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## ★ Abstract title:

CAN SENSORY INTRUSIONS AND MOTORIC ACTIVATIONS CAUSED BY THE USE OF TECHNOLOGY BECOME PATHOLOGICAL?

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### Objectives

To overview research into tech-induced intrusions (sensory and cognitive) and motoric activations (involuntary movements of limbs) (TIIMA), in order to understand if TIIMA can undermine mental health or pose risks if they are experienced recurrently, prolonged, under certain circumstances or negatively interpreted.

### Background and Aims

Hallucinogen Persistent Perceptual Disorder is a psychiatric disorder characterised by re-occurrences of perceptual anomalies (e.g., positive afterimages, distortions), reminiscent of those experienced during intoxication, that causes significant impairment or distress. Novel approaches have emerged investigating TIIMA as lingering effects of the use of interactive media and peripherals. These phenomena are referred to as, e.g., “phantom phone sensations” and “Game Transfer Phenomena” (GTP) in the context of mobile phone use and video game playing respectively.

### Materials and Methods

Review of empirical studies into TIIMA focusing on: i) phenomenology, ii) individual characteristics, iii) risk factors and consequences.

### Results

TIIMA are common among non-clinical population and not explained by drug use. Minors and young adults appear more prone. No gender differences. A few reported distress or disability, particularly when severe. Manifestations include visual, auditory, tactile, kinaesthetic hallucinatory-like phenomena, misperceptions, distortions of objects or environments, recurrent thoughts, involuntary behaviours and dissociations. Reality testing remained intact in phone-related phenomena but not always in GTP.

### Conclusions

TIIMA are in the continuum between normality and pathology. The effects of interactive technology should be understood beyond the perspectives of impaired control and addiction, taking into consideration the effects of the prolonged multi-sensory stimulation. More evidence is needed, for developing strategies to inform, reducing potential risks and enhancing protective factors.

### Keywords:

Hallucinations

Perceptual disturbances

Interactive technology

Game Transfer Phenomena

Hallucinogen Persistent Perceptual Disorder