

The Prevalence, Communicability and Co-Occurrence of Inverted Hallucinations: An Overlooked Global Public Health Concern

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Abstract

While scientific understanding concerning the role of biological pathogenic agents in the transmission of communicable diseases has increased markedly in recent decades, the possibility of a psychological pathogenic agent that underlies the transmission of a number of key global public health concerns has largely been overlooked. The present paper identifies inverted hallucinations as a novel category of hallucination that not only reflect a key public health concern in their own right, but also appear to play an active role in the gradual transmission of diseases traditionally deemed to be non-communicable, such as mental health problems, obesity, and social media addiction. More specifically, the present paper delineates the assumptions and indicative empirical support underlying inverted hallucination theory as well as the characteristic features, functional consequences, prevalence, communicability, and co-occurrence of inverted hallucinations in the general population. Inverted hallucinations appear to be both globally prevalent and communicable, and are estimated to affect the average person on at least an occasional basis. Inverted hallucinations cause individuals to succumb to states of mind wandering that distorts their perception of what is happening in the present moment and increases their susceptibility to other deleterious health conditions. Moreover, inverted hallucinations appear to reflect a key overlooked public health need that not only stunt human potential and quality of life but also pose a risk to the wellbeing of the population globally.

Keywords: inverted hallucinations, co-occurrence, public health.

Introduction

Recent scientific focus on ancient contemplative techniques such as mindfulness has indicated a range of benefits associated with present moment awareness, including improvements in (for example) somatic health, mental health, psychosocial functioning, job performance, and work and life satisfaction. In the traditional and contemporary contemplative literature, as well as in the contemporary academic literature, the opposite condition to mindfulness is generally accepted to be ‘mindlessness’, which refers to a lack of conscious awareness of the present moment. According to Langer, whose study of mindlessness and mindfulness was more from a modern psychological rather than traditional contemplative perspective, mindlessness involves an individual operating “much like a robot; thoughts, emotions, and behaviors ... are determined by ‘programmed’ routines based on distinctions and associations learned in the past” (Bodner & Langer, 2001, p. 1). Langer also asserted that mindlessness restricts people to a repetitive unelaborated approach to life, and stunts their creativity and overall potential: “Mindlessness as it diminishes our self-image, narrows our choices, and wed us to single-minded attitudes, has a lot to do with this wasted potential” (Langer, 1989, p. 55). It is generally accepted, at least in broad terms, that mindfulness and mindlessness reflect opposing constructs and that it would be uncommon or even implausible for a high level of mindfulness and a high level of mindlessness to occur in the same individual concurrently (this excludes a very small minority of highly advanced esoteric meditation practitioners – such as those belonging to ‘crazy wisdom’ contemplative traditions – who are purported to exhibit contemplative proficiency through being “mindfully mindless”; Trungpa, 2003).

Some of the present authors previously described mindlessness as a lack of moment-to-moment awareness in which the mind is preoccupied with future (and therefore fantasised) conjectures or past (and therefore bygone) occurrences (Shonin, Van Gordon, & Griffiths, 2014). The present authors also previously identified a novel form of hallucination, called an inverted hallucination, which appears to be intrinsically linked to mindlessness. This is based on

the rationale that if a hallucination refers to ‘the perceiving of that which is not’, then mindlessness reflects a form of ‘inverted hallucination’, due to it constituting the ‘non-perceiving of that which is’ (Shonin et al., 2014). Experiencing an inverted hallucination implies that a person is not fully (or even partially) aware of their psychological and sensory experiences as they unfold in the present moment. Given the past has expired and the future never materialises (i.e. because when the so-called future arrives it is the present), life can only be fully embraced and experienced in the present moment (Van Gordon, Shonin, & Garcia-Campayo, 2017a). Therefore, if a person suffers from inverted hallucinations, it implies that they are experiencing a distorted perception of reality and ‘missing out on their life’.

While there has been significant scientific interest in recent decades into the benefits of mindfulness, the wider public health and psychosocial impact caused by inverted hallucinations appears to have been overlooked. This paper seeks to address this imbalance by critically delineating the assumptions and indicative empirical support for inverted hallucination theory as well as the characteristic behaviours, functional consequences, prevalence, communicability, and co-occurrence of inverted hallucinations in the general population.

Characteristic Behaviours

Specific examples of behaviours likely to be indicative of inverted hallucination are as follows:

- Unconscious or partially conscious use of a mobile phone or social media, including in situations in which such usage poses a risk to the individual’s (or to other people’s) health (e.g., using a mobile phone when crossing the road, engaging with social media excessively such that it becomes addictive, etc.)
- Eating in a mode more akin to ‘feeding’ and that involves not fully tasting and masticating food and/or being preoccupied with what should be eaten next.
- Being inconsiderate or completely oblivious regarding the wellbeing and/or personal space of others (e.g., not using headphones or

disabling the loud speaker when using video-networking applications [Messenger, Line, Kik, WhatsApp, etc.] on an internet-enabled device when in a public area, being boisterous, base or excessively loud, etc.)

- Habitually rushing to arrive somewhere (e.g., work) and then rushing to return home without particularly noticing the journey (and without there necessarily being a valid reason for such rushing).
- Engaging in (so-called) conversation with another person or persons but without fully or even partially listening to them (i.e., yet not consciously choosing not to listen).

More general examples of behaviours likely to be indicative of inverted hallucinations are as follows:

- Not being aware of one's bodily posture or the consistency and movement of one's breath for the majority part of the day (excluding when asleep).
- Not being aware of one's 'mental posture' or the consistency and movement of one's mind for the majority part of the day (excluding when asleep).
- Habitually opting to remain occupied in place of occasionally spending meaningful time alone or in contemplative awareness (e.g., excessive engagement with technology or the internet, excessive engagement in meaningless conversation, etc.).

Functional Consequences

Suffering from inverted hallucinations implies a partial or complete lack of awareness of direct experience. Direct experience in this sense refers to the immediate cognisance of sensory and psychological processes at the point that they unfold in the present moment. According to the principles underlying inverted hallucination theory, not being aware of direct experiences blunts an individual's awareness of the present moment and gives rise to maladaptive conceptual layers or 'mental noise' that distorts their perception of reality (Shonin & Van Gordon, 2013). These superfluous psychological and affective processes draw people into a state of mind wandering, which some contemplative adepts have

likened to living as a walking corpse (Shonin, Van Gordon, & Griffiths, 2015). Non-volitional thought rumination along with other psychological processes associated with mind wandering is a key component of an inverted hallucination, and is known to increase susceptibility to mental health problems, problematic behaviours, and exhaustion more generally (Compare, Zarbo, Shonin, Van Gordon, & Marconi, 2014; Nolen-Hoeksema, Morrow, & Fredrickson, 1993; Watkins, 2008). For example, mind wandering is positively associated with unhappiness (Killingsworth & Gilbert, 2010) and has been identified as a marker for depressive thinking (Smallwood, O'Connor, Sudbury, & Obonsawin, 2007). Conversely, reduced mind wandering has been shown to mediate the intervention effects of mindfulness on cognitive performance (e.g., reading comprehension and working memory; Mrazek, Franklin, Phillips, Baird, & Schooler, 2013).

Prevalence

Using the widely administered Mindful Attention and Awareness Scale (MAAS; Brown & Ryan, 2003) as an example (which has a total score range of 1-6 and where high scores are claimed to indicate greater levels of mindfulness), scores in both general population and clinical samples of individuals naive to mindfulness are typically in the order of 60-75% of scale maximum (i.e., 3.80 – 4.45 [SD = 0.63-0.85]; e.g., Brown & Ryan, 2003; Carlson & Brown, 2005; MacKillop & Anderson, 2007; Van Gordon, Shonin, Sumich, Sundin, & Griffiths, 2014). Taking into account findings from studies that have shown mindfulness – as measured using the MAAS – and mind-wandering (i.e., a key attribute of mindlessness) to be construct opposites (Mrazek, Smallwood, & Schooler, 2012), in addition to assessing mindfulness each of the MAAS items can equally be considered to serve as a gauge of mindlessness. This is consistent with the approach adopted by Bodner and Langer (2001), who actually named their scale the 'Mindfulness/Mindlessness Scale'. Accordingly, a response of 6 [almost never] to any of MAAS's 15 items (e.g., Item 3 = *I find it difficult to stay focused on what's happening in the present*, Item 10 = *I do jobs or tasks automatically, without being aware of what I'm doing*) indicates a greater level of mindful behaviour, while a response of 1 [almost always]

indicates a greater level of mindless behaviour. The aforementioned typical MAAS score of 3.80-4.45 therefore implies that on average, people experience an inverted hallucination on an occasional basis (i.e., ‘somewhat infrequently’ – which we would argue is synonymous with occasionally or rather occasionally – is the frequency descriptor that corresponds to a score of 3.80-4.45 on the MAAS).

However, even this is likely to reflect a gross underestimation of the extent of inverted hallucinations in the global population because there is ongoing scholarly debate relating to whether mindfulness scales – including the MAAS – accurately tap into an authentic Buddhist conceptualisation of mindfulness, or whether they assess a watered-down Westernized version of mindfulness (sometimes referred to as *McMindfulness*; Purser, 2015). Furthermore, there likewise exist entirely different conceptual approaches towards operationalising and measuring mindfulness, such that proponents of (for example) second-generation mindfulness-based interventions (that attempt to employ a more Buddhist congruent practice model of mindfulness) would argue that some mindfulness scales (including the MAAS) employ flawed assumptions relating to mindfulness (Van Gordon, Shonin, & Griffiths, 2015). Moreover, validation studies of mindfulness assessment scales have not always been able to identify differences in mindfulness levels between novice and advanced meditators, which is likewise incongruent with traditional Buddhist practice principles (Brown & Ryan, 2003; McKillop & Anderson, 2007).

Thus, even individuals that might not be diagnosed with a mental illness using widely-employed diagnostic criteria could still be suffering from an inverted hallucination (Shonin et al., 2014). Indeed, a popular Buddhist position is that the symptoms of inverted hallucinations are currently highly prevalent and are becoming increasingly more so (Huang Po, 1982). This is in line with projections made by Buddhist adepts thousands of years ago that during the present period of time (i.e., that is relatively materialistic and technology-driven), levels of self- and introspective-awareness would rapidly diminish (Marra, 1998).

Communicability

In recent decades, there has been a broadening of focus within public health from its traditional emphasis on communicable diseases to seeking to assess and address the health needs associated with non-communicable diseases, such as obesity and mental illness. However, the extent to which some apparently non-communicable diseases should be considered entirely non-communicable warrants closer inspection. Taking overweight and obesity as an example, levels amongst young people aged 5-19 years increased from 4% in 1975 to 18% in 2016 (World Health Organization, 2018). Such health problems are obviously not understood to be transmitted through acute exposure to biological pathogenic agents, yet this does not preclude the possibility of gradual transmission involving ‘psychological pathogenic agents’, of which the present authors would argue inverted hallucinations reflect a key example. Compared to conventional forms of communicable diseases, inverted hallucinations are likely to transmit in a slower and less detectable manner, whereby processes such as ontological addiction (see below) and social conditioning constitute important aspects of the transmission pathway. Nevertheless, these psychological processes result in the spread and intensification of inverted hallucinations along with other health problems that seem to be associated with not living mindfully (e.g., social media addiction, obesity, physical inactivity, gambling addiction, and mental health problems).

Although the transmission rate of inverted hallucinations appears to be relatively gradual, the global prevalence increases in diseases that seem to stem from inverted hallucinations – such as the aforementioned spread of obesity from 1 in 25 to almost 1 in 5 people within just a 30-year period – suggest that the incidence rate of such ‘non-communicable’ diseases can still be alarming (Parikh et al., 2007). Indeed, compared to conventional forms of communicable disease, public health concerns such as obesity and mental health problems tend to be significantly more global in scope and thus exert a much greater level of disease burden.

A core principle of contemplative practice is to have ample contact with individuals, including a teacher, that have virtuous characteristics and who attempt to apply contemplative principles in daily life (Nhat Hanh, 1999). The reason for this is that it is easy for individuals who frequently experience inverted hallucinations to be distracted or negatively influenced by those who likewise suffer from chronic inverted hallucinations. In other words, inverted hallucination theory asserts that the condition can be gradually contracted and intensified through exposure to others experiencing inverted hallucinations, particularly so when lacking the support of a teacher and/or community that advocates contemplative practice aimed at eradicating such a blunted perception of reality (Van Gordon, Shonin, & Griffiths, 2017b).

Co-occurrence

It is logical to assume that inverted hallucinations can co-occur with all of the symptoms and health problems for which mindfulness has been shown to be efficacious. For example, given that mindfulness is known to reduce levels of stress, anxiety, or depression, then it can be assumed that a greater severity of inverted hallucination was present at the pre- versus post-treatment phase. This is consistent with the fact that present moment awareness is inversely associated with a range of psychopathology risk factors, including (for example), thought rumination, perceived life stress, and negative emotions (Mesmer-Magnus, Manapraganda, Viswesvaran, & Allen, 2017; Smallwood et al., 2007). It is also consistent with Bodner and Langer's (2001) validation study of the Mindfulness/Mindlessness Scale, in which (i) high scores (i.e., greater levels of mindfulness) were associated with the capacity to view situations from multiple perspectives, liberal thinking style, openness to experience, need for cognition, and general cognitive ability, and (ii) low scores (i.e., greater levels of mindlessness) were associated with the need for structure.

Inverted hallucinations are also likely to co-occur with ontological addiction, which arises when an individual becomes attached or addicted to their beliefs concerning how they think they exist.

Ontological addiction has also been referred to as 'self-addiction' and is defined as "the unwillingness to relinquish an erroneous and deep-rooted belief in an inherently existing 'self' or 'I' as well as the 'impaired functionality' that arises from such a belief" (Van Gordon et al., 2018, p.892). According to ontological addiction theory (OAT), self-addiction limits psychosocial functioning because instead of an open and encompassing awareness of what is unfolding in the wider present moment, an inwardly focussed mind becomes pre-occupied with ego-driven concepts, schemes, and behaviours that impair mindful awareness (Shonin, Van Gordon, & Griffiths, 2016). For example, according to Van Gordon et al. (2018), "rather than simply eating in order to eat or working in order to work ... the individual suffering from ontological addiction pursues activities and goals with only a superficial and/or self-orientated regard for the people and 'peripheral' phenomena they interact with" (p. 893). Therefore, due to erroneously believing and perceiving that the 'I' exists inherently and independently (i.e., rather than understanding that it exists relatively and only in dependence on all other phenomena), ontological addiction could even be considered a subtle form of inverted hallucination in its own right as well as a discrete co-occurring condition.

Conclusions

Inverted hallucination theory asserts that due to not perceiving that which is occurring in the present moment, individuals succumb to states of mind wandering that blunts their awareness of what is happening here and now. In line with empirically established associations between low-levels of present moment awareness and risk factors for a range of negative health outcomes, inverted hallucinations are deemed to be both a determinant and common co-occurring condition in respect of non-communicable public health concerns such as mental illness, obesity, and problematic leisure time activities (e.g., addiction to social media, computer games and/or gambling). Furthermore, the inverted hallucination condition is not only posited to reflect a prevalent public health need in its own capacity, but is also asserted to be communicable. Social conditioning appears to be a key transmission pathway that is augmented by a general lack of awareness in terms of what constitutes

authentic contemplative practice, as well as the value of integrating contemplative principles into daily life contexts. Indeed, while there has been a marked growth of interest into mindfulness in recent decades, a concern of the present authors is that, in many instances, people have actually been taught a highly superficial form of contemplative practice, known as McM mindfulness. In essence, inverted hallucinations appear to reflect a key overlooked communicable public health need that not only stunt human potential but also pose a risk to the wellbeing of the population globally.

Author Contribution Statement

All authors were involved in the conception and writing of the paper. Furthermore, we confirm that all authors are responsible for all contents of the article and had authority over manuscript preparation and the decision to submit the manuscript for publication.

Conflict of Interest

The authors declare that they have no conflict of interest.

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