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ORIGINAL ARTICLE

Disordered, deficient, and dehumanised: How biomedical and cognitive approaches are limiting our understandings of aphantasia

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Abstract
Background: Aphantasia is neither officially a mental health disorder nor a cognitive disability, but is increasingly being framed in these ways. Aim: The current study seeks to explore how aphantasia is positioned by published research, science communication, and social media posts. Method: Two types of data were collected: published research about aphantasia, and content by researchers and the public across several social media sites and forums. Data were extracted, transcribed, and then analysed using a discursive approach. Particular attention was given to the interpretative repertoires researchers and the public draw on when discussing aphantasia. Results: People with aphantasia were largely positioned as disordered, deficient, and dehumanised by researchers from biomedical and cognitive perspectives. There was a lack of lived experience led research into aphantasia. Conclusions: Biomedical and cognitive lenses seem limited in their ability to meaningfully contribute to the field of understanding aphantasia. Drawing on Mad and Crip studies, we can see in the literature about aphantasia the emergence of a field that seeks to try to control or fix aphantasia despite a lack of evidence that such an approach is necessary.

Keywords
epistemic injustice, biomedical dominance, lived experience exclusion, lived experience leadership, aphantasia

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Introduction

Aphantasia has been described as a condition “in which the mind does not produce visual imagery or sensory representation” (Fox-Muraton, 2021, p. 416). While some explicitly refer to aphantasia as a disorder (e.g., Leaf, 2018), there remain questions as to whether aphantasia should be considered a disorder or not (Monzel et al., 2023). Even researchers who avoid labelling aphantasia as a condition or a disorder still refer to the experience of

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people with aphantasia as experiencing deficits (Blomkvist & Marks, 2023), and this deficit-model of aphantasia appears to be common across much of the emergent research which refers to it as a “deficit of mental imagery” (Cavedon-Taylor, 2022), “a deficit of visual imagery” (Takahashi & Gyoba, 2020), a “deficit of sensory imagination” (Arcangeli, 2023) or a “visual-object deficit of imagery” (Blazhenkova & Pechenkova, 2019).

Aphantasia then exists in a liminal space in relation to Mad Studies. It has not (yet) been made a form of Madness such as through the creation of diagnostic criteria. Nonetheless, people with aphantasia appear to be increasingly positioned as *disordered*, and have their capacity to learn (Costandi, 2016) or even love (Tallinter, 2020) questioned. Recent research publications have linked aphantasia with psychopathologies. One article, for instance, sought to explore differences in mental health symptom profiles between people who do and people who do not experience aphantasia (Mawtus et al., 2024). Another aimed to outline potential relationships between aphantasia and its relation to psychopathology (Cavedon-Taylor, 2022). Further research is emerging relating aphantasia to specific conditions, such as a recent doctoral thesis about the relationship between aphantasia and post-traumatic stress disorder, which noted an “overlap in transdiagnostic criteria” between the conditions (Stoltenberg, 2025, p. 67).

Even if not officially recognised as a disability or disorder, it is through such a lens that some understand aphantasia. It has even been noted that people with aphantasia “have the possibility to pass as not having a disability” (Blomkvist & Marks, 2023). Some people with aphantasia may have internalised the labelling of disability, suggesting that non-aphantasics are “completely normal” (Sato & O’Toole, 2023), that people with aphantasia “suffer” with it (e.g., Lesak, 2018), or talk about wanting to be “taught” to recover from it (Sato & O’Toole, 2023). In relation to this last point, we have had different experiences of this: HS has felt curious and attempted to visualise, but out of curiosity rather than a feeling of deficiency. She does not have a feeling of deprivation as she can imagine concepts, and can draw from (non-visual) memory. The more she tries to concentrate to make an image the less clear the concept becomes. BS has not attempted to visualise as he has no idea how or why one would even try.

Taken together, aphantasia seems to be constructed as a mental deficiency although perhaps not quite in the same way as more established disorders or disabilities. Much of the emergent research about aphantasia is being produced by cognitive or biomedical researchers, who seem to be drawing on understandings of disorders or disabilities. Thus, further exploration of how aphantasia is being constructed as a disorder or disability may have implications for both Mad Studies and Crip Studies which have long histories of pushing back on dominant cognitive and biomedical frameworks of understanding.

One particular aim of Mad Studies (and other movements that seek to redress epistemic injustice) is to value lived experiential expertise that has often been ignored in psychiatry, psychology, psychotherapy, and allied disciplines (Sinclair et al., 2023). In contrast to conventional approaches, Mad Studies offers opportunities to and creates spaces for power imbalances against people working from lived experience perspectives to enrich understandings of phenomena of interest (Bellingham et al., 2021). Indeed, conventional academic approaches may seek to supress lived experience perspectives to be seen as 'objective' science (Jones et al., 2021). In the current study, we seek to create a more epistemically-just understanding of aphantasia, by pushing back on psychocentrism (i.e., ways in which certain human experiences are viewed as pathologies emerging from the mind or body of an individual; LeBlanc & Kinsella, 2016)

The overarching aim of the current study is to explore understandings of aphantasia by reviewing both the published literature and science communication or social media posts about aphantasia.

Methods

Design

This study used an exploratory design to focus on discourses of aphantasia within mainstream research outputs and in science communication about aphantasia research.

Reflexivity

We have thought a lot about the tension of drawing on Mad and Crip Studies to explore the construction of a 'condition' that many would regard as outside of madness or disability. We think of ourselves as more or less sane and abled but note the timely importance of this study given the growing positioning of aphantasia as liminally Mad, and liminally Crip. We would not want to suggest that our experiences of aphantasia or others' perceptions of our experiences of aphantasia are comparable to people's lived experiences of violence, exclusion, or marginalisation due to mental ill health or disability. Indeed, many people (including ourselves) do not find out they experience aphantasia or that their experience of aphantasia is noteworthy until well into adulthood. (Similarly, we would point out that people *without* aphantasia do not find out until later in life that not everyone has phantasic perception, but this is often ignored in the context of research about what is considered to be a minority experience).

Although aphantasia is not currently policed or regulated in the same way as mental ill health or disability, we are concerned about the growing dehumanising discourses perpetuated by mainstream research, and being reproduced by media and in popular accounts of aphantasia. Despite being positioned by these discourses as deficient, or being judged as unable to experience emotions like people who can produce visual imagery, in this study we draw on our own rich experiences of perception. Thus, we see the political aims of Mad Studies and Crip Studies relevant to the trend of aphantasia becoming biomedicalised, and in turn being seen as something the psych complex should explore and even 'treat'. The way that Mad Studies creates space for lived experience perspectives to redress epistemic injustices (Sinclair et al., 2023) provides us with an opportunity to apply our lived experiences of not producing visual imagery to explore and critique the increasingly psychocentric discourses of aphantasia.

Data collection

Data were collected across two modalities: First, Scopus was searched for all publications in which the term ‘aphantasia’ was included within the article title, abstract, or keywords. While the aim was not to necessarily conduct a systematic review per se, this search yielded 87 documents (including 69 empirical articles). All 87 full text documents were read, and data were extracted about how aphantasia was constructed within each text.

Second, to include discourses of aphantasia produced or reproduced through outreach and science communication about aphantasia research, a search was conducted for “aphantasia” in podcasts, TikTok, YouTube, Reddit, and Google more broadly. Rather than try to include all outreach about aphantasia research, our approach was to try to include the most popular outputs and/or content coming up at the top of each app’s search pages. Written content was copied into our data management template, and audiovisual content was transcribed for further analysis.

Data analysis

Extracted data were analysed using a discursive approach, appropriate for exploration of how discourse constructs attitudes, feelings, and subjectivities (Scholz & Stewart, 2021). Analysis was informed by the principles of discursive psychology (Potter, 2012). Specifically, we were interested in the interpretative repertoires (or the "recognisable patterns of language reflecting 'what everyone knows', or tropes", Scholz & Stewart, 2021) available to researchers and science communicators, and the way that perspectives of people with lived experience of aphantasia were drawn upon, challenged, or ignored.

Discursive approaches do not seek to “vilify particular individuals [who] use potentially problematic or oppressive discourses” (Scholz et al., 2019, p. 169). Nonetheless, discourses that position people with neurodivergences as disordered, disabled, deficient, or dangerous are linked to systems that have marginalised and been violent towards people labelled as such. We focus on such discourses as they are a site in which inequities are reproduced, but they also can be critiqued and challenged to support paradigmatic change.

A discursive approach focuses on how discursive devices achieve specific actions; these devices could include, for example whether claims are framed as statements or questions, if the speaker draws on specific metaphors or turns of phrase, or if disclaimers are used to ‘hedge’ claims (Schaepkens et al., 2023). In terms of practical steps to undertake such an analysis, we first familiarised ourselves with the data through repeated reading, watching, or listening. During this process preliminary notes were made about patterns in and novel aspects of the data – and we found that aphantasia was most often positioned as a “problem”. Second, we searched the dataset for diverse extracts representing the different ways aphantasia was positioned or constructed as a problem. Third, each extract was analysed to examine its discursive features and content (i.e., how it was said and what was said). Last, we compared and synthesised these analyses to describe constructions of aphantasia across the dataset. All these steps were iterative and collaborative, with the authors developing the final analysis through discussion about each data extract and the overall dataset. As such the analysis was both inductive (driven by observations of the data), and deductive (through application of our lived experiences of aphantasia as a lens through which to understand analysis).

Results

Our analysis focused on three ways in which people with aphantasia were positioned by common repertoires drawn on and produced by public discourses in research and social media. Specifically, they are positioned as disordered, deficient, and dehumanised. Each of these positionings are linked, and we discuss each in turn below. Our analysis then also explores the erasure of people's lived experience in developing theory and knowledge about aphantasia.

Disordered aphantasics

Several researchers explicitly claim that aphantasia is not a disorder. They sometimes offer alternatives, suggesting for instance that aphantasia **"**should be understood as neutral neurodivergence" (Monzel et al., 2023) or as an "individual difference" (Blomkvist & Marks, 2023). Nonetheless, the discourses used to discuss aphantasia in research, science communication, and social media often position it as disordered. The first way in which this was achieved was by positioning it as abnormal. It seems that people who experience aphantasia might be statistically less common than people who produce visual imagery (Dance et al., 2022). There are, of course, other human experiences that are statistically less common (take, for instance, left-handedness which is not (any longer) something to be ashamed about) so it is not rarity alone that positioned aphantasia as disordered. The statistical abnormality justifies the presumption of normalcy of forming mental imagery which in turn positioned aphantasia as disordered. For instance, social media posts responding to the question "when did you realise you had aphantasia" were numerous (Zhao, 2019) – but people rarely respond to the question "when did you realise you did not have aphantasia" (Scholz, 2022) likely because the experience of phantasia is thought of as completely normal and remains unquestioned.

The idea that people find out they have aphantasia (rather than people find out that their way of perceiving imagination is not how everyone perceives) centres aphantasia as a problem. In this way, published academic literature about aphantasia positions it as a disorder, noting "aphantasics often learn about their condition relatively late in life" (Monzel et al., 2021, p. 2488). Here the focus on aphantasia – rather than on differences in imagination – means that the authors fail to note it also must be the case that other people learn they are phantasic relatively late in life. If aphantasia was not considered a disorder, then it would not be so much that you 'find out you have aphantasia', but more that you find out some people do and some others do not conjure mental imagery. Further, the fact that people often only realise later in life that there are other ways to imagine besides their own indicates that they have had years of functioning "ably" within society, which would suggest no "disability" per se.

Other research refers to aphantasia as being at one "extreme" of a spectrum of visual imagery (Zeman et al., 2020). A focus on aphantasia as a difference in ability constructs it as disordered. Further, the same article goes on to suggest that aphantasia may be linked to a "semantic and factual" (as opposed to an "episodic and sensorily-rich") mode of human information processing (Zeman et al., 2020, p. 438). Again, to suggest that the very information processing is different and to assume that the processing of people with aphantasia is less sensorily rich or more factual without any evidence, or without considering the experiences of people with lived experience of aphantasia is problematic.

The second way in which aphantasia was constructed as a disorder was through the rhetoric of disappointment being the most common reaction to finding out or having aphantasia. For instance, Blomkvist and Marks (2023, p. 222) argue that there would be "negative effects on one's wellbeing" for those who had been diagnosed with aphantasia if they instead just had low visual imagery. Personally, understanding our own experiences of visual imagery has not impacted our wellbeing. Nor do we believe that experiencing aphantasia has had any effect on our ability to understand, listen, recall or engage with information, or integrating details into our overall understanding. It is thus hard to see why a 'diagnosis' (correct or otherwise) of aphantasia would have an impact on one's wellbeing – unless of course people's understanding of aphantasia has been shaped by these problematic discourses positioning it as a disorder.

The third way in which aphantasia is constructed as a disorder is related to how the dominant way of understanding it is through the biomedical or psychological lens. Most of the research produced about aphantasia has been conducted from cognitive psychology or biomedical perspectives. Even researchers who advocate that aphantasia should be thought of as an *individual difference* rather than a condition (Blomkvist & Marks, 2023) propose that aphantasia must be due to a malfunctioning system:

> Most importantly, it remains unclear whether aphantasia is a condition resulting from a malfunction in a system producing visual imagery, or if it results from a malfunction in a different system
>
> Blomkvist (2023)

The implication in this extract is that aphantasia is caused by malfunction, further constructing aphantasia as a disorder. Throughout their research Blomkvist and Marks (2023) are explicit and clear that they believe the term "individual difference" (a term strongly and historically rooted in the psy-complex; Jarl, 1958) is more appropriate to describe aphantasia than "condition" which is "loaded with the connotations of a medical diagnosis". At the same time they speculate about aphantasia involving "malfunction" with an "underlying mechanism" or "underlying cause" which is the language of disorder rather than of individual differences (Blomkvist & Marks, 2023). Not only then does it seem an illogical argument to make – how can it be both something they position as disordered but also something they argue is not a disorder? – but grounding this kind of theory-making in a bio-psychological perspective rather than a lived experience perspective seems epistemically unjust. It also seems that researchers have not questioned their own biases, assuming that aphantasia is a malfunction, and forgetting that people with phantasia may be lacking in ways that are not understood yet in how they process information.

Privileging biomedical interpretations over lived experience of aphantasia is rife in the academic literature, but also in the broader communications about aphantasia. A compelling example of this was in the Sci Guys' podcast about aphantasia (Sci Guys, 2020). The Sci Guys provide a weekly podcast about science, and their episode about aphantasia was held live at an annual video influencer conference. It was particularly compelling because the 3 hosts all happened to be aphantasic (two who did not have any visual imagery, and one who could make out only vague shapes; Sci Guys, 2020; timestamp 3:02). Given the ostensibly low prevalence of aphantasia in the community (which we would question, given that most people assume the way they experience imagination is the same way others do too), it was perhaps statistically anomalous that all 3 hosts had aphantasia.

At various points of the episode (and particularly at timestamp 33:07), an audience member who introduces themselves as a "biomedical science student" appears to struggle to explain aphantasia through a narrow biomedical lens:

> So funnily enough at uni at the moment I'm doing a project about memory formation. so basically there's nerves in your brain called neurons and basically memories are formed by the same pattern firing over and over again so what's probably happening with aphantasia is that pattern isn't forming and you're not getting that sort of thing because aphantasia is based upon stuff you've already seen so if you're visualizing it you have to have already seen it like when I was visualising that thing I saw a football because I sort of like was talking about football yesterday and Arsenal not playing and stuff so it's that pattern of neurons aren't gonna be firing enough and memories are formed by patterns forming consistently and happening consistently
>
> Sci Guys (2020)

Telling, here, is that the student positions themselves (and is positioned by the Sci Guys) as the expert in the room despite the fact that all 3 hosts had a lot more lived experiential knowledge of aphantasia than the student. That is, biomedicine is seen as the 'correct' framework through which to explain these experiences. However, despite claiming their biomedical expertise, the student then switches to drawing on their own experience of only being able to visualise something they had recently been primed to do. Trying to map that on to a biomedical framework, without knowing whether their own experience was in fact reflective of others' experiences is one way in which the primacy of a biomedical explanation is unquestioned. In this way the hosts' experiential expertise of aphantasia was positioned as less important than hypothetical propositions about neural processes underpinning mental imagery.

Deficient aphantasics

Related to the construction of aphantasia as disordered, discourses of aphantasia also position those who experience it as deficient. Throughout much of the published literature, forming mental images was seen as the "ability" (Arcangeli, 2023). As people with lived experience of aphantasia, we found it somewhat bizarre at how easy it was for others to assume that forming mental imagery was the 'ability' (in turn aphantasia being positioned as the in- or dis-ability). Rather, would it not be the case that being limited to visual imagery, or being plagued by visual imagery could be considered as the inability to focus on your imagination without being distracted by visualising? However, having established visual imagery as the *statistical* norm, aphantasia becomes considered abnormal, and in turn deficient compared to phantasia.

Although largely associated with deficiencies in ability, some researchers do consider (at least hypothetical) advantages of or abilities arising from aphantasia, such as in the following extract:

> Further research should investigate exactly what other behavioural and cognitive functions are impaired or even boosted in aphantasics
>
> Keogh & Pearson (2018)

Although it is good to see researchers understand that not having visual imagery could be linked to better behavioural and cognitive functions, the word "even" in this extract positions such potential benefits as counter to the normative expectation. This is a representative example of ways in which researchers conceded there could be hypothetical benefits to aphantasia, but in doing so perpetuate and reproduce the idea that such benefits are unlikely.

A rare instance in which aphantasia were positioned as having "enhanced ability" was for being able to "live in the present" (Zeman, 2020), which was considered to be due to "their inability to sensorily represent both the past and the future" (Arcangeli, 2023, p. 30). Assumptions about the ability of people with aphantasia to live in the present were largely unfounded claims – there seemed to be no evidence beyond such statements and certainly no quotes from or experiences of people with aphantasia were used to support these claims.

Indeed, accounts of experiences of people with aphantasia seem to show that such claims are unfounded, such as in the following extract from a post on the Aphantasia subreddit:

> Definitely on several levels at once. I'll be thinking about what I'm doing, reflecting on past events, worrying about or planning for future ones, solving ongoing problems, etc., at the same time. A little of that is mentally verbalized but most of it just happens without internal words.
>
> orarewehamster (2019)

Posts on various social media sites from people with aphantasia reflect orarewehamster's experiences about overwhelming rumination – just not perceived through visual imagery. Thus, the assumption that people with aphantasia are better at 'living in the moment' – one of the few benefits of aphantasia from our data corpus (as presumed from a non-lived experience perspective, e.g., Arcangeli, 2023) seems to be false.

Taken together, even if one was to consider at face value the claim that they want aphantasia to be considered just as an individual difference (Blomkvist & Marks, 2023), the positioning of people with aphantasia as deficient in relation to those with phantasia serves to construct the experience of aphantasia as less abled than, and inferior to the 'norm'.

Dehumanised aphantasics

Another concerning discourse within the data corpus related to how having the experience of aphantasia somehow denied people their full humanity. Take, for instance, the following extract from a conceptual article published about aphantasia:

> Certainly we can lose, or be born without, such abilities, but this does not undermine the fact that we had, or could have had them, precisely because we are human
>
> Arcangeli (2023)

This extract has obviously been chosen for how dramatically it portrays being able to visually imagine as inherently human. The statement is quite problematic in at least three specific ways: first, because it could be said not just about abilities to produce visual imagery, but about almost anything (e.g., right-handedness, being able to sleep for eight hours, or solve a multiplication question); second, because we have no idea (and no way to truly know) if visual imagery is a human trait nor even what other humans imagine; and third, because the exact opposite could also be true: i.e., one could say: " *Certainly we can lose, or be born without [the ability to imagine without visualisation], but this does not undermine the fact that we had, or could have had [the ability to imagine without visualisation], precisely because we are human".*

Another discourse of dehumanising people with aphantasia was in likening their minds to computers, such as in the following from the aphantasia subreddit forum:

> Aphants' minds work like computers. It's visualizers whose minds do not. Your brother is either an aphant or he's wrong about his mind working like a computer. Computers process data. They can't see the data. They can't hear, smell, or taste the data. It's all just numbers to the computer itself. It's the users who see and hear the data patterns in a computer converted into images and sound. The computer itself isn't even "aware" that digital ones and zeros exist, but they comprise its very "thoughts"
>
> JohnBoyTheGreat (2023)

Analogies of the mind to computers are not new, and other groups (notably people with ADHD; e.g., Dodson, 2021) have been said to have minds like computers. Indeed, there is a broader cultural repertoire likening human brains to computers (Brette, 2022) which leads to a range of ways of interpreting various cognitive phenomena (such as likening human depression to a computer virus; Salsbury, 2023) In fact, what we find concerning about this discourse is not the computer analogy itself, but rather the limiting way in which *all* people with aphantasia are thought of as processing imagination in the same, computer-like way. The emergence of interest in aphantasia could – and should – have highlighted that so little is understood about how we all process imagination, and in turn research could focus on understanding the rich and diverse ways all humans imagine. Instead, likening all people with aphantasia to computers and therefore as different to others (people who produce visual imagery who are positioned by this analogy as more human) dehumanises us and robs us of developing more holistic understandings of our ways of experiencing imagination.

The third discourse dehumanising people with aphantasia was perhaps most prevalent across the data corpus, and related to the way that people assumed being able to produce visual imagery (particularly of loved ones) was somehow linked to the degree of emotional connection with others. One tongue-in-cheek TikTok of daughters singing a song about their father's experience of aphantasia was particularly representative of this discourse:

> Daughters: What about our faces?
> Father: Nope. All I see is black. I can't see anything
> [the daughters look upset, as if this has some emotional implication]
>
> Sugarcoatedsisters (2023; timestamp 0:20-0:27)

These content creators use humour and music, and so the sadness portrayed is likely to have been caricatured – and may not necessarily represent their own feelings about their father not being able to visualise their faces. However, it still represents and reproduces the idea that they might feel unloved knowing that their father can see only “black” when he thinks about them.

The idea that you need to visualise someone you love to be able to love them is perhaps taken to an extreme by a sensationalist story appearing on Wired about aphantasia (Wired UK, 2021). The piece is bookended with a focus on people with aphantasia who talk about being worried about their emotional relationships, including one who suggests the reason he was able to “move on quite quickly” (timestamp 1:15) after his mother’s death compared to others in his family was because of not producing visual imagery of her. He later goes on to say:

> What I struggle with sometimes is when am I going to feel that again?
> When am I going to feel the same way I felt when I'm with her?
> Because I can't be with her.
>
> Wired UK (2021; timestamp 11:58)

While this Wired video does go on to talk about some of the positives that might come from aphantasia (about it not limiting creativity, for instance) this construction of people with aphantasia as emotionally lacking is largely left unresolved. It seems sensationalist particularly given that a) surely even people without aphantasia do not actually conjure mental images about any particular laved one all the time, and b) even if they did, it would not mean that they loved them any more or less – after all, conjuring intense visual imagery of someone could just as easily mean they hate them as they love them. It also seems to draw on a repertoire that one is supposed to love one’s mother, and that not doing so would be unnatural – further positioning people with aphantasia as less human. We would counter that if people with phantasia need to visualise their loved ones to know that they loved them or to know they had fond memories or feelings of times they shared with them, then it is them who are limited and lacking abilities – not people with aphantasia. For us (BS and HS) even if we cannot visually imagine them, we have the very rich experience of recalling the essence of a loved one when even when they are not present, including those who have died.

Lack of lived experience led epistemology

Across studies about aphantasia, we did not observe authors’ experiences of aphantasia or phantasia made explicit or clear in terms of how these experiences shaped (or did not shape) epistemic processes. Rather, researchers who have spoken elsewhere about experiencing aphantasia (such as in Sato & O’Toole, 2023) appear to work solely from biomedical or psychological frameworks. It was good to see one paper in which it was made clear that “Three participants (including the first author) were self-reported aphantasics” (Arnold et al., 2023, p. 2) but again the implications of this for the epistemic processes of the research was not discussed – although we are hopeful that future research will explore this further.

Researchers who we assume to be phantasic (because of the way they speak about aphantasia as if it were abstract) also fail to acknowledge their lack of experience of aphantasia or the impact this lack might have on their ability to understand and interpret their own findings. For most readers this will be unsurprising – after all most research about mad people, fat people, queer people, disabled people etc is similarly flawed. However, in aphantasia research (which has proliferated within the last decade), we see how the lack of lived experience led research, and the lack of reflexivity about experience are limiting the value of knowledge produced.

Discussion

The amount of research and media about aphantasia has increased significantly in recent years. Unfortunately, much of the discussion about aphantasia positions it as disordered or as dehumanised, and very little lived experience research has been conducted. While the media has a responsibility to appropriately communicate about science, researchers who have proudly written about "extensive media interest" (Zeman et al., 2020, p. 427) are also responsible for their contribution to dehumanising people with aphantasia as disordered and deficient.

As an emerging field of knowledge, the production of aphantasic people as a disordered, dehumanised identity is still forming. Drawing on the challenges posed by Mad and Crip studies to look beyond limited biomedical or cognitive approaches, we suggest that lived experience led research and critical examination of the biases held by cognitive and biomedical researchers would lead to more meaningful contributions to the field. As such perhaps one of the most important contributions of this study is to mainstream biomedical or cognitive researchers of aphantasia in the form of another call to look beyond the biases of these disciplines.

A potential implication of our findings relates to the way that we make information accessible to people with all kinds of abilities or modes of imagination. Our cognitive processes are multisensory, and so learning materials for students that are multisensory are more effective (Shams & Seitz, 2008). While the links between experiences of visual (or not visual) imagery and learning are still poorly understood, the current study suggests that we should not think of people with aphantasia as lacking capacity to learn. Similarly, while we (BS and HS) can easily understand text but also visual cues, we notice that others with strong visual imagery might best respond to visual instructions. Thus, ensuring information (such as education, digital media, information sheets etc) is provided in multiple modalities might improve experiences for all – aphantasic or otherwise.

Conclusions

Aphantasia is being made a disorder, a disability, and a deficit by current epistemic processes. It is as if our very imaginations are the next site for the psych-industrial complex to colonise. However, in doing so, it is failing to see human imagination in all its richness. Drawing comparisons to Mad and Crip studies, then, we think it would be a shame if the "dominance of the biomedical realm" (McMahon, 2023, p. 2) were to shackle people with aphantasia and society more broadly into thinking about imagination in such unimaginative ways. For Mad people, the consequences of stereotypes being justified by such limiting biomedical epistemics have included carceral, colonial, and medical authority and violence (Costa & Ross, 2023).

We believe it is important to re-state that we do not think that the creation of a disordered, deficient, and dehumanised identify of aphantasics is in any way at a similar level to ways in which Mad and Crip people are oppressed. Rather, we believe this study on the emerging body of knowledge that is beginning to construct aphantasia as altogether lesser contributes a relevant 'case study' to both Mad and Crip Studies. It shows how something as internal and benign as ones own imagination can be treated by the psy-complex. Crip and Mad bodies have long been deemed in need of change, control, and repair (Thorneycroft, 2020). In aphantasia, we see something that could just as easily be considered an ability being constructed as a disordered, deficient, and dehumanised, which in turn shows how arbitrarily and unjustly certain ways of being can be treated as a disability.

More mainstream research into aphantasia often concludes with statements such as "research still needs to be done to understand aphantasia and the ways in which it affects individuals and their lived experience of the world" (Fox-Muraton, 2021, p. 427). It seems extra limiting, then, that we are ignoring the potential that lived experience researchers could bring to the field. Without such contributions and critique of biases of biomedical and cognitive approaches to aphantasia, we may fail to make any inroads to understanding aphantasia *or phantasia* and the ways our myriad ways of imagining relate to our experiences of the world.

Integrity Statement The authors declare that the manuscript is original and they sought to conduct the research responsibly and mindfully.

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