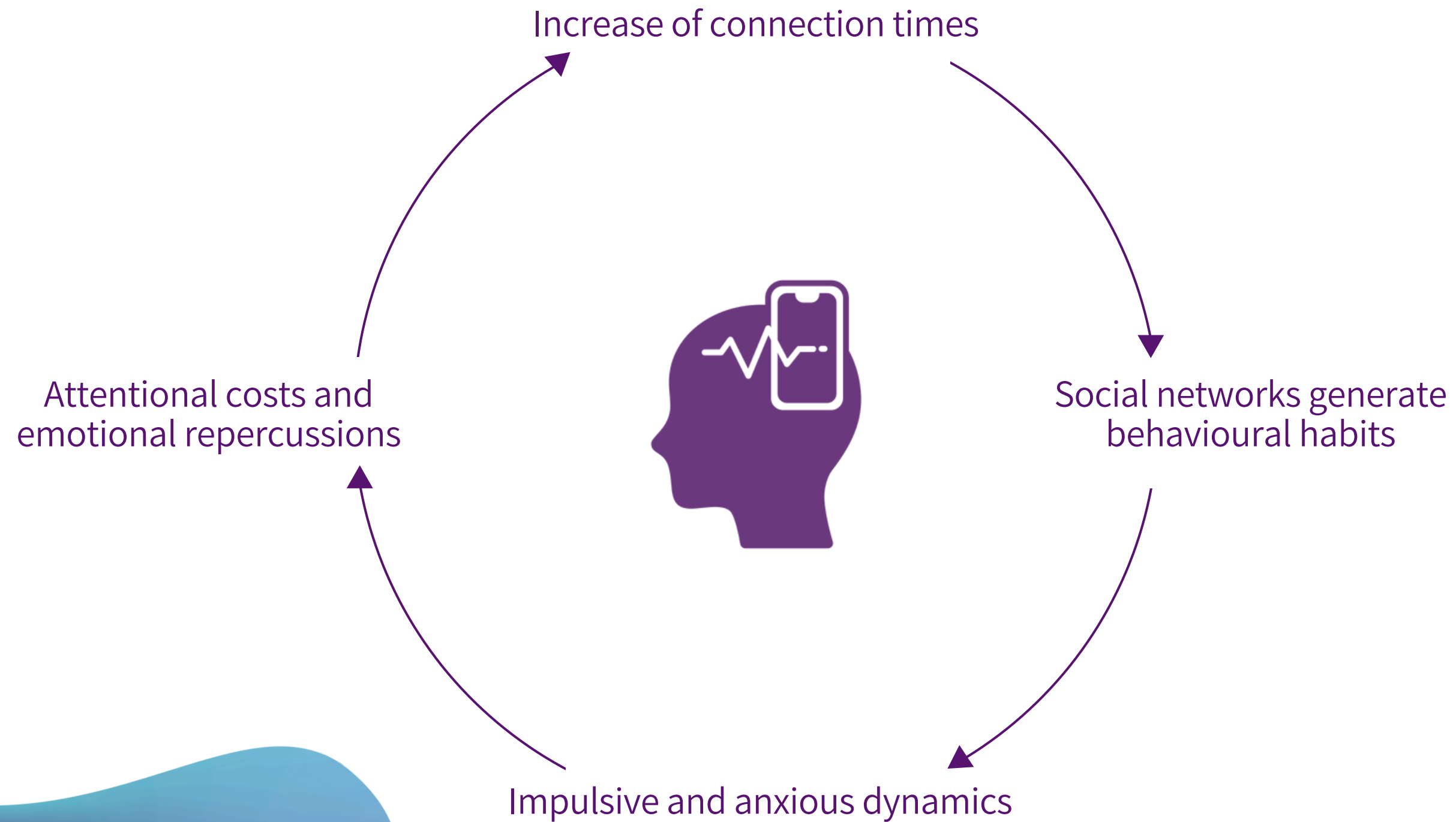UNIVERSITAT DE BARCELONA

Gender Differences in Attention and Emotional Reactivity Among University Students

Vicente Villalba Palacin, Lydia Sánchez and Caterina Calderón

Introduction

Increase of connection times

Social networks generate behavioural habits

Impulsive and anxious dynamics

Attentional costs and emotional repercussions

01

Internet addiction

- Excessive and uncontrolled use of the Internet that:
  - Leads to social isolation.
  - Neglect of daily responsibilities.
  - Negatively impacts relationships, performance, and emotional wellbeing (Young, 1999).
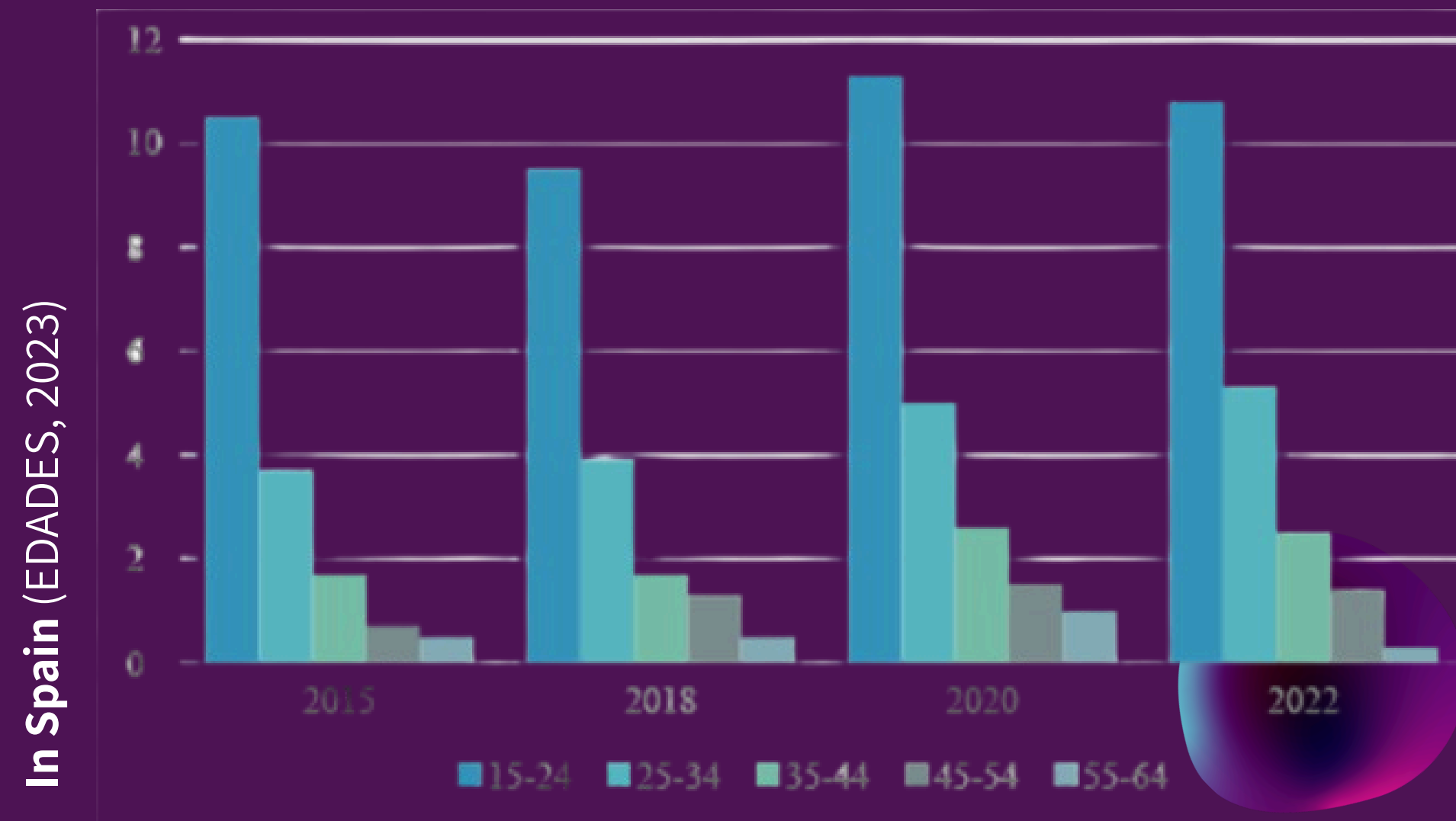
Young adults (18–24 years) spend 33% of their waking hours on social media (Cronista, 2023).

In Spain (EDADES, 2023)

Internet addiction

The Hook model (Eyal & Hoover, 2014), designed to capture the user's attention and keep them connected (Fuchs, 2018).

Characteristics linked to psychological dimensions such as social valuation, self-image, acceptance, comparison and social recognition (Pendergrass and Payne, 2018) that derives in self-control problems (Hofmann et al., 2017) trapping the user in an anxious dynamic (Alifa et al., 2018).

03

University Students

Loss of control over social media use leads to disconnection from real life (Martínez et al., 2022).

Social media increases anxiety (Mundy et al., 2020), impulsivity (Wu et al., 2013), and causes mood changes, guilt, and sleep problems (Mlouki et al., 2023).

Women report more loneliness, anxiety, and sadness; Men show more digital impulsivity (Dempsey et al., 2019).

In both cases, excessive use is linked to less study time, poor focus, and lower academic performance (Malak et al., 2022).

04

Emotion and attention

FOCUS

MULTITASKING

CONTINOUS PARTIAL ATTENTION
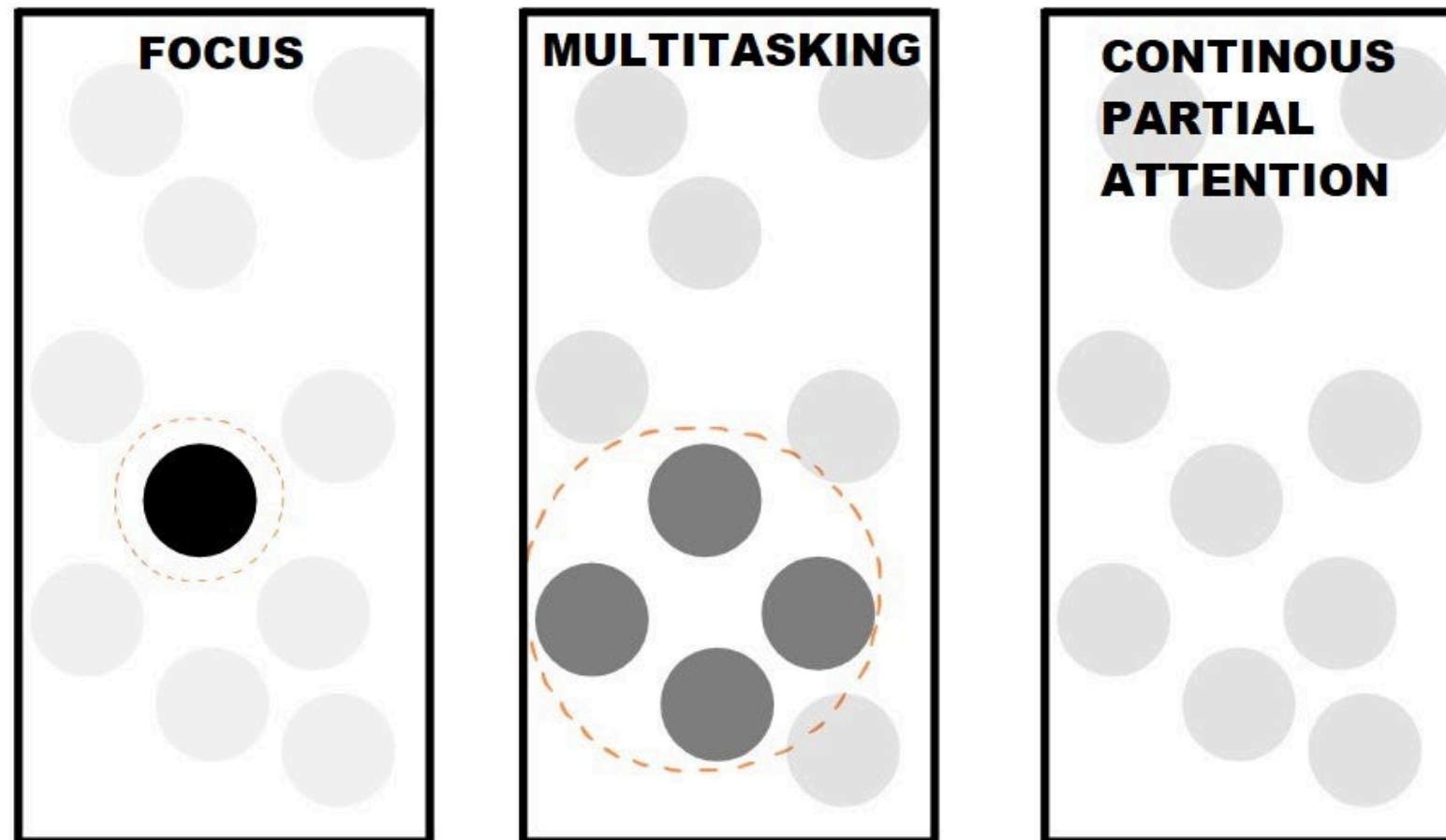
Attention is a limited resource in the face of digital stimulus overload (Goldhaber, 1997).

Continuous Partial Attention (CPA): state of fragmented attention to multiple digital stimuli (Stone, 2007).

Consequences of CPA:
- Decreased concentration (Firat, 2013).
- Negative impact on self-esteem and sense of control (Small & Vorgan, 2008).
- Cognitive difficulties and disengagement from learning (Chitrakar et al., 2023).

05

Electrodermal activity

EDA = psychophysiological indicator sensitive to autonomic nervous system activation (Pazderka-Robinson et al., 2004).

Two key components (Aiger, 2013):

- EDL (tonic): measures level of sustained attention.
- EDR (phasic): measures emotional response to stimuli.

Applications of EDA:

- Emotional and attentional assessment in social networks (Fondevila et al., 2020).
- Prediction of cognitive load and mental effort (Romine et al., 2022).

Main advantage: it offers objective measures as opposed to the limitations of self-reports.

06

Aims

Main objective to assess the influence of Internet addiction in cognitive, specifically attentional (EDL) and emotional (EDR) terms:

O1 - To assess university students during three cognitive tasks: viewing (V), reflective task (T) and analytical task (T2).

O2 - To examine possible gender effects on the relationship-effect of Internet addiction in each of the above tasks.
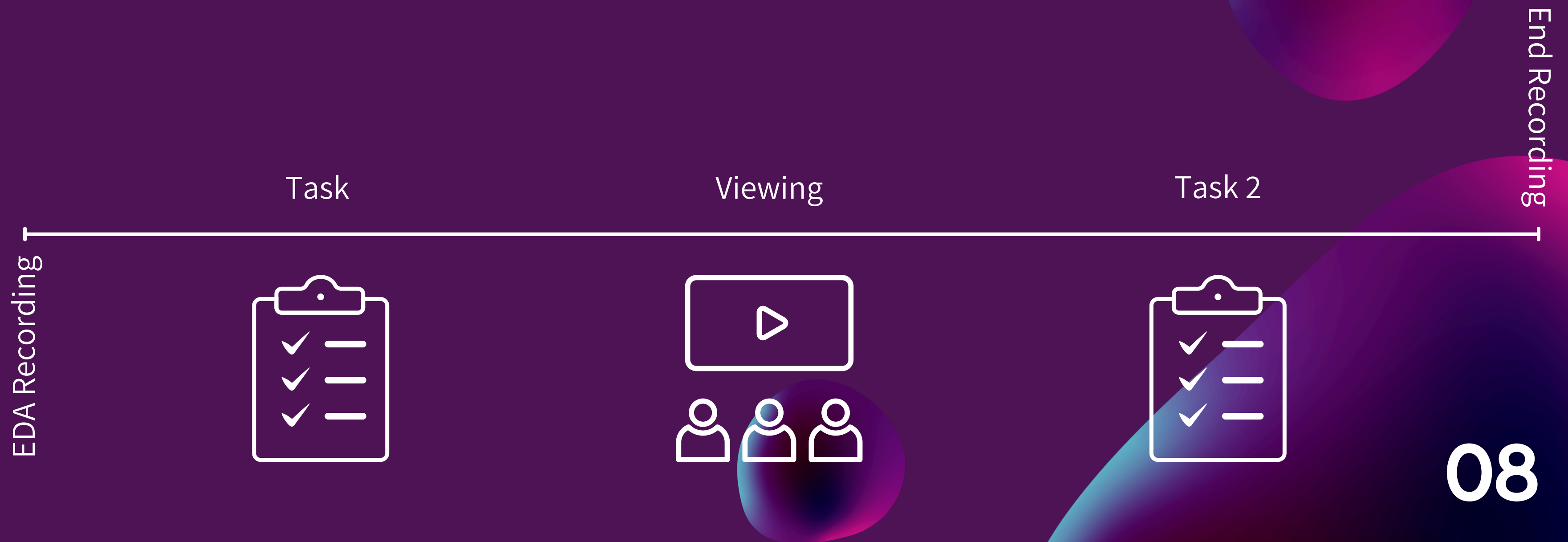
Methodology

IInstrumets:
- Internet Addiction Test (Young, 1998)
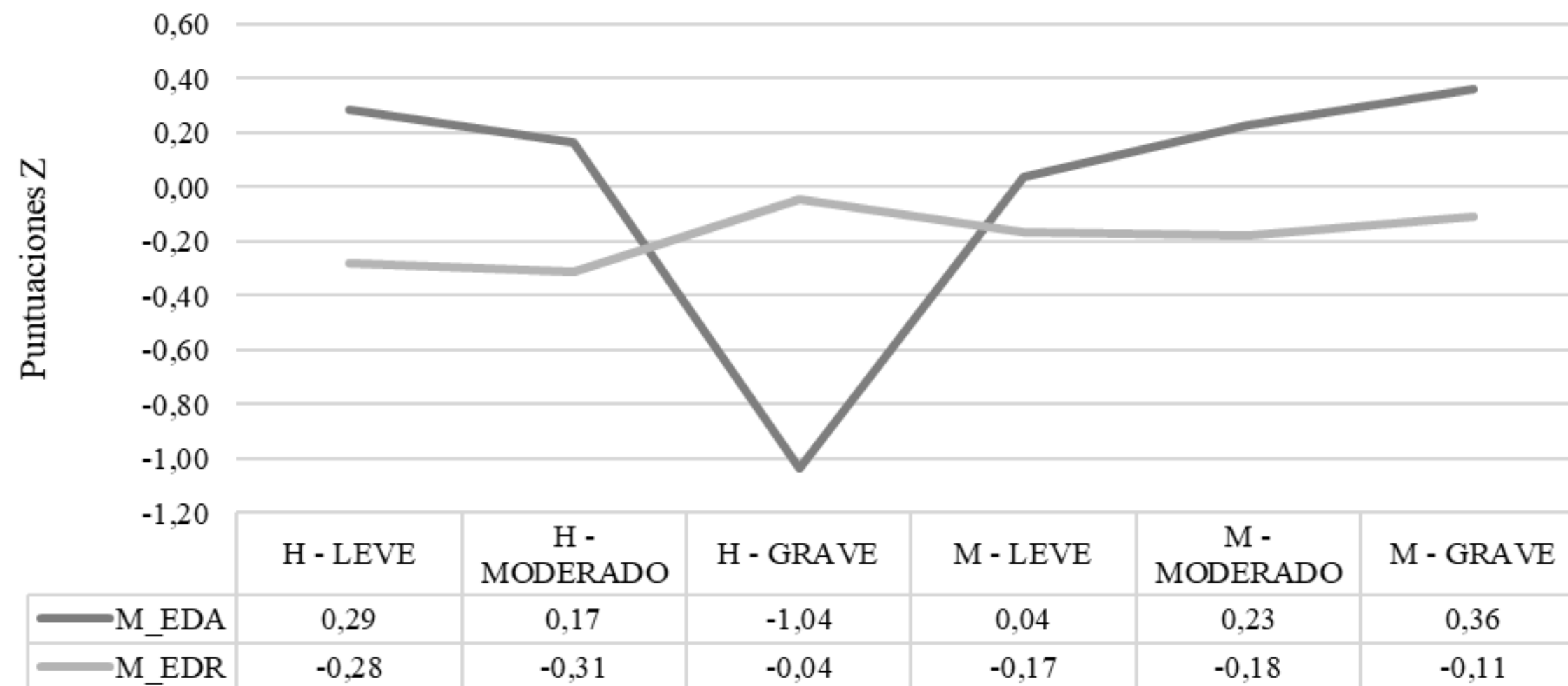- Sociograph (Herrador, 2013)

End Recording

Task

Viewing

Task 2

EDA Recording

08
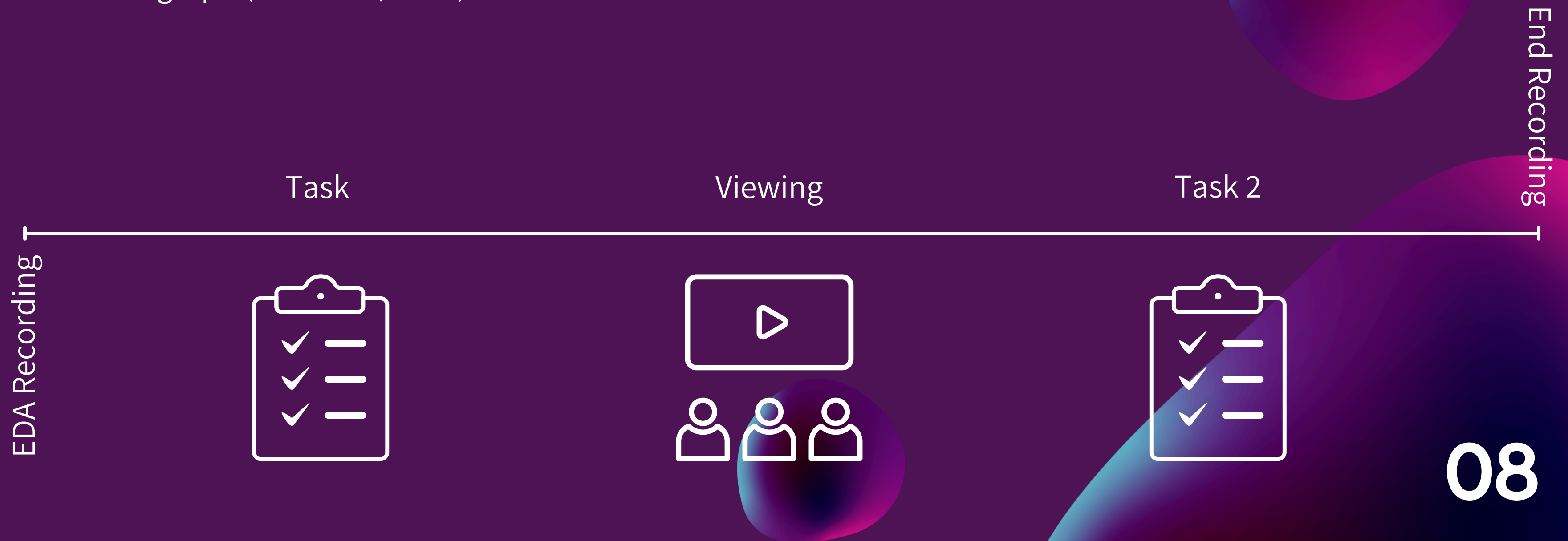
Methodology

EDA Recording: 15'8 hours, 952,83 minuts, 1.143.400 data points.

End Recording

Task   Viewing   Task 2

EDA Recording

08

Results

- **Viewing at each level of Internet addiction and gender**

	H - LEVE	H - MODERADO	H - GRAVE	M - LEVE	M - MODERADO	M - GRAVE
M_EDA	0,29	0,17	-1,04	0,04	0,23	0,36
M_EDR	-0,28	-0,31	-0,04	-0,17	-0,18	-0,11

Attention - men with severe level show a greater focus of attention ($F_{(5,363134)}=367.7094$, $p < .01$).

Emotion - men as well as women with severe level show greater emotional reactivity in relation to the rest of the groups ($F_{(5,363134)}=21.0787$, $p < .01$).
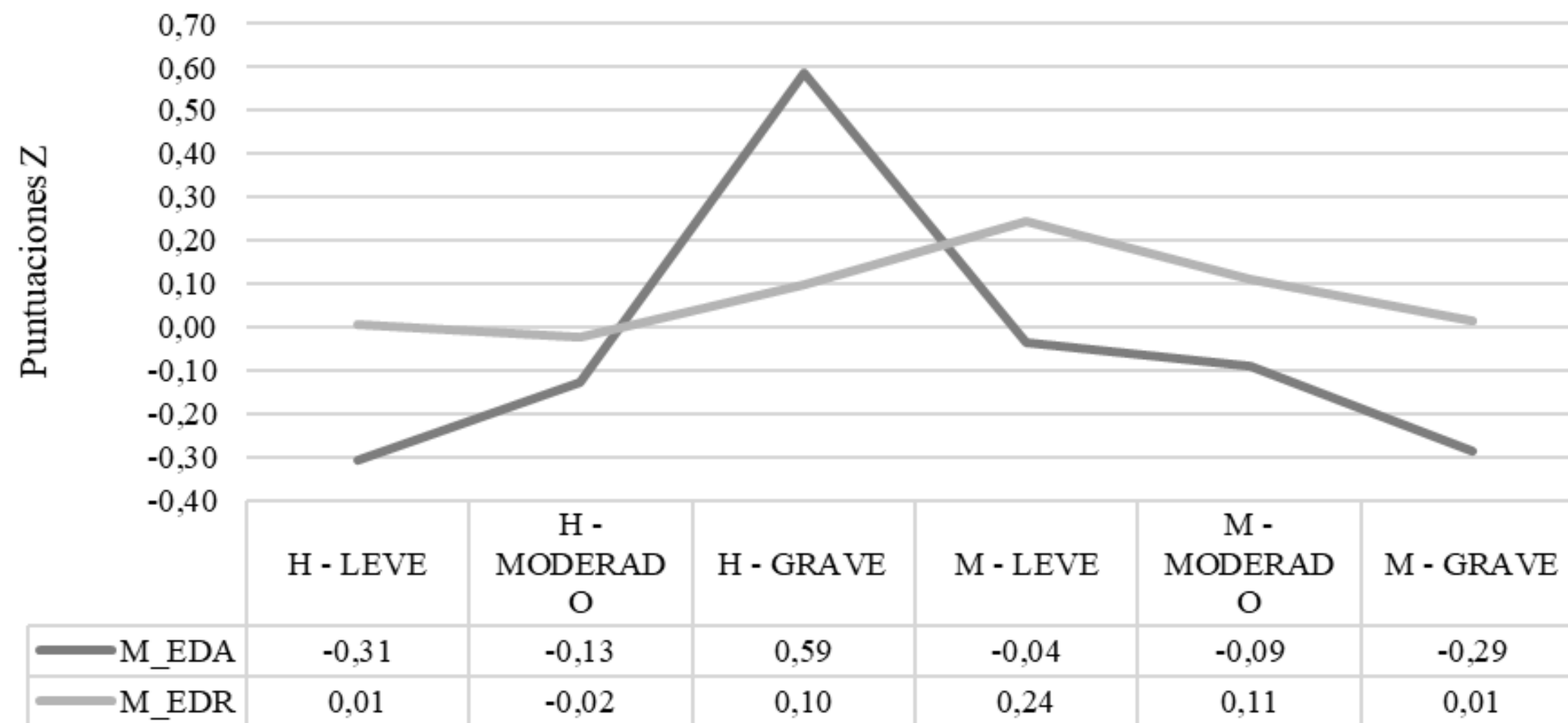
Discussion

Viewing

High addiction → higher attention (only in men).
- Women show less attention with higher addiction.
- Stable emotional reactivity, except in men with high addiction → higher reactivity.

▲ Visual stimuli promote attention in people accustomed to digital consumption.
▲ Gender influences how visual information is processed.

Results

- **Instrospective task at each level of Internet addiction and gender**

	H - LEVE	H - MODERADO	H - GRAVE	M - LEVE	M - MODERADO	M - GRAVE
M_EDA	-0,31	-0,13	0,59	-0,04	-0,09	-0,29
M_EDR	0,01	-0,02	0,10	0,24	0,11	0,01

Attention - men's attention decreases with increasing addiction, women's attention improves with increasing Internet addiction (F(5,61328) = 502.2957, p < .01).

Emotion - men with a severe level of addiction and women with a mild level of addiction have the most reactive emotional response.

Discusión

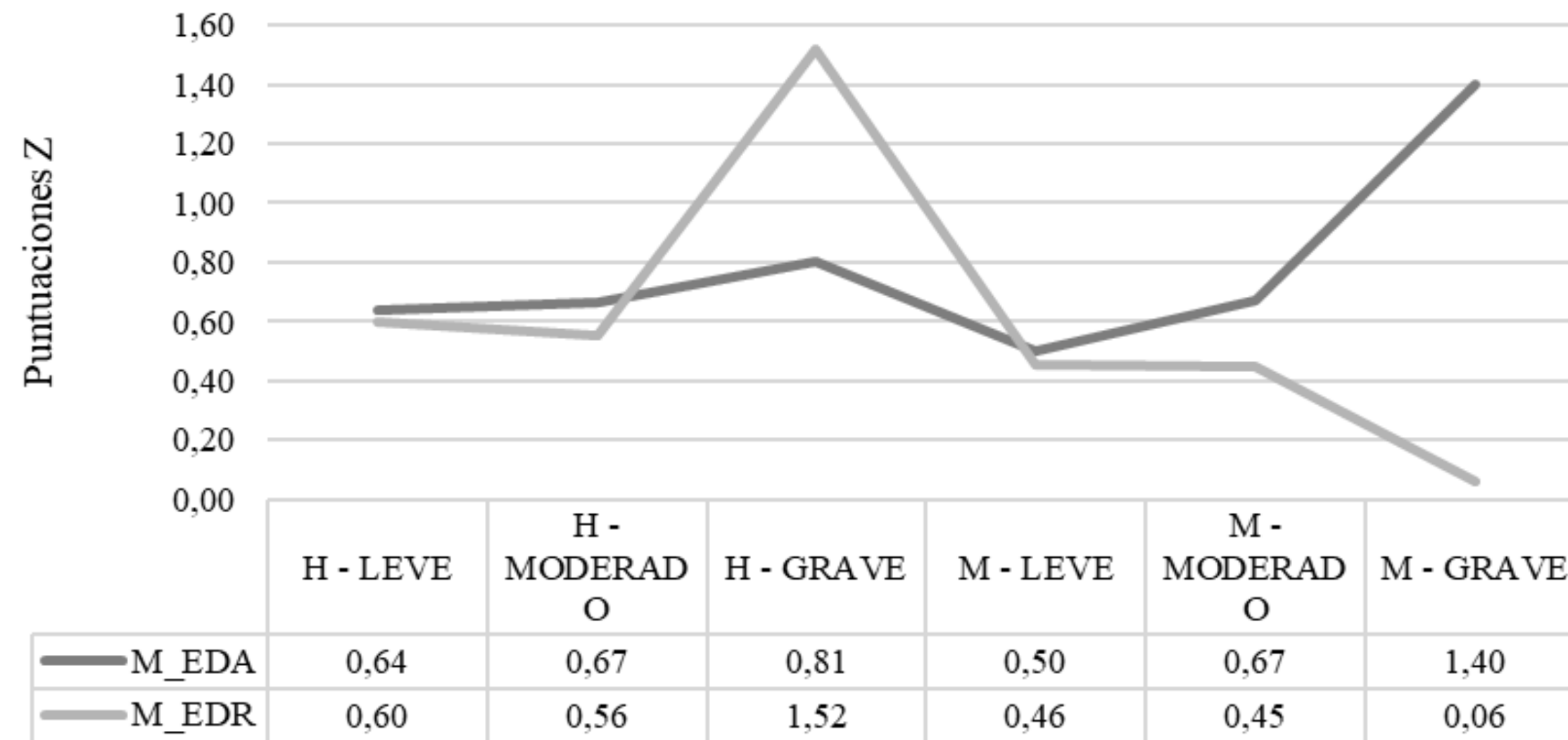Higher addiction → lower attention and excitement (general).
- Men: attention decreases.
- Women: attention increases, but excitement decreases.

Task

▲ In men: possible impulsive disregulation.
▲ In women: possible rumination and emotional disconnection as a defence.

Results

- **Analytical task at each level of Internet addiction and gender**

	H - LEVE	H - MODERADO	H - GRAVE	M - LEVE	M - MODERADO	M - GRAVE
M_EDA	0,64	0,67	0,81	0,50	0,67	1,40
M_EDR	0,60	0,56	1,52	0,46	0,45	0,06

Attention - both men and women with a severe level of Internet addiction, especially women, present a lower focus ($F_{(5,13408)} = 26.9795$, $p < .01$).

Emotion - both men and women with a severe level of addiction show high emotional reactivity ($F_{(5,13408)} = 85.8545$, $p < .01$).

Discusión

Task 2

High addiction → less attention (more severe in women).
  • But high emotional reactivity is detected in both genders.

🔺 Mismatch between emotional arousal and cognitive control.
🔄 Reflects possible impulsivity and low self-regulation in complex tasks.

14

Conclusión

Attention decreases as addiction grows
→ negative impact on academic performance.

High emotional reactivity without attentional control
→ impulsive pattern.

Gender as a key moderator: different attentional and emotional responses in men and women.

15

Thank you!

Internet Addiction and Gender: Differences in Attention and Emotion in Cognitive Tasks

Vicente Villalba Palacin

vicentevillalba@ub.edu

UNIVERSITAT DE BARCELONA