

An Alternative Interpretation of "The Psychotomimetic Effects of Short-Term Sensory Deprivation"

To the Editor:

I was interested to read Mason and Brady's (2009) recent article "The Psychotomimetic Effects of Short-Term Sensory Deprivation" that reported that 15 minutes of sensory deprivation in an anechoic chamber induced hallucinatory experiences and that this tendency was enhanced in high schizotypal members of the general population. The authors interpret their results in light of "source monitoring" accounts of hallucinations (Bentall, 1990; Morrison and Haddock, 1997) where hallucination-prone individuals are more inclined to perceive internal sensations as having an external origin and in terms of Fletcher and Frith's (2009) recent Bayesian account whereby sensory deprivation disturbs error-dependent updating of inferences and beliefs about the world and so leads to problems with top-down constraints on perception and hence hallucinations.

However, my attention was drawn to the fact that their experimental set-up included the use of a "panic button" where "light and communication with the experimenter would be immediately restored" which suggests an alternative interpretation. Although not mentioned by the authors, the use of a "panic button" in sensory depriva-

tion experiments on hallucinations was specifically studied by Orne and Scheibe (1964) who were interested in understanding the role of expectations and "demand characteristics" on the likelihood of hallucinations in sensory deprivation. They compared 2 groups of people, in a similar set-up to the Mason and Brady (2009) study, but 1 group was met by researchers in white coats, given a medical examination and given a "panic button" to press if they wanted to terminate the experiment. The other group was met by researchers in causal clothes, was not given medical checks, and was simply told to knock on the window if they wanted the experiment to stop. The sensory deprivation procedure was identical for both groups, but the group with the panic button reported many more perceptual aberrations, cognitive and emotional disturbance, including heightened anxiety.

It could be argued that this, in itself, might not explain the raised tendency for hallucinatory experience in high, as compared with low, schizotypal participants, as reported by Mason and Brady (2009). However, we know that hallucination proneness is linked to trait anxiety (e.g., Allen et al, 2005) and, although not well studied in the nonclinical population (Allen et al, 2007), in psychotic individuals acute anxiety is clearly linked to an increase in hallucinatory experience (e.g., Delespaul et al, 2003). Without a "nonpanic button" control condition and measures of state and trait anxiety, an alternative interpretation might be that hallucinatory experience in sensory deprivation is linked to the demand characteristic of the

experiment and/or differential anxiety reactivity rather than any specific effects on source monitoring or disturbance to perceptual reasoning processes.

Vaughan Bell, PhD, DCLinPsy

Institute of Psychiatry
King's College London
London, United Kingdom
Department of Psychiatry
Universidad de Antioquia
Medellin, Colombia

REFERENCES

- Allen P, Freeman D, McGuire P (2007) Slow habituation of arousal associated with psychosis proneness. *Psychol Med.* 37:577-582.
- Allen P, Freeman D, McGuire P, Garety P, Kuipers E, Fowler D, Bebbington P, Green C, Dunn G, Ray K (2005) The prediction of hallucinatory predisposition in non-clinical individuals: examining the contribution of emotion and reasoning. *Br J Clin Psychol.* 44:127-132.
- Bentall RP (1990) The illusion of reality: a review and integration of psychological research on hallucinations. *Psychol Bull.* 107:82-95.
- Delespaul P, deVries M, van Os J (2003) Determinants of occurrence and recovery from hallucinations in daily life. *Soc Psychiatry Psychiatr Epidemiol.* 37:97-104.
- Fletcher PC, Frith CD (2009) Perceiving is believing: A Bayesian approach to explaining the positive symptoms of schizophrenia. *Nat Neurosci.* 10:48-58.
- Morrison AP, Haddock G (1997) Cognitive factors in source monitoring and auditory hallucinations. *Psychol Med.* 27:669-679.
- Orne MT, Scheibe KE (1964) The contribution of nondeprivation factors in the production of sensory deprivation effects: The psychology of the "panic button." *J Abnorm Soc Psychol.* 68:3-12.