 encounters (32.4%). An entity guiding, touring, or showing occurred in 457 experiences (26.6%), while an entity beckoning or summoning occurred in 16 experiences (2.7%). The entity tested or offered a choice (including option to live or die) to the Reddit author in 77 experiences (4.5%). An entity controlled or altered the visuals of the experience in 58 encounters (3.4%), transferred knowledge in 52 encounters (3.0%), and was encouraging in 24 (1.4%). Gifts or information were offered by entities in 18 experiences (1.0%).

A negative or difficult entity interaction was described in 196 of the 1719 entity encounters (11.4%), most frequently involving a description of an entity being menacing, malicious, evil, threatening, violent, attacking, intimidating, or bullying in 92 experiences (5.4%). An angry, frustrated, unfriendly, unhappy, disappointed, or sad entity disposition was reported in 57 encounters (3.3%). A rejecting, denying, or unwelcoming encounter was reported in 45 experiences (2.6%). A description of being tortured or raped by an entity occurred in 14 experiences (0.8%), while being teared apart or eaten/consumed by an entity occurred in 11 encounters (0.6%).

A medical-type interaction was coded in 154 encounters (9.0%), most frequently involving the description of an entity examining, observing, scanning, or analyzing the Reddit author (n = 141, 8.2%). The implantation of a device was described in 10 experiences (0.6%). A surgery, procedure, operation, injection, or experimentation was described in 10 experiences (0.6%).

Entity communication occurred in 1279 of the 1719 entity experiences (74.4%) which was most frequently one-way from the entity to the Reddit author (n = 826, 48.0%), followed by two-way (n = 442, 25.7%), and one-way from the Reddit author to the entity (n = 11, 0.6%). Communication was most frequently visual (n = 937, 54.5%), followed by verbal-auditory (n = 489, 28.4%), extra-sensory or telepathic (n = 361, 21.0%), and somatic (n = 250, 14.5%).

The majority of the Reddit authors had an emotional response during the encounter (n = 1583, 92.1%) and that which was encountered had an emotional response during the encounter in 394 experiences (22.9%). The Reddit author ascertained a message, task, mission, or insight from the encounter in 792 experiences (46.1%) and very few acquired predictions about the future (n = 6, 0.3%).

Additional attributes of the entity included conscious (i.e., self-aware; n = 1602, 93.2%); intelligent (n = 1238, 72.0%); benevolent (n = 527, 30.7%); petitionable (n = 452, 26.3%); all-knowing (n = 320, 18.6%); sacred (n = 238, 13.8%); agency (n = 232, 13.5%); and eternal (n = 175, 10.2%). A positively judgmental entity interaction occurred in 800 experiences (46.5%) while a negatively judgmental interaction occurred in 308 experiences (17.9%).

That which was encountered existed, at least in part, in some other dimension or reality in 1504 experiences (87.5%) and continued to exist after the encounter in 1117 experiences (65.0%). The Reddit author felt they were completely the same as that which was encountered in 48 experiences (2.8%).

**God Encounter Questionnaire (GEQ).** In the majority of entity encounters, the encounter was initiated by the entity (n = 1681, 97.8%; see Table 5) and sensed visually (n = 1520, 88.4%), followed by auditorily (n = 475, 27.6%), extra-sensorially (n = 429, 25.0%), by tactile/bodily sensation (n = 257, 15.0%), and taste or smell (n = 3, 0.2%).

Entity communication occurred in 1279 of the 1719 entity experiences (74.4%) which was most frequently one-way from the entity to the Reddit author (n = 826, 48.0%), followed by two-way (n = 442, 25.7%), and one-way from the Reddit author to the entity (n = 11, 0.6%). Communication was most frequently visual (n = 937, 54.5%), followed by verbal-auditory (n = 489, 28.4%), extra-sensory or telepathic (n = 361, 21.0%), and somatic (n = 250, 14.5%).

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That which was encountered existed, at least in part, in some other dimension or reality in 1504 experiences (87.5%) and continued to exist after the encounter in 1117 experiences (65.0%). The Reddit author felt they were completely the same as that which was encountered in 48 experiences (2.8%).

**Typology, architectural features, structural characteristics, scenery, and objects of the “DMT world”.** Common typological, structural, architectural features were identified and catalogued (see Table 6). Descriptions of alternate or higher dimensions were most frequently identified occurring in 952 experiences (25.2%) and included an experience of 1- or 2-dimensions (n = 30, 0.8%); 4- or 5-dimensions (n = 56, 1.5%);
### Table 7. Rewarding emotional responses and the Mystical Experience Questionnaire (MEQ).

| Coded units, themes, and questionnaire items | Documented in experience, n (%) |
|---------------------------------------------|---------------------------------|
|                                             | All experiences (n = 3778) | Experiences with no reported concomitant psychoactive substance use (n = 3242) |
| **Rewarding responses**                     |                              |                                                                 |
| Familiar                                    | 482 (12.8)                   | 423 (13.0)                                                                 |
| Feels like “home” or sense of belonging     | 55 (1.5)                     | 47 (1.4)                                                                  |
| Tearful and tears of joy                   | 111 (2.9)                    | 90 (2.8)                                                                  |
| Euphoria                                    | 93 (2.5)                     | 79 (2.4)                                                                  |
| Accepting death or removed fear of dying    | 59 (1.6)                     | 48 (1.5)                                                                  |
| Rebirth                                     | 53 (1.4)                     | 40 (1.2)                                                                  |
| Sexual or intimate energy or experience     | 33 (0.9)                     | 33 (1.0)                                                                  |
| Feels real or more real than everyday reality | 22 (0.6)                  | 22 (0.7)                                                                  |
| **Mystical Experience Questionnaire (MEQ)** |                              |                                                                 |
| Mystical                                    | 1188 (31.4)                  | 980 (30.2)                                                                 |
| Freedom from the limitations of your personal self and feeling a unity or bond with what was felt to be greater than personal self | 331 (8.8)                  | 270 (8.3)                                                                  |
| Experience of pure being and pure awareness (beyond the world of sense impressions) | 133 (3.5)                  | 105 (3.2)                                                                  |
| Experience of oneness in relation to an “inner world” within | 141 (3.7)                  | 111 (3.4)                                                                  |
| Experience of the fusion of your personal self into a larger whole | 184 (4.9)                  | 147 (4.5)                                                                  |
| Experience of unity with ultimate reality   | 258 (6.8)                    | 211 (6.5)                                                                  |
| Feeling that [the author] experienced eternity or infinity | 266 (7.0)                  | 212 (6.5)                                                                  |
| Experience of oneness or unity with objects and/or persons perceived in your surroundings | 159 (4.2)                  | 125 (3.9)                                                                  |
| Experience of the insight that “all is One” | 116 (3.1)                   | 92 (2.8)                                                                  |
| Awareness of the life or living presence in all things | 93 (2.5)                   | 77 (2.4)                                                                  |
| Gain of insightful knowledge experienced at an intuitive level | 717 (19.0)                  | 593 (18.3)                                                                 |
| Certainty of encounter with ultimate reality (in the sense of being able to “know” and “see” what is really real at some point during your experience | 335 (8.9)                  | 270 (8.3)                                                                  |
| Convinced now that [the author] encountered ultimate reality (i.e., that you “knew” and “saw” what was really real) | 328 (8.7)                  | 267 (8.2)                                                                  |
| Sense of being at a spiritual height        | 295 (7.8)                    | 254 (7.8)                                                                  |
| Sense of reverence                          | 924 (24.5)                   | 755 (23.3)                                                                 |
| Feeling that [the author] experienced something profoundly sacred and holy | 204 (5.4)                  | 168 (5.2)                                                                  |
| Positive mood                               | 2984 (79.0)                  | 2524 (77.9)                                                                 |
| Experience of amazement                     | 2715 (71.9)                  | 2297 (70.9)                                                                 |
| Feelings of tenderness and gentleness       | 1078 (28.5)                  | 910 (28.1)                                                                 |
| Feelings of peace and tranquility          | 1058 (28.0)                  | 892 (27.5)                                                                 |
| Experience of ecstasy                       | 239 (6.3)                    | 186 (5.7)                                                                  |
| Sense of awe or awesomeness                 | 2671 (70.7)                  | 2255 (69.5)                                                                 |
| Feelings of joy                             | 2136 (56.5)                  | 1805 (55.7)                                                                 |
| Transcendence of space or time              | 2746 (72.7)                  | 2320 (71.6)                                                                 |
| Loss of usual sense of time                 | 362 (9.6)                    | 287 (8.9)                                                                  |
| Loss of usual sense of space                | 2710 (71.7)                  | 2289 (70.6)                                                                 |
| Loss of usual awareness of where you were   | 1884 (49.9)                  | 1577 (48.6)                                                                 |
| Sense of being “outside of” time, beyond past and future | 174 (4.6)                  | 137 (4.2)                                                                  |
| Being in a realm with no space boundaries   | 828 (21.9)                   | 665 (20.5)                                                                  |
| Experience of timelessness                  | 151 (4.0)                    | 116 (3.6)                                                                  |
| Ineffability                                | 543 (14.4)                   | 448 (13.8)                                                                  |
| Sense that the experience cannot be described adequately in words | 534 (14.1)                  | 439 (13.5)                                                                  |
| Feeling that [the author] could not do justice to experience by describing it in words | 512 (13.6)                  | 423 (13.0)                                                                  |
| Feeling that it would be difficult to communicate [author’s] own experience to others who have not had similar experiences | 80 (2.1)                   | 65 (2.0)                                                                  |
hyperspace (n = 646, 17.1%); and alternate-, hyper-, or multi-dimensions NOS (n = 220, 5.8%). To note, it is recognized that an interaction with an entity that existed, at least in part, in some other dimension or reality occurred in 1504 experiences (39.8%); however, authors frequently reported interacting with entities from a different dimension/reality whilst not being present in that dimension/reality themselves.

The description of being inside a room was identified in 582 experiences (15.4%); including 105 (2.8%) that identified being in the “waiting room,” specifically.

Reports of a sterile, clean, or functional room (including a medical, operating, or examination rooms) occurred in 88 experiences (2.3%). A geometric, fractal, or multi-coloured room was reported in 79 experiences (2.1%), while a white or bright room was described in 39 experiences (1.0%). See Table 6 for additional descriptions of rooms encountered.

A tunnel-type structure was reported in 390 experiences (10.3%). A void (including a white, golden, black, and void NOS) was described in 233 experiences (6.2%).

Landscape and landscape features were described in 229 experiences (6.1%), most frequently, an alien, fractal, or golden landscape (n = 46, 1.2%); an urban landscape (n = 39, 1.0%); fields (n = 26, 0.7%); a jungle, forest, or ancient forest (n = 22, 0.6%); and a beach, ocean, lake, or island (n = 16, 0.4%). See Table 6 for additional landscape descriptors.

Astronomical themes (including stars, planets, celestial bodies, galaxies, and outer space NOS) were encountered in 212 experiences (5.6%). A white, bright, or beam/stream of light was described in 130 experiences (3.4%) and machinery, clockwork, gears, or wheels were reported in 78 experiences (2.1%).

Ancient and/or cultural-specific architectural themes were encountered in 70 experiences (1.9%), including ancient Egyptian typology in 33 (0.9%), indigenous Meso-/South American (i.e., Aztec, Mayan, etc.) in 30 (0.8%), and ancient Greco-Roman or Norse in 7 (0.2%).

A carnival, circus, or playhouse was encountered in 53 experiences (1.4%). Forty-nine experiences (1.3%) involved a vehicle, most commonly a spaceship (n = 37, 1.0%).

Pyramids were encountered in 44 experiences (1.2%) and a place of worship was identified in 31 experiences (0.8%). Metaphysical hell and heaven/nirvana were described in 31 (0.8%) and 21 (0.6%) experiences, respectively. Reddit authors reported being inside a domed or large sphere in 22 occurrences (0.6%). Eighteen (0.5%) Reddit authors reported encountering alien, advanced, or future technology.

Objects were frequently encountered (n = 352, 9.3%), with the most common being spherical objects [including globes and orbs (n = 46, 1.2%); cubes or containers (n = 30, 0.8%); and helices, deoxyribonucleic acid (DNA), spirals, or hourglass-shapes (n = 22, 0.6%)].

**Rewarding emotional responses.** A sense of familiarity to the experience was identified in 482 experiences (12.8%), of which 55 experiences (1.5%) reporting a sense of “home” or belonging (see Table 7).

Becoming tearful or reporting tears of joy were reported in 111 experiences (2.9%) and euphoria was reported in 93 experiences (2.5%). Despite 236 reports (6.2%) indicating a “feeling as if dead or dying” or a “profound experience of death” (see Table 9), 59 experiences (1.6% of all experiences or 25.0% experiences including the theme of death) endorsed an acceptance of death or the removal of fear of death.

Fifty-three experiences (1.4%) described rebirth; 33 experiences (0.9%) incorporated a sexual, intimate, or erotic tone; and 22 reports (0.6%) stated the experience felt more real than everyday reality.

**Table 8.** Ego-Dissolution Inventory (EDI).
Mystical Experience Questionnaire (MEQ). A total 2696 experiences (71.4%) reported a minimum of one item on the MEQ, including 1188 experiences (31.4%, see Table 7) containing at least one item within the “mystical” subsection of the MEQ, most frequently a “gain of insightful knowledge experienced at an intuitive level” (n = 717, 19.0%). A total of 2984 experiences (79.0%) included reports coded within at least one item within the “positive mood” subsection of the MEQ, most frequently an “experience of amazement” (n = 2715, 71.9%). A total of 2746 experiences (72.7%) included at least one item within the “transcendence of space or time” subsection of the MEQ, most frequently a “loss of your usual sense of space” (n = 2710, 71.7%). A total of 543 experiences (14.4%) reported at least one item within the “ineffability” subsection of the MEQ, most frequently a “sense that the experience cannot be described adequately in words” (n = 534, 14.1%).

Ego-Dissolution Inventory (EDI). A total of 259 experiences (6.9%) endorsed at least one item on the EDI, most frequently experience of a ‘dissolution of “self” or ego’ (n = 140, 3.7%; see Table 8) and experience of a disintegration of “self” or ego’ (n = 140, 3.7%). Additional common EDI features included “all notion of self and identity dissolved away” (n = 134, 3.5%) and “lost all sense of ego” (n = 134, 3.5%).

Difficult emotional responses and the Challenging Experience Questionnaire (CEQ). Difficult emotional responses to the experience included sense of being stuck in a time loop (n = 31, 0.8%), claustrophobia or feeling trapped/lost (n = 17, 0.4%), thoughts or mind racing (n = 9, 0.2%), and suicidality (n = 9, 0.2%; see Table 9).

| Coded units, themes, and questionnaire items | Documented in experience, n (%) | Difficult emotional responses |
|--------------------------------------------|---------------------------------|-------------------------------|
|                                           | All experiences (n = 3778)       | Experiences with no reported concomitant psychoactive substance use (n = 3242) |
| Difficult emotional responses             |                                 |                               |
| Time loop                                 | 31 (0.8)                        | 22 (0.7)                      |
| Claustrophobia, feeling trapped, or feeling lost | 17 (0.4)                         | 15 (0.5)                      |
| Thoughts or mind racing                   | 9 (0.2)                         | 9 (0.3)                       |
| Suicidality                               | 9 (0.2)                         | 6 (0.2)                       |

| Challenging Experience Questionnaire (CEQ) | |
|-----------------------------------------|---|---|---|---|---|---|---|---|---|
| Coded units, themes, and questionnaire items | Documented in experience, n (%) | Difficult emotional responses |
|---------------------------------|---------------------------------|-------------------------------|
| Fear                            | 840 (22.2)                      |                               |
| Frightened                      | 680 (18.0)                      |                               |
| Panic                           | 252 (6.7)                       |                               |
| Experience of fear              | 693 (18.3)                      |                               |
| Anxiously                       | 468 (12.4)                      |                               |
| Had the feeling something horrible would happen | 402 (10.6)                     |                               |
| Grief                           | 416 (11.0)                      |                               |
| Sad                             | 60 (1.6)                        |                               |
| Feelings of grief               | 65 (1.7)                        |                               |
| Despair                         | 140 (3.7)                       |                               |
| Feel like crying                | 42 (1.1)                        |                               |
| Feelings of despair             | 137 (3.6)                       |                               |
| Emotional and/or physical suffering | 386 (10.2)                     |                               |
| Insanity                        | 107 (2.8)                       |                               |
| Fear that [the author] might lose [their] mind or go insane | 69 (1.8)                      |                               |
| Change in sense of sanity       | 80 (2.1)                        |                               |
| Was afraid that the state would last forever | 92 (2.4)                       |                               |
| Isolation                       | 45 (1.2)                        |                               |
| Felt isolated from everything and everyone | 43 (1.1)                       |                               |
| Feel isolated from people and things | 44 (1.2)                       |                               |
| Experience of Isolation and loneliness | 44 (1.2)                       |                               |
| Death                           | 236 (6.2)                       |                               |
| Profound experience of own death | 160 (4.2)                       |                               |
| Feel as if dead or dying        | 227 (6.0)                       |                               |
| Paranoia                        | 17 (0.4)                        |                               |
| Feeling that people were plotting against [the author] | 9 (0.2)                       |                               |
| Experience of antagonism toward people around [the author] | 11 (0.3)                       |                               |

Table 9. Difficult emotional responses and the non-physical components of the Challenging Experience Questionnaire (CEQ).
A total of 1019 experiences (27.0%) included a minimum of one emotional item from the CEQ (see Table 9). A total of 840 experiences (22.2%) included at least one component of the “fear” section from the CEQ, most frequently an “experience of fear” (n = 693, 18.3%). A total of 416 experiences (11.0%) included at least one component of the “grief” section from the CEQ, most frequently “emotional and/or physical suffering” (n = 386, 10.2%). A total of 107 experiences (2.8%) reported at least one component of the “insanity” section, most frequently “afraid that the state would last forever” (n = 92, 2.4%). Forty-five experiences (1.2%) reported a minimum of one item within the “isolation” subsection, most frequently “feel isolated from people and things” and “experience of isolation and loneliness” (n = 44, 1.2%, each). A total of 236 experiences (6.2%) reported at least one component of the “death” section, most frequently “feel as if dead or dying” (n = 227, 6.0%). A total of 17 experiences (0.4%) reported at least one component of the “paranoia” section.

**Statements of profundity.** A total of 352 descriptors of profundity were identified in 232 experiences (6.1%, see Fig. 3). Reddit authors most frequently pronounced the experience or an aspect of the experience as the most “beautiful” or feeling the most “beautiful” of their life (n = 47, 1.2%); followed by “intense or extreme” (n = 35), “profound or powerful” (n = 31, 0.9%), “terrifying, terrified, scary, or scared” (n = 30, 0.8%), and “amazing” (n = 26, 0.7%). Statements of profundity with a single descriptor were identified in 156 experiences (4.1%).
Figure 3. Heat map of the frequency of statements of profundity (“...most [X] experience of my life...” or “...the most [X] I have felt in my life...”, where [X] is a descriptor theme or themes). The total column represents the total coded frequency of a theme. For statements that included multiple descriptors, the order in which the themes appeared within a statement is indicated: first order column (i.e., the descriptor appeared first within the statement or alone), second order row (i.e., the descriptor appeared second within the statement), and third or fourth order column. The frequency in which first order and second order descriptors appeared jointly is highlighted at the intersection of those themes.

Dual descriptors within a statement of profundity were identified in 43 experiences, of which the most common descriptors reported concurrently were “beautiful” and “intense or extreme” (n = 6); and “terrifying, terrified, scary, or scared” and “amazing” (n = 6).

Discussion
This study conducted a qualitative analysis of naturalistic inhaled N, N-DMT experiences and documented consistent phenomenological thematic patterns, particularly within the domains of (1) physical and somatic experiences; (2) visualizations and imagery; (3) entity encounters including entity phenotype, descriptors, attributes, disposition, and characteristics of the interaction; (4) typology, architectural features, structural characteristics, and scenery of the "DMT world"; (5) alterations in consciousness (including mystical experiences, out-of-body experiences, and ego-dissolution); (6) emotional responses (including positive, rewarding, difficult, and challenging); and (7) statements of profundity.

The results of this study contribute to the limited descriptive information about inhaled N, N-DMT use and the resultant experience\(^{11,36,43}\). This study identified a reported median dose of inhaled N, N-DMT of 40 mg and duration of experience of 10 min. This is consistent with a previous study conducted in a natural setting that documented an average inhaled N, N-DMT dosage of 40 mg which induced changes in subjective and neural markers that returned to baseline after approximately 7 min\(^{37}\). Additionally, the naturalistic study conducted by Michael et al. reported a similar mean dose of inhaled DMT of 54.5 mg\(^{38}\). Somatic and physical responses to N, N-DMT administration were commonly observed in this study, most frequently the perception of somesthias, or kinesthetic hallucinations, and an auditory ringing sound; both of which have been previously ascribed to...
respectively. In the present study, communication with entities was common (75%) and comparable to rates of

mum, sacred geometry, and mandalas) and vivid, brilliant, and novel colours. Previous observations of DMT-
description of fractals, geometric shapes, and patterns (including descriptions of kaleidoscopes, a chrysanthe-
mum, sacred geometry, and mandalas) and vivid, brilliant, and novel colours. Previous observations of DMT-

nous administration of DMT "many subjects described kaleidoscopic geometric patterns that were not obviously

geometric patterns" occurred in all volunteers after receiving a high dose of intravenous DMT, although these

phenomena were recorded in only a subset of volunteers following a low dose26. Additionally, Meyer relies on

"vivid, brilliantly colored, geometric visual hallucinations" as a qualifying criterion when defining a particular

"level" of DMT experience28.

Various theories have been proposed to explain the predictable DMT occasioned visual experience from a

neurophysiologic perspective. Entoptic phenomena, defined as visual effects whose source is within the eye or

visual system, can include grids or lattice patterns, parallel lines, dots or flakes, zигzags or undulating lines, nested

curves, and spirals27,28. Entoptic phenomena featured prominently in some prehistoric art18 and were shown to be

increased after repeated Ayahuasca ingestion in naturalistic settings27. The prevalent geometric-type visualizations

identified in this study are consistent with descriptions of entoptic phenomena. Based on phenomenological

studies29, Bressloff and colleagues developed a mathematic model suggesting that the geometrical visual hallu-
cinations are determined by the patterns of connection between the retina, the striate cortex, and the neuronal

network within the striate cortex60. Furthermore, results from recent electroencephalography (EEG) studies

and a broader understanding of the hierarchical nature of the visual system support the empirically informed

hypothesis that (1) DMT reverses the inherently top-down hierarchy of visual system and (2) DMT-visions are

interpretations of propagating activity up the visual hierarchy in a bottom-up manner14,61. Dimethyltryptamine

reproducibly (1) decreases top-down alpha-band oscillations in the cortical regions involved in visual-sensory

processing, resulting in cortical excitation in these regions14,36,61–63, and (2) increases bottom-up forward traveling

waves from occipital to frontal regions36,61; both of which correlate with the intensity of the DMT-induced

visualizations36,61.

One of the most salient and discussed features of the DMT experience is encounters with seemingly autono-

mous entities, consistent with previous DMT studies6,17,27,28. In the current study, the most frequently reported

encounters involved a feminine archetype; followed by deities, divine beings, and demi-gods; aliens, celestial

beings; and extra-terrestrials; animal-based or creature-based entities (including reptilian and insectoid beings);

mythological beings (including machine elves); and the jester archetype. Shannon2, Davis et al.27, and Michael

etal.30 identified analogous entity phenotypes in their studies examining Ayahuasca and inhaled N, N-DMT, respectively. In the present study, communication with entities was common (75%) and comparable to rates of

communication documented by Davis et al. (84%)27. Positive, benevolent, comforting, caring, and welcoming

entity attributes and interactions were most frequently described consistent with previous reports27. This study

provides further recognition of a "companion-type, pedagogical, or guide-type interaction" and a "medically-type"

interaction27. Timmermann et al. predicts that the dissolution of top-down cortical control over medial temporal

lobe activity may explain the content of the DMT experience, including entity encounters17,61,64–67.

The psychedelic disruption of top-down dynamics17,61,64–67 and examining psychedelic entity experiences from the

perspective of evolutionary psychology and neurophenomenology has led to the theory that psychedelics may

partially liberate innate modules facilitating the experience of entity encounters5,68. Entity encounters cannot

be dismissed as irrelevant hallucinations without substance or meaning, nor accepted as transcendent realities5.

Winkelman has identified patterns in DMT entity experiences that reflect innate operators and modules funda-

mental to mental processes including, but not limited to, social role inferences, agency attribution, intentionality,

causality, and animacy detection1. These patterns suggest that DMT is, in part, exposing innate human tenden-

cies; however, further evidence is required to substantiate any ontological claims for these entity experiences5,69.

Pervasive and consistent themes were reported during N, N-DMT experiences included within this study and

those in other studies of the DMT-state5. These themes may be explained by the cultural experience and

background of the authors or priming of the authors prior to the experience. Another theory to account for the

pervasive themes revealed by the DMT-state is that the DMT-state is in part a probe into a collective unconscious.

The collective unconscious, a term introduced by Carl Jung, consists of a repository of knowledge and imagery

shared by all human beings due to a common ancestral experience66. It is populated with archetypes, symbols, and

instincts, which greatly influence individual unconsciousness, states of mind, and behaviours68. Jung, however,

did not provide a clear ontological account for the archetypes and the collective unconscious66,67. With advance-

ments in neurophysiology and quantum physics, a theoretical approach called "biogenic structuralism" has

been developed to ground Jung's archetypal psychology within a neurophysiologic and quantum framework70,71.

Particular attention has been placed on the relationship between the archetypes and "neurognosis", or the under-

standing of how the brain develops knowledge70. It has been suggested that neurognosis and Jung's archetypes are

related, both, to the structural organization of the brain during development and the pattern of total quantum

neural network activity70. Future approaches to study the DMT experience should attempt to understanding the

ontological origin of prevalent themes from a neurophysiologic basis14,61,64,65,67.

Similarities between near death experiences (NDE) and the psychedelic experience have been described,

including transcendence of physical form, themes of death and dying, OBEs, tunnels, descriptions of bright
lights, familiarity, sense of belonging, religiosity, experience with a void or unearthly realm, and interaction with presences or entities. These themes featured prominently within this study congruent with other studies describing the phenomenology and content of the DMT experience. Timmermann et al. investigated the relatable features of the DMT experience to NDE in a within-subject placebo-controlled study of 13 healthy volunteers. Significant correlations were observed between features of NDE following DMT administration compared to placebo. Moreover, a separate analysis was performed on volunteers who underwent an actual NDE and demonstrated comparable NDE scores between an ‘actual’ NDE and the DMT state. The discovery of an endogenous mammalian source of DMT and the similarities between the DMT state and non-drug-induced states, like NDE, support the hypothesis that DMT is responsible for inducing certain non-ordinary states of consciousness. However, to date, there is yet to be established that endogenous DMT concentrations and selectivity are commensurate with levels required to induce effects seen during the exogenous DMT state.

Poor recall of a DMT experience is widely reported in anecdotal sources and N,N-DMT has been described to have “a self-erasing mechanism” in humans, however, there are limited data documenting the frequency of this occurrence. Of the methods within the confines of this study attempted to limit the variability of the DMT product ingested within the included experiences. Only experiences reporting N,N-DMT, as defined above, were included and experiences from other forms of DMT, including synthetic DMT and 5-MeO-DMT, were excluded. Moreover, a secondary analysis was conducted excluding experiences with reported concomitant psychoactive substance use. Also, self-extraction of N,N-DMT from plant sources, such as Mimosa hostilis root bark and Acacia confusa root bark, is one of the predominant methods for obtaining N,N-DMT for naturalistic inhaled use. It should be noted that the different plant sources, in addition to variable methods of extraction, can lead to variability in the concentration of the N,N-DMT and profile of other plant alkaloids in the consumed product, which may modulate the effects of the DMT.

There are several limitations to this study. First, the naturalistic nature of not only the experience but the reporting in this study limited the ability to systematically collect data for all experience reports. This methodology allowed for the induction of novel themes and codes; however, this limits the ability to provide true incidence rates for the included variables and instead relies on rates of reported variables as a proxy for incidence. Next, Reddit users are likely nonrepresentative of DMT-users at-large and may have introduced a selection bias not controlled for in the results. Moreover, previous reports on the Reddit platform may influence the experiences and reporting of fellow Reddit users. This is evident through the recurrent invocation of specific terminology and labels for otherwise novel phenomena (i.e., “machine elves”). Reddit users are also potentially more likely to post experiences that were interesting, meaningful, consequential, and/or positive which would bias the results of this study towards the inclusion of experiences that were more notable and/or favourable. Furthermore, this bias may be especially relevant for N,N-DMT due to the reported cases of amnesic episodes identified in this study and elsewhere. Adequate characterization of psychological experiences associated with N,N-DMT would require controlling for dosage and other elements that are known to influence the experience, including the set, setting, and concurrent uses of other substances. Next, the scope of the study was limited to experiences that occurred while under the influence of N,N-DMT and did not capture information pertaining to enduring effects (i.e., continuing or long-lasting). Enduring effects are valuable and can be positive or negative and should be systematically collected in future inhaled N,N-DMT studies. Although this study provides insight into the naturalistic inhaled DMT-use, detailed examination in a controlled setting is required to substantiate the themes and patterns identified here.

Overall, this study contributes to the limited understanding the patterns of naturalistic inhaled N,N-DMT use and the descriptive phenomenological features of the N,N-DMT experience at-large.

Data availability
All requests for raw and analyzed data and materials are promptly reviewed by D.W.L (chief investigator and principal investigator). All data are anonymized and NVIVO source data with meaningful coded units are provided with this paper (see Supplemental Tables 1, 2, 3, 4, 5).

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Author contributions
D.W.L. was involved with study conceptualization; methodology development; data collection and analysis; and manuscript preparation. R.C.H., R.G., and C.T. were involved with methodology development and manuscript preparation.

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