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On the perceptual characteristics of auditory verbal hallucinations

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of treatment, particularly biomedical approaches, in mental health are ineffective or harmful. In our view, this ideological stance is irresponsible as it might introduce doubt and undermine trust in health care among the public and policy makers. An urgent search for causal risk factors and the development of preventive strategies, such as vaccinations or other public health measures, are crucial during increases in cancer or infectious diseases, and no one in these domains would argue against simultaneously boosting early diagnosis and treatment services for those needing care.

Stephen Allison and colleagues have published several critiques against early intervention and the headspace model and, in our view, seem to seek to introduce doubt through selective use of data and misinformation.² The Commission acknowledged and referenced these critiques as well as corresponding rebuttals.^{3,4} Allison and colleagues' Correspondence recycles a familiar script of selective quotes drawn from independent evaluations of the headspace programme, which create a misleading impression. Evaluations of the headspace programme have consistently confirmed its effectiveness and cost-effectiveness, particularly for mild-to-moderate mental ill health, for which it was designed.⁵ Throughout its nearly two decades of operation, headspace has substantially integrated care rather than fragmented it, improving access across more than 170 communities in Australia, and it has been widely supported by local communities and young people. However, after this time, the model of care does need reviewing, modernising, and enhancing on the basis of new evidence and available technologies. The suggestion that a programme such as headspace could lead to a reduction in prevalence (and that it should be judged on that basis) presupposes a constant

prevalence rate throughout the evaluation period.⁴ However, as the Commission reports, and as Baum and colleagues acknowledge, this is not the case. headspace was designed and implemented over an 18-year period as an initial step towards establishing a comprehensive youth mental health-care system for early-stage and mild-to-moderate illness. Although it has been transformative and widely emulated, much work remains to be done. The critique of Allison and colleagues offers no alternative solutions other than advocating for an obsolete status quo that has clearly failed young people—a system failure that spawned reforms such as headspace in the first place.

PDM was a founding director of headspace and remains a patron of that organisation. EK, SNI, ND have no conflicts of interest in relation to the content of this response.

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In descriptive psychopathology, voices have always been recognised as being perceptual in nature.¹ In their Personal View,² Clara S Humpston and Todd S Woodward introduce several related phenomena that are sometimes called voices, even though careful examination might reveal that these phenomena do not have such a perceptual quality.² Among these phenomena are what the authors term audible thoughts and silent voices—paradoxical phenomena experienced in an in-between space that is neither thought nor perception. The Personal View proposes the inclusion of these phenomena in the category of hallucinations, and labelling them together as signs of a “fragmentation of self-consciousness and permeation of egoboundaries”,² thereby removing the subjective perceptual core from the notion of hallucination. The authors hypothesise that the brain networks revealed during 20 years of neuroimaging research have mistakenly been regarded as proof of hallucinatory activity instead of proof that voices are more akin to thought processes than to sense perceptions.

Although we acknowledge this approach as refreshing and applaud the first-person perspective incorporated into the reasoning, we are interested in exploring whether the hypotheses put forth extend beyond what current evidence already supports. The fact that people with and without psychosis might experience troubling linguistic phenomena that do not have an audible quality is undeniably true. These experiences are classified as ruminations, worries, obsessive thoughts, or compulsive hallucinations (ie, memory traces or fantasies that might be compulsively re-experienced).³ Other phenomena

might not yet have a name, but could hold massive clinical salience. In clinical practice, exploring such phenomena and acknowledging their potentially disruptive nature for patients are important. Brain networks identified in neuroimaging studies have given invaluable insights into the ways in which auditory hallucinations are being mediated, showing that the planum temporale has a crucial role in projecting internally mediated sounds into space, thus making them similar to environmental sounds.⁴ Furthermore, network analyses show dozens of interconnected brain areas that have a role in various aspects of voice hearing.⁵ Crucially, activation of such components did not count as proof that people were indeed hearing voices while in the scanner; researchers have always had to rely on first-person reports. These reports, in our experience, tend to be quite accurate or even indicate that people mistake hallucinated voices for real ones. Many patients have disclosed in varying forms that the voices they hear cannot be hallucinations as they really hear people talking. We agree that the role of any clinician is to make the ineffable effable, and in a non-leading manner. We also commend Humpston and Woodward's² reminder on the dangers of dichotomous interview questions. However, we would argue that altering the definition of voice hearing is premature. Parish wrote in 1897 "the dimmest, most formless mist which I see, or think I see, is really seen, and even though this visual impression may have arisen subjectively, it should nevertheless be called a fallacious perception".¹ This statement is as true for auditory hallucinations as it is for the visual hallucinations alluded to here.

We declare no competing interests.

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- 2 Humpston CS, Woodward TS. Soundless voices, silenced selves: are auditory verbal hallucinations in schizophrenia truly perceptual? *Lancet Psychiatry* 2024; **11**: 658–64.
- 3 Blom JD. A dictionary of hallucinations, 2nd edn. Cham: Springer Nature, 2023.
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Authors' reply

We thank Blom and Sharpless for their commentary on our Personal View. We are keen to engage with differing points of view among academics, researchers, clinicians, and individuals with lived experience of auditory verbal hallucinations, knowing that many of us can easily fit into more than one of these roles simultaneously.

Brain images are compelling because they appear to provide a physical basis for cognitive processes,¹ such as auditory verbal hallucinations.

However, an acute concern in most symptom capture studies of auditory verbal hallucinations is that the self-report action to indicate the timing of the experience of auditory verbal hallucinations is confounded with the experience of the auditory verbal hallucination itself. Risk of inference errors can be reduced with additional strong evidence, namely, that blood oxygen level-dependent changes should show a longer duration for longer events (eg, auditory verbal hallucinations), and that activation patterns should form a brain network other than the sensorimotor response network.²

Blom and Sharpless provide two references^{3,4} which put forward brain images interpreted as a biological underpinning of auditory verbal hallucinations, and inferred auditory perception based on anatomical

location. However, blood oxygen level-dependent responses were not compared between event durations (ie, short vs long auditory verbal hallucinations), and the reported anatomical configuration of whole-brain activations associated with auditory verbal hallucinations and responses showed excellent and well replicating examples of the sensorimotor response network. Therefore, the evidence that we outlined in our 2022 study² was not provided, resulting in an increased risk of inference errors. Moreover, using whole-brain templates as a guide,⁵ the specific coordinates³ provided locations that either sit on the periphery (ie, not the peaks) of both the auditory perception and sensorimotor response networks (XYZ: –37, –34, 13), or on neither network (37, 19, 32), weakening the argument that auditory perception can be concluded based on these anatomical locations.

Gill and colleagues² observed that perceiving real speech clearly met the criteria of blood oxygen level-dependent changes showing a longer duration for longer events, and forming a brain network other than the sensorimotor response network. However, as with the references provided by Blom and Sharpless,^{3,4} self-report auditory verbal hallucinations did not meet these criteria.² These findings led to review of past capture studies of auditory verbal hallucinations and confirmed high risk of misinterpreting sensorimotor response activations as auditory perception.²

The other evidence for auditory perception in auditory verbal hallucinations put forward by Blom and Sharpless involves first-person reports of hearing people talking. We fully acknowledge there are a range of subjective reports of auditory verbal hallucinations from different individuals, and that auditory verbal hallucinations are often experienced as having perceptual qualities.