

# High incidence of sensory and cognitive intrusions with video game content: Underlying psychopathological factors

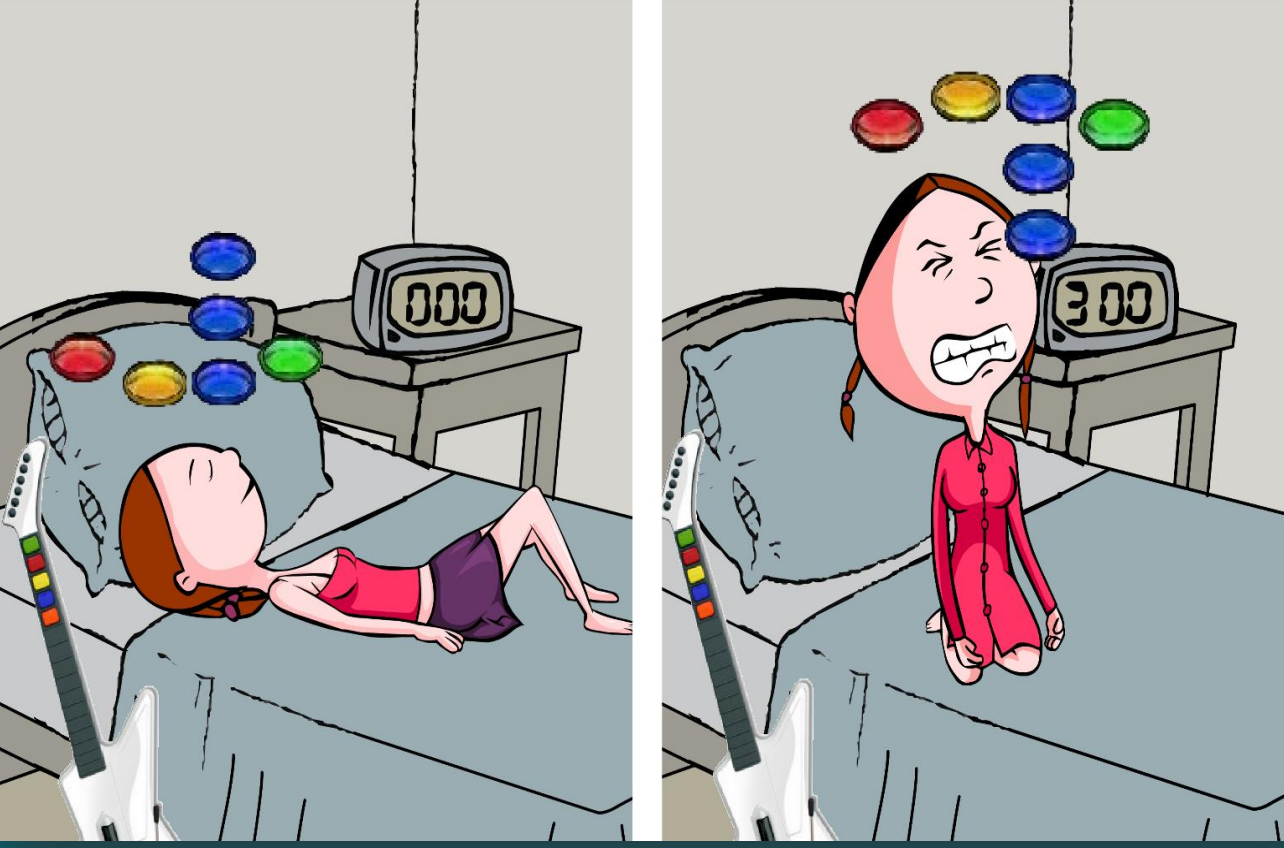
Angelica B. Ortiz de Gortari, PhD

angelica@gametransferphenomena.com

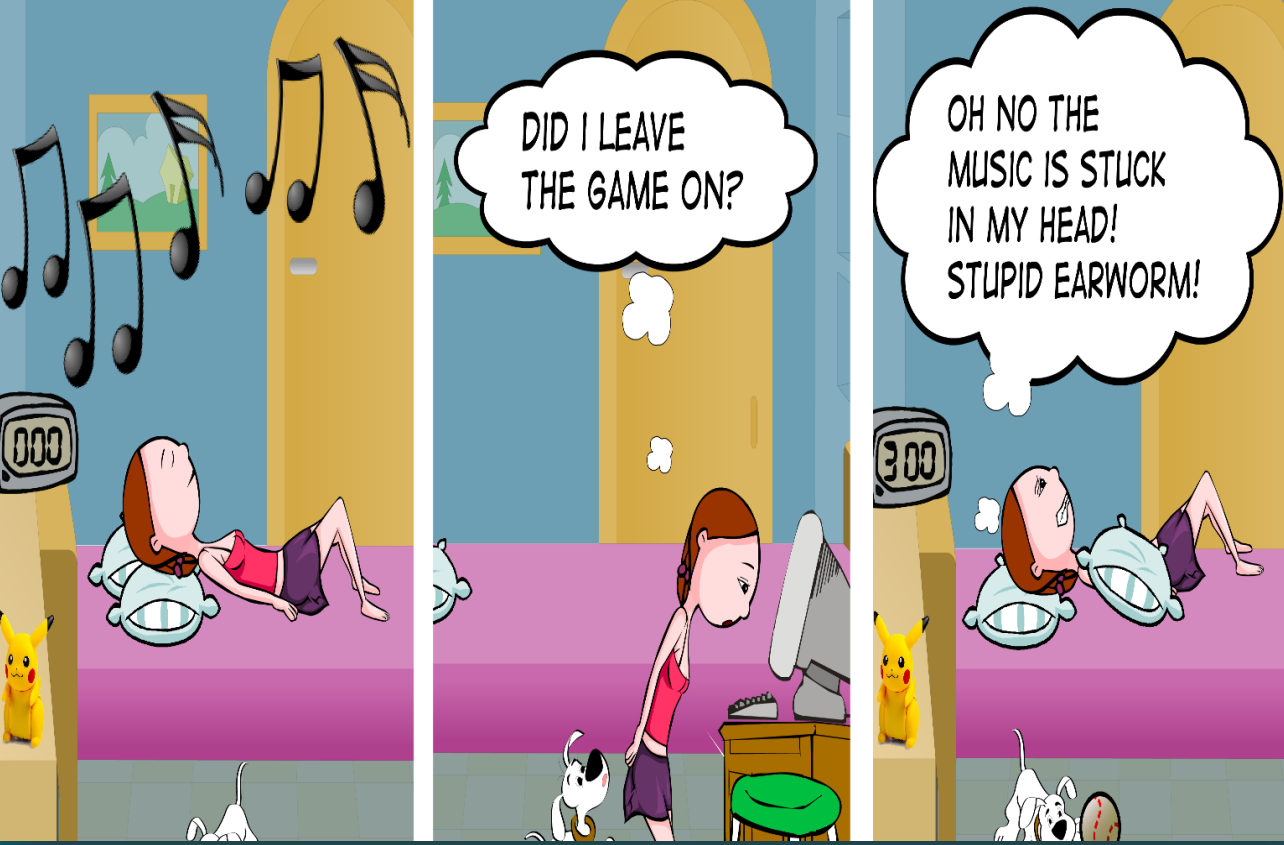
\*GTP is a set of residual thoughts, feelings, sensations, impulses and altered sensorial perceptions (e.g., visual, auditory, tactile, bodily, chronoceptive, etc.) associated with video game playing.

## Examples of GTP types with high incidence related with psychopathological factors

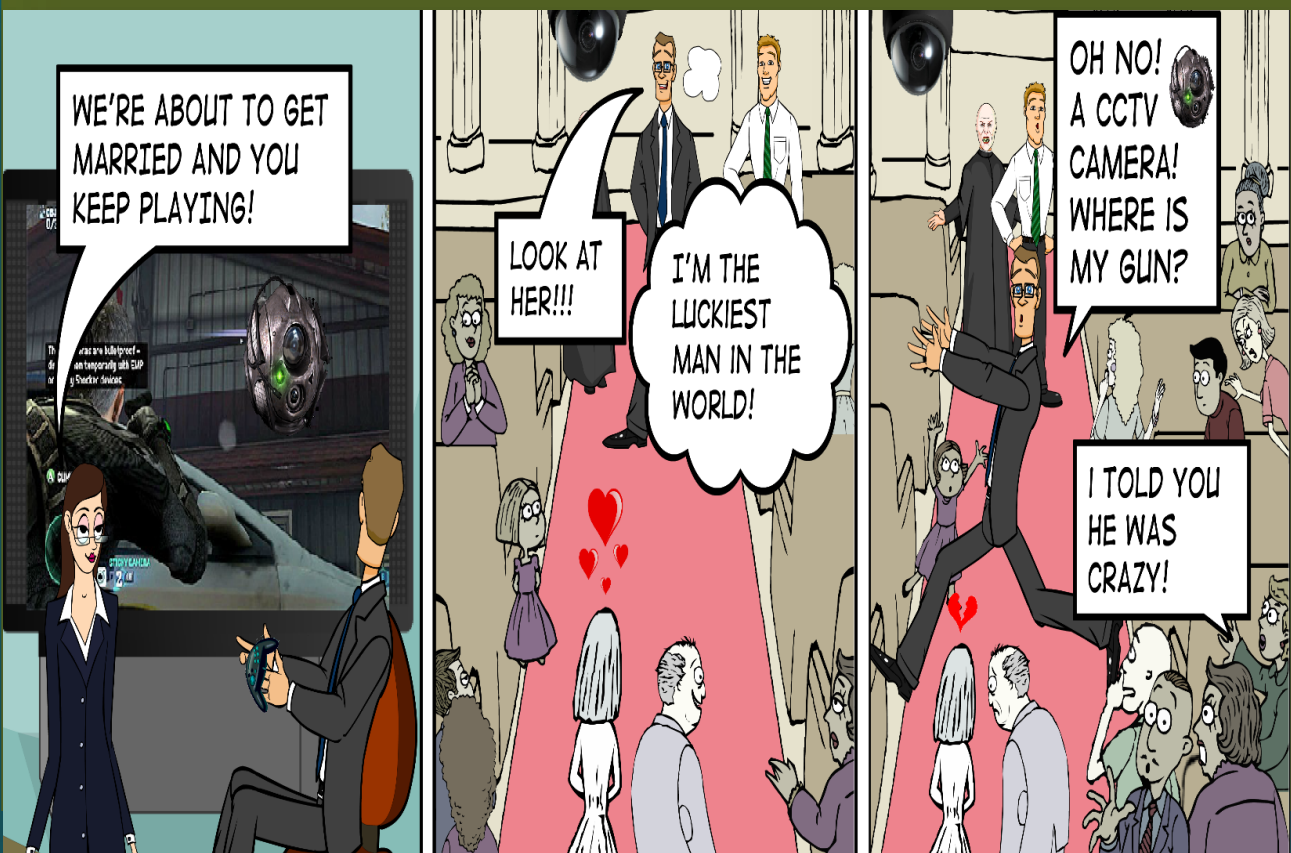
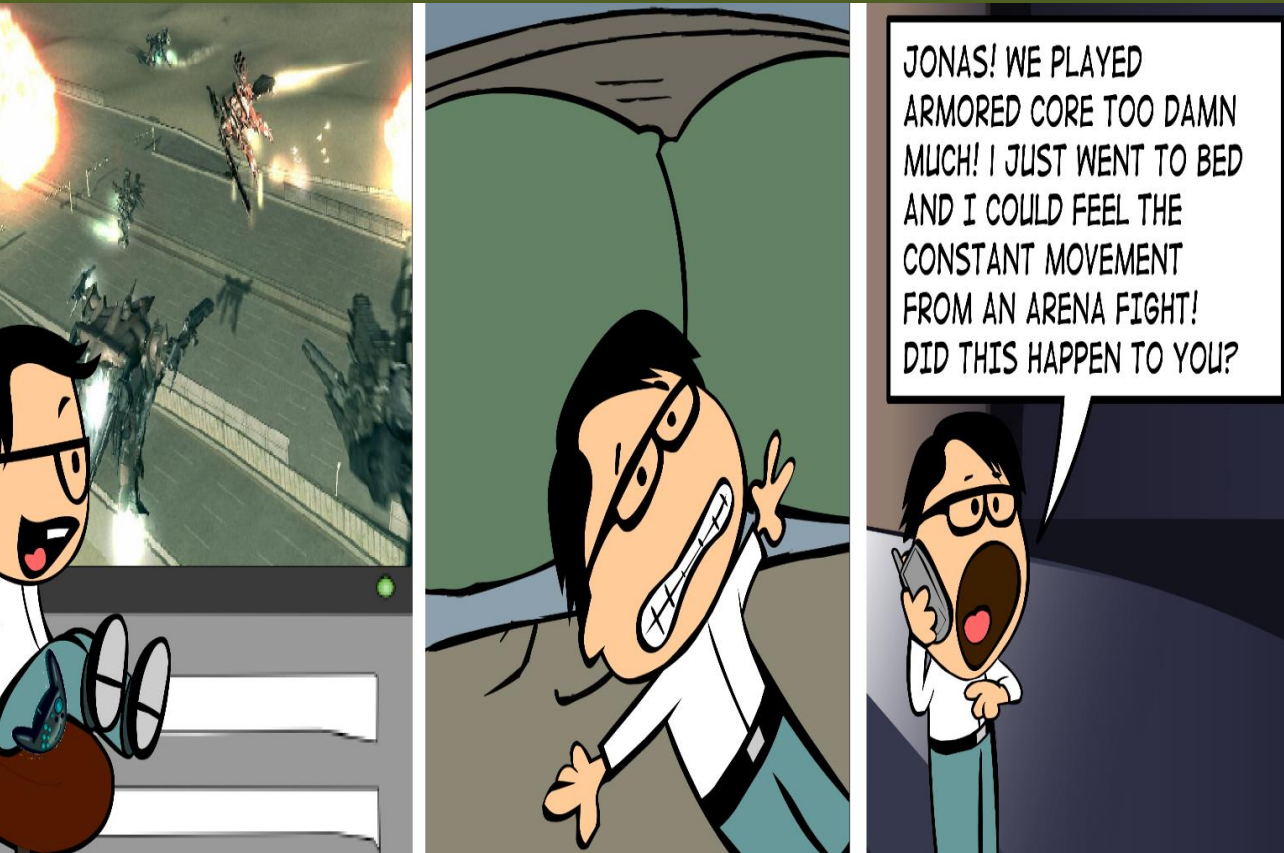
### Altered visual perceptions



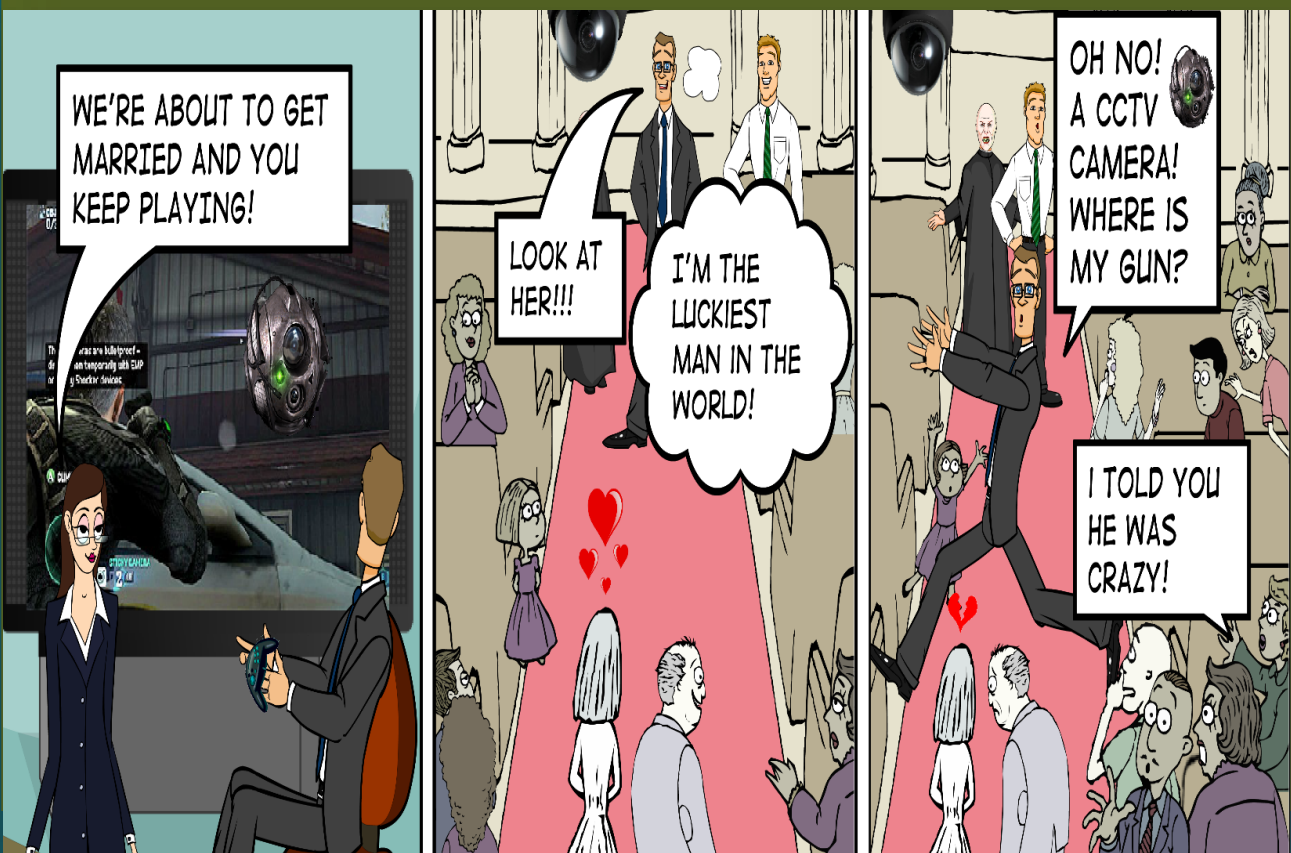
### Altered auditory perceptions



### Altered body perceptions



### Behaviours/actions



## Background

Sensory and cognitive intrusions with video game content have been reported in research on Game Transfer Phenomena (GTP)\*. Those with severe GTP (6.6%) (i.e. several types/ frequently) were found to be more likely to have a mental disorder, have used drugs or, having experienced distress/dysfunction (58%) due to their GTP experiences [1].

## Aim

To examine the relationships between GTP types with high incidence and underlying psychopathological factors (i.e., drugs, mental disorders, problematic gaming) and demographics.

## Method

**Participants:** 2,362 gamers. Data collected via an online survey. The majority had never used drugs nor had a medical condition.

**Data analysis:** Comparisons between high incidence of GTP (many times/all the time) and low incidence of GTP (once, a few times) via Chi-square test. 20-items GTP Scale [2].

## Results

- Females** were more likely to have experienced visual sensory and cognitions related phenomena, while **males** were more likely to show changes in behaviours suggesting failures in control of impulses.
- Distress and/or dysfunction** were associated with most types of GTP.
- Some GTP types were associated with psychopathological factor(s), e.g., seeing images with open-eyes with mental disorder, but the relation appears not to depend on how frequent they are experienced.

### GTP types significantly associated with psychopathological factors

Psychopathological factor	Low incidence GTP	High incidence GTP	X <sup>2</sup>
<b>Drugs</b>			
Visualizing images/seeing images closed eyes	30.0	36.5	7.781**
Visual distortions of objects/environments	35.6	25.2	7.370**
Acting differently in situations	32.9	23.5	10.424***
<b>Mental disorder</b>			
Visualizing images/seeing images closed eyes	10.6	14	4.376*
Visual distortions of objects/environments	13.6	20.8	5.733*
Illusion body movement	11.9	16.8	4.913*
Hearing music	10.0	14.6	7.202**
Auditory misperceptions	11.4	15.4	4.661*
Verbal outburst	13.7	19.4	5.006*
<b>Sleep disorders</b>			
Whole-body sensations of self-motion	6.3	10.3	5.171*
Hearing music	5.4	9.0	6.916**
Auditory misperceptions	6.0	9.1	4.498*
Verbal outburst	8.0	12.8	5.414*
<b>Problematic gaming</b>			
Visual misperceptions	4.2	9.1	6.668*
Tactile sensations	3.7	7.2	4.814*

\*p < .05. \*\*p < .01. \*\*\*p < .001.

## Conclusions

Not all types of GTP were associated with psychopathological factors, but almost all GTP types with high incidence have led to distress and/or dysfunction. Beside the importance to understand the psychopathological factors related to GTP, the impact of GTP on gamers' well-being should be investigated further. It is also important to understand the similarities and differences between GTP and sensorial/cognitive intrusions in mental disorders (e.g., Hallucinogen Persistent Perceptual Disorder, schizophrenia).

## References

- Ortiz de Gortari, Oldfield, & Griffiths (2016). An empirical examination of factors associated with GTP severity. CHB, 64, 274-284.
- Ortiz de Gortari, Pontes & Griffiths (2015). The GTP Scale. CBSN, 10(18), 588-594.
- Ortiz de Gortari, & Griffiths (2014). Altered Visual Perception in GTP. IJHCI, 30(2), 95-105.
- Ortiz de Gortari, & Griffiths (2014). Auditory experiences in GTP. IJCBPL, 4(1), 59-75.
- Ortiz de Gortari, Larøi, F & Lerner. (2017). Can GTP contribute to the understanding of the psychophysiological mechanisms of Gaming Disorder? A comparison of visual intrusions induced by videogames and mental disorders. ICBA2017, Haifa, Israel.