

PlayMancer: Serious Games for the treatment of Impulse Control-related disorders

INVENTORS: Fernando Fernández-Aranda (HUB), Zaida Agüera (HUB), Susana Jimenez (HUB)

HIGHLIGHTS

- ✓ **Biosensor-based serious video game**
- ✓ **Improvement of impulsivity in patients with gambling (GD) and eating disorders**
- ✓ **Combined treatment with treatment as usual (TAU)**

TECH STATUS

- ✓ **TRL: Clinical Studies**
- ✓ **IP: Know How & Software**

Problem to be solved

Impulse-control disorder (ICD) is a class of psychiatric disorders characterized by impulsivity – failure to resist a temptation, an urge, an impulse.

Many psychiatric disorders feature impulsivity, including behavioral addictions, food related disorders or gambling disorders.

There is a consensus about the limitations of the actual treatment of impulse control-related disorders, such as

- High rates of drop-out and relapses
- Low motivation and poor therapy adherence
- Poor prognosis
- Low social support and high isolation
- Impulsive traits and self-control deficits that are not addressed through traditional therapies

The introduction of Combined treatment with treatment as usual (TAU) combined with ICTs are effective treatment strategies for impulse control-related disorders.

Background

Gambling disorder (GD) is characterized by a significant lack of self-control and is associated with impulsivity-related personality traits. It is also linked to deficits in emotional regulation and frequently co-occurs with anxiety and depression symptoms.

There is also evidence that emotional dysregulation may play a mediatory role between GD and psychopathological symptomatology. Few studies have reported the outcomes of psychological interventions that specifically address these underlying processes.

PlayMancer (PM) is a serious videogame specifically designed to treat impulse control disorders (Jiménez-Murcia et al., 2009a; Fernández-Aranda et al., 2012). The objective of the game is to enhance self-control and general impulsive behaviors and emotional skills via training that reduces arousal and improves decision-making and planning.

Contact Information:

Business Development & Innovation Area

innovacio@idibell.cat

Innovation Portfolio Unit: Gisela Lorente glorente@idibell.cat (+34) 93 2607649

www.idibell.cat

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Technology

PM uses biofeedback to model physiological and emotional reactions. Literature reviews support that biofeedback-based tools are useful for treating those psychiatric disorders in which maladaptive physiological mechanisms are a relevant maintaining factor, as biofeedback contributes to becoming aware of one's own physiology and facilitates enhancing self-regulation (Schoenberg and David, 2014).

Other studies have shown that biofeedback interventions effectively address impulse control difficulties and improve attention deficits in different psychopathological disorders (Howard et al., 2013) including impulse-related disorders (Fagundo et al., 2013, 2014; Giner-Bartolomé et al., 2015).

The positive features offered by video games (e.g., intensiveness, immersive capacity, and low resistance) makes *PM an ideal candidate for addressing the underlying cognitive and emotional processes that are otherwise difficult to treat* (Fernández-Aranda et al., 2012).

Applications

The PlayMancer video-game prototype to be adopted for chronic mental disorders (mainly eating disorders and behavioral addictions) treatment, introduces the player to an interactive scenario where the final goal is to increase his general problem-solving strategies, self-control skills and control over general impulsive behaviors. After using the game, specific targeted attitudinal, emotional and behavioral changes are expected by the subject.

Technology status

The group has performed various PoC with GD and bulimia nervosa patients.

Market Opportunity

In its annual report, the financial firm Pricewaterhouse-Coopers predicts that the video games market will continue to expand at a compound annual rate of 9.1% over the next five years. Video gaming is one of the fastest-driving segments of the digital media market, no matter what region of the world is considered.

The serious games sector, is rapidly growing and is being adopted by many organizations of different types and sizes. A sector with a growing demand for serious games is that of Healthcare providers. The overall figure for the serious games market is expected to be around \$1.5 billion in 2018 in the U.S.

As serious games are gaining momentum in Europe and the video game industry is finding more and more business outside the entertainment sector, this figure is expected to rise to \$2 billion shortly.

For instance, the size of the U.S. market for brain stimulation products have more than doubled to \$225 million, according to a new report by the consulting group SharpBrains

Business Opportunity

Co-development or commercialization agreement.

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