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CASE REPORT





"Diversity makes the richness of humanity": The emergence and persistence of mental imagery after self-reported psilocybin truffles intake in an autistic woman with "blind imagination" (aphantasia): A 33-month retrospective case report

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ABSTRACT

This 33-month retrospective case report explores the impact of psilocybin truffle intake on the emergence (and persistence) of mental imagery in an autistic woman with aphantasia. Aphantasia refers to the inability to generate visual mental images, which can significantly affect individuals' experiences and cognitive processes.

The case study focuses on a 34-year-old autistic woman who had been living with aphantasia since childhood. After consuming psilocybin truffles, she reported experiencing vivid mental imagery for the first time, with the ability to manipulate and explore images in her mind. The effects persisted even after the psychedelic effects of psilocybin subsided. To document this change, she completed the Vividness of Visual Imagery Questionnaire at several timepoints. Retrospectively, she reported a baseline score of 16 (pre-intake) and a post-intake score of 80. A contemporaneous follow-up conducted 12 months later revealed a score of 59, and a subsequent assessment at 33 months showed a further increase to 68, slightly above the population average.

The findings align with previous research on the effects of psilocybin on brain connectivity, neuroplasticity, and visual processing. The case report highlights the potential of psilocybin to modulate mental imagery in individuals with (putatively congenital) aphantasia and suggests avenues for further research. Moreover, it raises questions about the classification and pathologization of aphantasia, encouraging a shift toward recognizing cognitive diversity rather than pathologizing neurocognitive differences.

KEYWORDS

autism, psilocybin, aphantasia, neurodiversity, blind imagination, mental imagery, memory

INTRODUCTION

The ability to imagine varies greatly, ranging from no visual imagery (aphantasia) to vivid mental imagery resembling a movie (hyperphantasia) (Keogh, Pearson, & Zeman, 2021).

The inability to form mental images has been described repeatedly using different terms. Galton (1880) focused on mental imagery and specifically the "different degrees of vividness with which different persons have the faculty of recalling familiar scenes under the form of mental pictures" (1880, p. 1). To his surprise, when he questioned scientists, they reported being unfamiliar with mental imagery. Later, Bernard and Charcot (1883a, 1883b) reported a

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case of sudden loss of mental vision of objects in a subject. Ribot (1919) pondered over what happens in consciousness immediately and without reflection when a person thinks, hears, or reads a general term. His analysis of nearly 900 responses revealed three types of individuals: auditory, concrete, and typographical visual types. In the latter, Ribot described individuals who see printed words but do not evoke mental images like the concrete type. This phenomenon, now known as aphantasia, is defined as "a lack of visual imagery" (Larner, 2016, p. 29). It was coined in 2015 as "congenital aphantasia" (Zeman, Dewar, & Della Sala, 2015) based on the Greek term $\phi\alpha\nu\tau\alpha\sigma\text{i}\alpha$ (phantasia), which Plato defined as the ability for mental visual representation. The phenomenon is also known as "blind imagination" (Zeman et al., 2010) and describes both the inability that occurs after illness, injury, or surgery, such as in the case of COVID-19 (Gaber & Eltemamy, 2021), myeloma (Bumgardner, Yuan, & Chiu, 2021), or head injuries (Brain, 1954), and the one present since birth (Botez, Olivier, Vézina, Botez, & Kaufman, 1985). It also encompasses the inability to form imagery while awake, which sometimes dissipates in dreams (Whiteley, 2020; Zeman et al., 2015). Faw (2009) reported that approximately 2.1% of 2,500 respondents had no mental images when trying to form a mental picture or sound, and Dance, Ipser, and Simner (2022) estimated a prevalence of aphantasia between 0.8% (completely absent visual imagery) and 3.9% (absent or weak/vague visual imagery), with no difference between males and females.

Furthermore, Keogh and Pearson (2018) demonstrated that this absence is not due to a lack of metacognition, and aphantasic individuals may employ alternative strategies other than visualization to access visual information (Liu & Bartolomeo, 2023). Blomkvist (2022) suggests that it is a disorder of episodic system processes. Dawes, Keogh, Andrillon, and Pearson (2020) highlighted a decrease in imagery in other sensory domains, less vivid and rich autobiographical memories and imagined future scenarios on a phenomenological level, fewer and qualitatively poorer dreams compared to non-aphantasic individuals, and a lack of protection against forms of traumatic symptomatology.

Moreover, Cavedon-Taylor (2022) proposes research perspectives on aphantasia, such as defining subgroups rather than just distinguishing aphantasic and non-aphantasic individuals, or the importance of using a questionnaire specifically addressing involuntary imagery during evaluation. Faw (1997) has suggested possible brain models for mental imagery disabilities and Fox-Muraton (2021) suggests that aphantasia should be understood as a grammatical rather than a cognitive question and should not be solely described negatively as a lack or inability, in order to appreciate the diversity and variability of human experience. Bainbridge, Pounder, Eardley, and Baker (2021) also suggest that aphantasia should be considered as a variation in human imagery experience, as aphantasic individuals exhibit different strategies and cognitive systems to compensate for their particularity in experimental settings.

Today, debates also revolve around the origin of aphantasia, whether it is psychogenic or organic. de Vito and Bartolomeo (2016) suggest heterogeneous factors requiring

neuropsychological, neuroimaging, and psychopathological evaluations. This latter point could play a major role in individuals reporting lifelong aphantasia (Zeman, Dewar, & Della Sala, 2016). Sitek and Konieczna (2022) have proposed that aphantasia could be an early sign of dementia. Moreover, Monzel, Vetterlein, and Reuter (2022) note that aphantasia does not meet the criteria for statistical rarity, and the impact on daily activities and personal distress is too low to justify classification as a mental disorder.

Milton et al. (2021) compared aphantasic and hyperphantasic individuals and noted comparable performance in memory tests but marked differences in autobiographical memory and imagination, as well as more difficulties in face recognition, autistic traits, introversion, higher average intelligence quotient, and less openness to experience among aphantasic individuals. However, no differences were observed in visual working memory tasks compared to the general population (Jacobs, Schwarzkopf, & Silvanto, 2018; Keogh, Wicken, & Pearson, 2021), and an attenuated emotional response occurred when reading scary scenarios, which could support the theory of emotional amplification of visual imagery (Wicken, Keogh, & Pearson, 2021). Furthermore, Dance et al. (2021) also observed that aphantasic individuals may experience visual synesthesia, have more autistic traits, and poorer social skills.

At the beginning of 2023, the author was contacted by a 34-year-old autistic woman, Anastasia ("A"), who was familiar with his work on Sukhareva's autism (Rebecchi, 2022a), neurodiversity (Rebecchi, 2022b) and states of consciousness (Rebecchi & Hagège, 2022). She claimed that psilocybin truffles modified her mental imagery and made her aphantasia disappear.

CASE REPORT

"A" was born premature at 33 weeks, and her mother died when she was one month old. "A" recalls memories of her mother talking to her, as well as moments spent with her grandmother when she was one month old or sensations felt in her mother's womb. This may resemble a case of Highly Superior Autobiographical Memory, but it differs from the one reported by Parker, Cahill, and McGaugh (2006) as "A" does not have memories by date and her memories are in the form of sensations. "A" was diagnosed with autism in 2018, and her narrative aligns with that of other adults who received their autism diagnosis in adulthood (Gellini & Marczak, 2023). Since childhood, "A" felt lonely, misunderstood, unable to comprehend people. She cried every day because she suffered from feeling like an alien, despite leading a fulfilling life with a home and a job. Observing the world, she always had the impression of watching puppets in theatrical plays and couldn't do things like everyone else. She remembers having this reflection as early as kindergarten and throughout elementary school, and every year since. According to her and their discussions, her half-brother (born from the same father) is also aphantasic and autistic (undiagnosed, but recently started the process), but he was

not born premature. She believes that both of them correspond to the autistic phenotype described by Grunya Sukhareva (translated and commented by Rebecchi, 2022a). "A" recalls that for as long as she can remember, she has always lived with a mind without images, and for her, it has always been normal, so she couldn't question it or imagine it could be different. However, she seems to have the typographical visual mind described by Ribot (1919), which means that even though she doesn't see images in her mind, she can read words projected in front of her eyes. "A" recalls, "In 1st grade, I always got a perfect score in dictation, so one day my teacher asked me, 'What's your secret to being the best?' and I replied, 'It's easy, I have the words written in front of my eyes.' The teacher thought I was cheating, even though I was just trying to explain my experience. After that, she banned all materials on the desks during dictation for everyone, but I still got a perfect score." She also explains that these subtitles disappeared after middle school when she learned that her mother had died when she was a baby and that the woman she believed to be her mother was not her mother but her stepmother (but never told her).

"A" became aware of what is called aphantasia when she was 32 years old during a discussion with a loved one about imagination, specifically focusing on her inability to visualize the spatial arrangement of her apartment without physically moving the furniture and her lack of spatial orientation when in a new place or on a different path than her usual route, which led to the mention of the concept of aphantasia. According to her, "If someone tells me 'Imagine a castle,' I can only imagine a castle that I know, like Hogwarts, and it takes the form of descriptions I have read, not images." This awareness allowed her to understand why she frequently got lost, couldn't remember routes, something she had always been criticized for, and was often called "stupid" (despite her higher intelligence, her WAIS-IV administered by a qualified psychologist indicates a heterogeneous intelligence quotient with an average of 125). Since this realization, she states that she no longer feels guilty for not being able to visually visualize things in space and no longer feels stupid. She also explains that since her mind still displays words, it has always helped her in her learning and she has what she calls a "visual memory of words." However, she reports difficulties in mathematics but not in geometry, as well as strong artistic and aesthetic sensitivities. "A" is now a store manager and emphasizes that when she has to make spatial arrangements, she has to do concrete tests to visualize the results because she cannot visualize them with images in her mind. According to her, it requires genuine questioning and reflection, allowing her to develop numerous strategies to cope with her particularities, and she describes herself as very methodical and foresighted. Moreover, she believes that aphantasia did not influence her choice of career, unlike autism. When asked if she thinks aphantasia has affected her life experiences, she explains, "I don't think it had any effect on my traumas or unpleasant experiences, and having images wouldn't have changed anything. It's just coded differently in my brain; it's not that I don't have visual memories, but rather that events have an impact regardless."

When questioned about the effects of the emergence of visual imagery, she states, "It doesn't enhance my positive autobiographical experiences either because, for me, it's the sensation that matters, not the image of the memory," before indicating that in a broader context, "I don't feel like it changes much." However, she notes that when she doesn't see people, she forgets them, and she has often been told that she lacks consideration. Her stepmother would often repeat, "A' doesn't love anyone but herself," but according to "A", this is more related to autism as she doesn't keep in touch with her loved ones nor does she reach out to them.

"A" reported that she experimented with Salvia divinorum (a plant with psychoactive properties) a few times when she was 19. With each intake, she recounts having a premonitory feeling of the next intake, which caused external visual effects (similar to what is reported by dos Santos, Enyart, Bouso, Pares, & Hallak, 2018, regarding Scotty's experiences with lysergic acid diethylamide, also known as LSD, and psilocybin).

Her first intake of psilocybin truffles occurred a few months prior. She says, "I found it incredible because it was the first time I had images in my mind, and I realized that you can play with images, zoom in, zoom out, break down colors. The possibilities with mental images are endless and not limited to the visual and sensory experiences of real life. It goes beyond that; it's an experience of pure mind. It opened up incredible possibilities for me, and I can't believe that it's not the everyday experience for people, and they do nothing about it, while I find it extraordinary. Being able to intensely live this experience for a day makes you want to revolutionize the world. You realize that your life experience is very limited compared to the reality of others. So, I think we miss out on a lot of things." From that intake onwards, "A" recounts that she began dreaming in images for the first time, although she still has few dreams. However, when they do occur, they are always in the form of images. "A" also emphasizes that since that intake, her capacity for mental imagery has continued even after the effects of psilocybin truffles have worn off. She reports that the appearance of subtitles that had previously disappeared have also returned after this ingestion, and that she can choose to activate them or not.

She did, however, wish to consume them again fourteen days later, but she did not experience anything new, and her third intake eleven days later did not bring her any new insights either. She reports consuming micro-doses seven months later on multiple occasions, but without any apparent effects. Twelve months after the first intake, "A" notes that her dreams are rarely visual, and not all the time. She starts having dreams in "impressions" again and explains, "It might be why I am someone very sensory. I am sensitive to sensory experiences in my daily life; it's very important, but it may be related to autism. So, I imagine that my autistic sensory experiences and my aphantasia are inherently linked." Twelve months after her first intake, "A" noted that she no longer sees colors in her mental imagery, but rather shades of gray. "If I had to give an example, I would say that on the internet test with six points, with a black image for 1 and a red star for 6, I was at 1 before the intake, 6 after the ingestion, and I am now between 3 and 4, so I see a star in shades of gray." "A" also reports that she can now have mental images with her eyes open or closed and that even before taking psilocybin truffles, she could already imagine sounds, textures, tastes, and smells.

Today, "A" would like to take psilocybin truffles again or engage in micro-dosing. She hopes that it can be legally used in France, as is already the case in Switzerland, the Netherlands, or Australia, for example, and that studies can be conducted to allow her to enrich her daily experience in a supervised manner. According to "A", the overall impact of psilocybin truffles on her autistic profile is neutral and has had no emotional impact. "On the other hand, now I know that not everyone has the same life experience, so I am capable of understanding why others don't understand me and why I don't understand them." She also notes, "Before this experience, I had no visual memories of my life, and after the first intake, I was able to have them. For example, one of my best memories, when I was running after the chickens at my grandmother's house when I was two years old, now materializes in visual form as well."

Since "A" contacted me after her experience with psilocybin truffles, to gain a better understanding of the evolution of her mental imagery, I asked her to retrospectively answer the Vividness of Visual Imagery Questionnaire (VVIQ) (Zeman et al., 2015). "A" answered the questionnaire in August 2023, and she reported her score (see Table 1 for the evolution of the score over time) increased from 16 before taking psilocybin truffles (the minimum score indicating no mental imagery) to 80 (corresponding to the maximum score) after the intake, to 59 at 12 months after taking (Zeman reported a mean score of 57 for the control group of individuals without aphantasia). She also explains that now that the mental imagery has dissipated the questionnaire is too vague, and she has difficulty imagining animated scenes whereas after the take she had the impression of seeing a film in high resolution with all the details. However, if it is in the form of a photograph or a postcard, she can do it. "As soon as there is movement, it doesn't work too well, and for example, it is not specified whether the lake is still. So, it's easier for me to imagine a photo, a postcard, than a real landscape." Thus, her score went from the minimum score indicating no mental imagery to the maximum score, to a

Table 1. Visual imagery scores (VVIQ) reported by participant "A" at various timepoints in relation to initial psilocybin intake

Assessment timepoint	Time since first intake	Mode of assessment	VVIQ score
Baseline (retrospective)	Before intake	Retrospective	16
Post-intake (retrospective)	Immediately after	Retrospective	80
12-month follow-up	12 months	Contemporaneous	59
33-month follow-up	33 months	Contemporaneous	68

score above the average of the control group in Zeman et al. (2015). In the months that followed, "A" consumed psilocybin again on several occasions, in the form of truffles (various strains), at low to moderate doses. These sessions were undertaken both for so-called "recreational" purposes and/or with therapeutic intent, particularly in relation to her mental health, including burnout and depression. Then, in May 2025 (33 months after the initial experience and 21 months after the previous VVIQ assessment) "A" completed the VVIQ questionnaire again. This time, her score increased to 68, slightly above the average observed in the general population. On this occasion, I informally interviewed "A" about her experience with the questionnaire. She reported: "This time, I couldn't visualize the images very clearly because I had to imagine something I had actually seen before, and I haven't seen a typical lake recently." She further added: "For the store, I imagined a place I go to several times a week, so that was quite easy to visualize. It was also easy to imagine the person, because I see him regularly." Finally, she noted: "For the sun, I recently watched a movie with scenes like that, so it was easy, except for the rainbow. Ultimately, anything I had seen with my own eyes recently was much easier to visualize." These statements again prompt us to reflect on the role of memory in shaping her mental imagery abilities.

DISCUSSION

Psilocybin and mental visual imagery

Psilocybin induces modifications in brain activity, both in connectivity and neuroplasticity. The default mode network is observed as the most active network when a person is not focused on the external world, when daydreaming or letting their thoughts wander. It can be activated when a person is deeply immersed in their thoughts and/or imagining, during task performance, thinking about others, self-reflection (introspection or self-referential thinking, for example), or when recalling memories and planning for the future. Several recent neuroimaging studies have highlighted the effects of psilocybin on the modulation of this network and associated brain regions (Carhart-Harris, Leech, et al., 2012; Davoudian, Shao, & Kwan, 2023; Palenicek et al., 2016; Preller et al., 2020; Roseman, Leech, Feilding, Nutt, & Carhart-Harris, 2014; Smausz, Neill, & Gigg, 2022).

Furthermore, other studies have shed light on the neuroplasticity effects of psilocybin, particularly regarding changes in synaptic density and morphology (de Vos, Mason, & Kuypers, 2021; Shao et al., 2021; Vargas et al., 2023). This could potentially impact the formation and retrieval of mental images. Additionally, psilocybin may enhance visual imagery by altering visual perception (Kometer, Schmidt, Jäncke, & Vollenweider, 2013; Stoliker, Preller, et al., 2022), suggesting that psilocybin could influence the ability to generate mental images. The ingestion of psilocybin is also associated with mystical experiences (Lord et al., 2019; McCulloch et al., 2022) involving vivid mental

imagery, intense sensory and emotional intensity, and altered states of consciousness.

Finally, psilocybin can modulate certain functional networks and connectivity patterns (Carhart-Harris, Erritzoe, et al., 2012; Madsen et al., 2021), such as those related to emotion processing (Barrett, Doss, Sepeda, Pekar, & Griffiths, 2020; Grimm, Kraehenmann, Preller, Seifritz, & Vollenweider, 2018; Mertens et al., 2020; Stoliker, Novelli, et al., 2022). Wicken et al. (2021) noted that the absence of visual imagery leads to attenuated emotional responses, and thus, it would be interesting to study the effects of psilocybin on cognitive and emotional connectivity to better understand the relationships between aphantasia, visual imagery, and emotion. Moreover, Petri et al. (2014) suggest that the increased communication throughout the brain caused by psilocybin could be linked to phenomena such as synesthesia, which is often reported in conjunction with the psychedelic state. This could explain the emergence of mental imagery during the ingestion of psilocybin truffles.

In conclusion, current research on the brain effects of psilocybin seems to align with what "A" experienced and observed in her visual mental imagery experience, and this case report appears to follow the line of the case reported by dos Santos et al. (2018) on the effects of ayahuasca on the mental imagery of a formerly aphantasic individual. Furthermore, this work confirms the results of the systematic review by Dos Santos, Osório, Crippa, and Hallak (2016) highlighting that serotonergic hallucinogens like psilocybin modulate the neural networks involved in visual information. It is also interesting to note that "A" mentioned having consumed S. divinorum a few times but had no effect on her aphantasia, only on external visual hallucinations, unlike psilocybin. The question now concerns potential structural and lasting changes in "A"'s brain, as well as the duration of the effects following psilocybin ingestion. Twelve months after the first intake, her mental imagery had not disappeared, and it is interesting to note it is now at the same level as the non-aphantasic control groups of the test carried out by Zeman et al. (2015). At the 33-month follow-up, her score had even slightly increased, reaching a level slightly above the population average. These findings suggest a degree of persistence in the enhancement of visual mental imagery over nearly three years. The longitudinal stability of this effect (despite additional and variable dosages, species and motivations for subsequent psilocybin use) raises important questions about the mechanisms of action and long-term effects (see for instance Griffiths et al., 2011 for a 14 months follow-up study) and plasticity (Shao et al., 2021; Vargas et al., 2023) involved.

Cognitive diversity, social norms, and psychopathologies

"A" mentioned that she views her brain as simply coded differently and confirmed after reading Ribot's writings (1919) that her mental functioning corresponds, which could also be associated with ticker tape synesthesia (Hauw, El Soudany, & Cohen, 2022), where she sees written forms of

heard words and ideas as external rather than internal as commonly reported. Could it be that her brain has adapted to a situation where it lacked the ability to generate internal visual imagery? When asked, "Do you feel disabled by this situation?", "A" retorted, "Are you crazy? I'm more brilliant than most people," before clarifying that this also applies to her autism because it's a global picture for her. "A" also emphasized that "diversity enriches humanity. I think it's important and interesting to make people realize that there are other possible life experiences, and just because we are made to believe that something is missing, doesn't mean we are deprived. We simply do things differently. It's like saying that people who don't have certain technologies (like electricity, for example) can't live. So being aphantasic is just not the same life experience as being hyperphantasic or being normal, but it's not a disorder." "A" also explained that she can easily talk about aphantasia because "people don't know about it and find it funny, in the sense of being strange, because it doesn't have negative connotations at the moment, so we can openly discuss it," unlike autism, which leads to discrimination and social rejection (Sasson et al., 2017).

This leads us to question the terms "blind imagination" or "aphantasia," concepts and terms created from a deficit perspective. Faw (2009) also points out that people without mental images are sometimes mistakenly regarded as neurotic or repressors and are not incorporated into scientific models. While the deficit perspective might be arguable in cases of illness or accidents, it is essential to distinguish what is currently referred to as "congenital aphantasia," which refers to individuals who were born and developed with a different type of thinking, from individuals with brain disorders (such as neurodegenerative diseases). Luke (2018), in his commentary on dos Santos et al. (2018), argues that the reversibility observed could indicate a functional or acquired origin, possibly linked to unresolved emotional conflict. To contrast this, Luke also reports the case of a man with apparent congenital aphantasia who, despite over a thousand dimethyltryptamine (DMT) experiences, never experienced visual imagery, reinforcing the idea that congenital aphantasia may be less responsive to psychedelicinduced change. In "A"s case, despite the presence of childhood trauma and absence neurological insult which align with a congenital profile, yet the post-psilocybin change suggests a possible neuroplastic or latent imagery capacity. These observations call into question the rigidity of current labels and may support the idea that the dichotomy between congenital and acquired aphantasia may be too simplistic to capture the diversity of cognitive profiles and responsiveness to psychedelics. This aligns with the work of Monzel et al. (2022), emphasizing the lack of relevance in classifying aphantasia as a disorder. While psilocybin will likely become a tool in the hands of doctors (Kelly et al., 2022) in an increasing number of countries, such as the Netherlands, for the treatment of depression, for example (Goldberg, Pace, Nicholas, Raison, & Hutson, 2020), the question arises regarding the pathologization of life experiences of many individuals (Frances, 2013). Could we not

consider including aphantasia within cognitive diversity, as part of the plurality of mental processes and cognitive functioning (Rebecchi, 2023), directly fitting into the neurobiological aspect of the neurodiversity concept that highlights human diversity (Rebecchi, 2024) arising from evolution (Rebecchi, 2022b, 2025)?

The future of aphantasia research should therefore be cautious about falling into the Western pitfalls of pathologization, establishing a diagnosis, and seeking remedies. On the contrary, we encourage researchers to listen to the narratives of those affected and prioritize research that emphasizes improving the quality of life for aphantasic individuals rather than seeking to cure them, similar to what is happening with autism (McDonald & Scudder, 2023). We also encourage clinicians and researchers to develop more tools to capture the mental experiences and abilities of aphantasics, moving away from the deficit paradigm, as in research aimed at better understanding autistic abilities and the intelligence of autistic individuals (Baron-Cohen, 2020; Dawson, Soulières, Gernsbacher, & Mottron, 2007; Mottron, 2011).

CONCLUSION

This article highlighted the experience of "A", an autistic aphantasic woman, following the ingestion of psilocybin truffles and the profound effects on her mental visual imagery abilities. Aphantasia is a condition characterized by the inability to generate visual images, and aphantasic individuals often rely on alternative cognitive strategies to access visual information. However, it is important to note that this case report is based on a single individual who experienced the emergence and persistence of mental imagery over time, and should be interpreted with caution. Further research involving larger samples, long-term follow-ups, and controlled studies is needed to explore the potential effects of psilocybin and their durability on the quality of life and mental imagery of aphantasic and/or autistic individuals.

The discussion of this case report focused on the two main elements arising from our description. Beyond situating this experience within the existing literature on the effects of psilocybin on brain activity and neuroplasticity, it is important to highlight "A"'s positive discourse, which provides us with insight into the richness and diversity of human cognition. Therefore, it seems essential to contextualize this case report within the framework of cognitive diversity and neurodiversity. "A" considers herself to have a unique cognitive profile that is non-pathological and leads her to live her life differently. These narrative challenges and questions the traditional, albeit recent, deficit-based perspective associated with aphantasia, a term that may require reevaluation (that is, the creation of a new word) to avoid pathologizing natural variations in human cognitive experiences and promote more inclusive and appreciative research perspectives on the human experience.

Finally, beyond the scope of the present case, it is worth noting that the initial findings (shared in a preprint version

of this article following the 12-month follow-up) elicited a substantial number of responses from a large audience. During the peer-review process, I received numerous messages and testimonies from researchers, journalists, clinicians, and individuals either curious about or personally affected by aphantasia and/or the effects of psilocybin on mental imagery and related cognitive functions. Several of these unsolicited accounts described experiences quite similar to that of participant "A", particularly regarding sudden changes in visual imagery vividness following psilocybin use. These spontaneous reactions suggest that the phenomenon described here may not be as isolated or anecdotal as initially presumed. Even if this case study remains limited by its singular and self-reported nature, the long-term effects underscore the urgent need for systematic, controlled studies exploring the relationship between psychedelic substances and mental imagery. Such investigations could help to better characterize the variability and mechanisms behind these changes, but also potentially identify subgroups for whom psilocybin might offer therapeutic or cognitive modulation benefits.

Ethical statement: The participant referred to as "A" initiated contact with the author at the beginning of 2023, expressing a desire to share her experience and contribute to ongoing research on neurodiversity, autism and states of consciousness. She voluntarily disclosed her experience with psilocybin and its apparent impact on her mental imagery. Informed consent was obtained prior to the inclusion of her data in this case report. "A" reviewed the full manuscript prior to submission and approved the content, including direct quotations and the interpretation of her experience. Although this is a single-participant case study and no formal ethics committee approval was required, the study was conducted in accordance with ethical standards for qualitative research, with particular attention to confidentiality, privacy, autonomy, and respect for the participant's perspective.

Conflict of interest: The author declares that he has no conflicts of interest.

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REFERENCES

Bainbridge, W. A., Pounder, Z., Eardley, A. F., & Baker, C. I. (2021). Quantifying aphantasia through drawing: Those without visual imagery show deficits in object but not spatial memory. *Cortex; A Journal Devoted to the Study of the*

- Nervous System and Behavior, 135, 159–172. https://doi.org/ 10.1016/j.cortex.2020.11.014
- Baron-Cohen, S. (2020). The pattern seekers. Basic Books.
- Barrett, F. S., Doss, M. K., Sepeda, N. D., Pekar, J. J., & Griffiths, R. R. (2020). Emotions and brain function are altered up to one month after a single high dose of psilocybin. *Scientific Reports*, 10(1). https://doi.org/10.1038/s41598-020-59282-y
- Bernard, D., & Charcot, J.-M. (1883a). Clinique des maladies nerveuses, Un cas de suppression brusque et isolée de la vision mentale des signes et des objets (formes et couleurs). Imprimerie Alcan-Lévy.
- Bernard, D., & Charcot, J.-M. (1883b). Un cas de suppression brusque et isolée de la vision mentale des signes et des objecs (formes et couleurs). Imprimerie Alcan-Lévy.
- Blomkvist, A. (2022). Aphantasia: In search of a theory. *Mind & Language*. https://doi.org/10.1111/mila.12432
- Botez, M. I., Olivier, M., Vézina, J. L., Botez, T., & Kaufman, B. (1985). Defective revisualization: Dissociation between cognitive and imagistic thought case report and short review of the literature. Cortex; A Journal Devoted to the Study of the Nervous System and Behavior, 21(3), 375–389. https://doi.org/10.1016/s0010-9452(85)80003-4
- Brain, R. (1954). Loss of visualization. *Proceedings of the Royal Society of Medicine*, 47(4), 288–290.
- Bumgardner, A. L., Yuan, K., & Chiu, A. V. (2021). I cannot picture it in my mind: Acquired aphantasia after autologous stem cell transplantation for multiple myeloma. *Oxford Medical Case Reports*, 2021(5). https://doi.org/10.1093/omcr/omab019
- Carhart-Harris, R. L., Erritzoe, D., Williams, T., Stone, J. M., Reed, L. J., Colasanti, A., ... Nutt, D. J. (2012). Neural correlates of the psychedelic state as determined by fMRI studies with psilocybin. *Proceedings of the National Academy of Sciences*, 109(6), 2138–2143. https://doi.org/10.1073/pnas.1119598109
- Carhart-Harris, R. L., Leech, R., Erritzoe, D., Williams, T. M., Stone, J. M., Evans, J., ... Nutt, D. J. (2012). Functional connectivity measures after psilocybin inform a novel hypothesis of early psychosis. *Schizophrenia Bulletin*, *39*(6), 1343–1351. https://doi.org/10.1093/schbul/sbs117
- Cavedon-Taylor, D. (2022). Aphantasia and psychological disorder: Current connections, defining the imagery deficit and future directions. Frontiers in Psychology, 13. https://doi.org/10.3389/ fpsyg.2022.822989
- Dance, C. J., Ipser, A., & Simner, J. (2022). The prevalence of aphantasia (imagery weakness) in the general population. Consciousness and Cognition, 97, 103243. https://doi.org/ 10.1016/j.concog.2021.103243
- Dance, C. J., Jaquiery, M., Eagleman, D. M., Porteous, D., Zeman, A., & Simner, J. (2021). What is the relationship between aphantasia, synaesthesia and Autism? *Consciousness and Cognition*, 89, 103087. https://doi.org/10.1016/j.concog.2021.103087
- Davoudian, P. A., Shao, L.-X., & Kwan, A. C. (2023). Shared and distinct brain regions targeted for immediate early gene expression by ketamine and psilocybin. ACS Chemical Neuroscience. https://doi.org/10.1021/acschemneuro.2c00637
- Dawes, A. J., Keogh, R., Andrillon, T., & Pearson, J. (2020). A cognitive profile of multi-sensory imagery, memory and dreaming in aphantasia. *Scientific Reports*, 10(1). https:// doi.org/10.1038/s41598-020-65705-7

- Dawson, M., Soulières, I., Gernsbacher, M. A., & Mottron, L. (2007). The level and nature of autistic intelligence. *Psychological Science*, 18(8), 657–662. https://doi.org/10.1111/j.1467-9280.2007.01954.x
- de Vito, S., & Bartolomeo, P. (2016). Refusing to imagine? On the possibility of psychogenic aphantasia. A commentary on Zeman et al. (2015). *Cortex*, 74, 334–335. https://doi.org/10.1016/j.cortex.2015.06.013
- de Vos, C. M. H., Mason, N. L., & Kuypers, K. P. C. (2021). Psychedelics and neuroplasticity: A systematic review unraveling the biological underpinnings of psychedelics. *Frontiers in Psychiatry*, 12. https://doi.org/10.3389/fpsyt.2021.724606
- dos Santos, R. G., Enyart, S., Bouso, J. C., Pares, O., & Hallak, J. E. C. (2018). "Ayahuasca turned on my mind's eye": Enhanced visual imagery after ayahuasca intake in a man with "blind imagination" (aphantasia). *Journal of Psychedelic Studies*, 2(2), 74–77. https://doi.org/10.1556/2054.2018.008
- Dos Santos, R. G., Osório, F. L., Crippa, J. A. S., & Hallak, J. E. C. (2016). Classical hallucinogens and neuroimaging: A systematic review of human studies: Hallucinogens and neuroimaging. Neuroscience and Biobehavioral Reviews, 71, 715–728. https://doi.org/10.1016/j.neubiorev.2016.10.026
- Faw, B. (1997). Outlining a brain model of mental imaging abilities. *Neuroscience and Biobehavioral Reviews*, 21(3), 283–288. https://doi.org/10.1016/s0149-7634(96)00026-7
- Faw, B. (2009). Conflicting intuitions may be based on differing abilities: Evidence from mental imaging research. *Journal of Consciousness Studies*, 16(4), 45–68.
- Fox-Muraton, M. (2021). Aphantasia and the language of imagination: A wittgensteinian exploration. *Analiza I Egzystencja*, 55, 5–24. https://doi.org/10.18276/aie.2021.55-01
- Frances, A. (2013). Saving normal: An insider's revolt against outof-control psychiatric diagnosis, DSM-5, big pharma, and the medicalization of ordinary life. William Morrow.
- Gaber, T. A. K., & Eltemamy, M. (2021). Post-COVID-19 aphantasia. Progress in Neurology and Psychiatry, 25(3), 16–17. https://doi.org/10.1002/pnp.714
- Galton, F. (1880). Statistics of mental imagery. Reprinted from MIND, No. XIX., July, 1880, Publisher not identified https:// wellcomecollection.org/works/w9uh6m5z.
- Gellini, H., & Marczak, M. (2023). "I always knew I was different": Experiences of receiving a diagnosis of autistic spectrum disorder in Adulthood—A meta-ethnographic systematic review. Review Journal of Autism and Developmental Disorders. https://doi.org/10.1007/s40489-023-00356-8
- Goldberg, S. B., Pace, B. T., Nicholas, C. R., Raison, C. L., & Hutson, P. R. (2020). The experimental effects of psilocybin on symptoms of anxiety and depression: A meta-analysis. *Psychiatry Research*, 284(284), 112749. https://doi.org/10.1016/j.psychres.2020.112749
- Griffiths, R. R., Johnson, M. W., Richards, W. A., Richards, B. D., McCann, U., & Jesse, R. (2011). Psilocybin occasioned mysticaltype experiences: Immediate and persisting dose-related effects. *Psychopharmacology*, 218(4), 649–665. https://doi.org/10.1007/ s00213-011-2358-5
- Grimm, O., Kraehenmann, R., Preller, K. H., Seifritz, E., & Vollenweider, F. X. (2018). Psilocybin modulates functional connectivity of the amygdala during emotional face

- discrimination. European Neuropsychopharmacology, 28(6), 691–700. https://doi.org/10.1016/j.euroneuro.2018.03.016
- Hauw, F., El Soudany, M., & Cohen, L. (2022). Subtitled speech: Phenomenology of tickertape synesthesia. *Cortex*. https://doi.org/10.1016/j.cortex.2022.11.005
- Jacobs, C., Schwarzkopf, D. S., & Silvanto, J. (2018). Visual working memory performance in aphantasia. *Cortex*, 105, 61–73. https://doi.org/10.1016/j.cortex.2017.10.014
- Kelly, J. R., Baker, A., Babiker, M., Burke, L., Brennan, C., & O'Keane, V. (2022). The psychedelic renaissance: The next trip for psychiatry? *Irish Journal of Psychological Medicine*, 39(4), 335–339. https://doi.org/10.1017/ipm.2019.39
- Keogh, R., & Pearson, J. (2018). The blind mind: No sensory visual imagery in aphantasia. *Cortex*, 105, 53–60. https://doi.org/10.1016/j.cortex.2017.10.012
- Keogh, R., Pearson, J., & Zeman, A. (2021). Aphantasia: The science of visual imagery extremes. *Handbook of Clinical Neurology*, 178, 277–296. https://doi.org/10.1016/B978-0-12-821377-3.00012-X
- Keogh, R., Wicken, M., & Pearson, J. (2021). Visual working memory in aphantasia: Retained accuracy and capacity with a different strategy. *Cortex*, 143, 237–253. https://doi.org/ 10.1016/j.cortex.2021.07.012
- Kometer, M., Schmidt, A., Jäncke, L., & Vollenweider, F. X. (2013). Activation of serotonin 2A receptors underlies the psilocybin-induced effects on α oscillations, N170 visual-evoked potentials, and visual hallucinations. *Journal of Neuroscience*, 33(25), 10544–10551. https://doi.org/10.1523/JNEUROSCI.3007-12.2013
- Larner, A. J. (2016). A dictionary of neurological signs. Springer.
- Liu, J., & Bartolomeo, P. (2023). Probing the unimaginable: The impact of aphantasia on distinct domains of visual mental imagery and visual perception. *Cortex; a journal devoted to the study of the nervous system and behavior*, 166, 338–347. https://doi.org/10.1016/j.cortex.2023.06.003
- Lord, L.-D., Expert, P., Atasoy, S., Roseman, L., Rapuano, K., Lambiotte, R., ... Cabral, J. (2019). Dynamical exploration of the repertoire of brain networks at rest is modulated by psilocybin. *NeuroImage*, 199, 127–142. https://doi.org/10.1016/ j.neuroimage.2019.05.060
- Luke, D. (2018). Reply to "Ayahuasca turned on my mind's eye": A case of acquired versus congenital aphantasia, as evidenced with DMT use? *Journal of Psychedelic Studies*, 2(2), 97–98. https://doi.org/10.1556/2054.2018.014
- Madsen, M. K., Stenbæk, D. S., Arvidsson, A., Armand, S., Marstrand-Joergensen, M. R., Johansen, S. S., ... Fisher, P. M. (2021). Psilocybin-induced changes in brain network integrity and segregation correlate with plasma psilocin level and psychedelic experience. *European Neuropsychopharmacology*, 50, 121–132. https://doi.org/10.1016/j.euroneuro.2021.06.001
- McCulloch, D. E., Grzywacz, M. Z., Madsen, M. K., Jensen, P. S., Ozenne, B., Armand, S., ... Stenbæk, D. S. (2022). Psilocybininduced mystical-type experiences are related to persisting positive effects: A quantitative and qualitative report. *Frontiers* in *Pharmacology*, 13, 841648. https://doi.org/10.3389/ fphar.2022.841648
- McDonald, T. A. M., & Scudder, A. (2023). Mind the NIH-funding gap: Structural discrimination in physical health-related

- research for cognitively able autistic adults. *Journal of Autism and Developmental Disorders*. Advance online publication. https://doi.org/10.1007/s10803-022-05856-w
- Mertens, L. J., Wall, M. B., Roseman, L., Demetriou, L., Nutt, D. J., & Carhart-Harris, R. L. (2020). Therapeutic mechanisms of psilocybin: Changes in amygdala and prefrontal functional connectivity during emotional processing after psilocybin for treatment-resistant depression. *Journal of Psychopharmacology*, 34(2), 026988111989552. https://doi.org/10.1177/0269881119895520
- Milton, F., Fulford, J., Dance, C., Gaddum, J., Heuerman-Williamson, B., Jones, K., ... Zeman, A. (2021). Behavioral and neural signatures of visual imagery vividness extremes: Aphantasia vs. Hyperphantasia. Cerebral Cortex Communications, 2(2). https://doi.org/10.1093/texcom/tgab035
- Monzel, M., Vetterlein, A., & Reuter, M. (2022). No general pathological significance of aphantasia: An evaluation based on criteria for mental disorders. *Scandinavian Journal of Psychol*ogy. https://doi.org/10.1111/sjop.12887
- Mottron, L. (2011). The power of autism. *Nature*, 479(7371), 33–35. https://doi.org/10.1038/479033a
- Palenicek, T., Tyls, F., Viktorinova, M., Prokopcova, D., Korcak, J., Androvicova, R., ... Horacek, J. (2016). PM502. Effect of psilocybin on EEG brain connectivity in healthy volunteers – Preliminary report. *International Journal of Neuro*psychopharmacology, 19(Suppl 1), 83. https://doi.org/10.1093/ ijnp/pyw041.502
- Parker, E. S., Cahill, L., & McGaugh, J. L. (2006). A case of unusual autobiographical remembering. *Neurocase*, 12(1), 35–49. https://doi.org/10.1080/13554790500473680
- Petri, G., Expert, P., Turkheimer, F., Carhart-Harris, R., Nutt, D., Hellyer, P. J., & Vaccarino, F. (2014). Homological scaffolds of brain functional networks. *Journal of the Royal Society Interface*, 11(101), 20140873. https://doi.org/10.1098/rsif.2014.0873
- Preller, K. H., Duerler, P., Burt, J. B., Ji, J. L., Adkinson, B., Stämpfli, P., ... Vollenweider, F. X. (2020). Psilocybin induces time-dependent changes in global functional connectivity. *Biological Psychiatry*, 88(2). https://doi.org/10.1016/j.biopsych.2019.12.027
- Rebecchi, K. (2022a). *Autistic Children Grunya Sukhareva*. Kindle Direct Publishing.
- Rebecchi, K (2022b). *La neurodiversité (Neurodiversity)*. L'Harmattan. Rebecchi, K. (2023). Neurodiversité et autisme: entre handicap et différence, science et idéologie (Neurodiversity and autism: Between disability and difference, science and ideology). *Journal of Neurodiversity*, 1(1), 25–51. https://doi.org/Hal-04142256. https://osf.io/preprints/psyarxiv/bksxn_v1.
- Rebecchi, K. (2024). "Early childhood autism, Asperger type", by H. Asperger (1982). *History of Psychiatry*. https://doi.org/10.1177/0957154x241248261
- Rebecchi, K. (2025). Beyond "autism spectrum disorder": Toward a redefinition of the conceptual foundations of autism. *AIMS Medical Science*, *12*(2), 193–209. https://doi.org/10.3934/medsci.2025012
- Rebecchi, K., & Hagège, H. (2022). Educating through attentional states of consciousness, an effective way to develop creative potential? *Frontiers in Education*, 7. https://doi.org/10.3389/feduc.2022.774685
- Ribot, T. (1919). L'évolution des idées générales. Librairie Félix Alcan.

- Roseman, L., Leech, R., Feilding, A., Nutt, D. J., & Carhart-Harris, R. L. (2014). The effects of psilocybin and MDMA on between-network resting state functional connectivity in healthy volunteers. *Frontiers in Human Neuroscience*, 8. https://doi.org/10.3389/fnhum.2014.00204
- Sasson, N. J., Faso, D. J., Nugent, J., Lovell, S., Kennedy, D. P., & Grossman, R. B. (2017). Neurotypical peers are less willing to interact with those with autism based on thin slice judgments. *Scientific Reports*, 7, 40700. https://doi.org/10.1038/srep40700
- Shao, L. X., Liao, C., Gregg, I., Davoudian, P. A., Savalia, N. K., Delagarza, K., & Kwan, A. C. (2021). Psilocybin induces rapid and persistent growth of dendritic spines in frontal cortex in vivo. *Neuron*, 109(16), 2535–2544.e4. https://doi.org/10.1016/ j.neuron.2021.06.008
- Sitek, E., & Konieczna, S. (2022). Does progressive aphantasia exist? The hypothetical role of aphantasia in the diagnosis of neuro-degenerative diseases. *Behavioral and Brain Sciences*, 45, E299. https://doi.org/10.1017/S0140525X21002375
- Smausz, R., Neill, J., & Gigg, J. (2022). Neural mechanisms underlying psilocybin's therapeutic potential The need for preclinical in vivo electrophysiology. *Journal of Psychopharmacology* (Oxford, England), 36(7), 781–793. https://doi.org/10.1177/02698811221092508
- Stoliker, D., Novelli, L., Vollenweider, F. X., Egan, G. F., Preller, K. H., & Razi, A. (2022). Effective connectivity of emotion and cognition under psilocybin. https://doi.org/ 10.1101/2022.09.06.22279626

- Stoliker, D., Preller, K. H., Anticevic, A., Egan, G. F., Vollenweider, F. X., & Razi, A. (2022). Neural mechanisms of imagery under psilocybin. https://doi.org/10.1101/2022.09.07.22279700
- Vargas, M. V., Dunlap, L. E., Dong, C., Carter, S. J., Tombari, R. J., Jami, S. A., ... Olson, D. E. (2023). Psychedelics promote neuroplasticity through the activation of intracellular 5-HT2A receptors. *Science*, 379(6633), 700–706. https://doi.org/10.1126/ science.adf0435
- Whiteley, C. M. K. (2020). Aphantasia, imagination and dreaming. Philosophical Studies, 178. https://doi.org/10.1007/s11098-020-01526-8
- Wicken, M., Keogh, R., & Pearson, J. (2021). The critical role of mental imagery in human emotion: Insights from fear-based imagery and aphantasia. *Proceedings. Biological Sciences*, 288(1946), 20210267. https://doi.org/10.1098/rspb.2021.0267
- Zeman, A. Z., Della Sala, S., Torrens, L. A., Gountouna, V. E., McGonigle, D. J., & Logie, R. H. (2010). Loss of imagery phenomenology with intact visuo-spatial task performance: A case of 'blind imagination'. *Neuropsychologia*, 48(1), 145–155. https://doi.org/10.1016/j.neuropsychologia.2009.08.024
- Zeman, A., Dewar, M., & Della Sala, S. (2015). Lives without imagery Congenital aphantasia. *Cortex*; A Journal Devoted to the Study of the Nervous System and Behavior, 73, 378–380. https://doi.org/10.1016/j.cortex.2015.05.019
- Zeman, A., Dewar, M., & Della Sala, S. (2016). Reflections on aphantasia. *Cortex*, 74, 336–337. https://doi.org/10.1016/j.cortex.2015.08.015