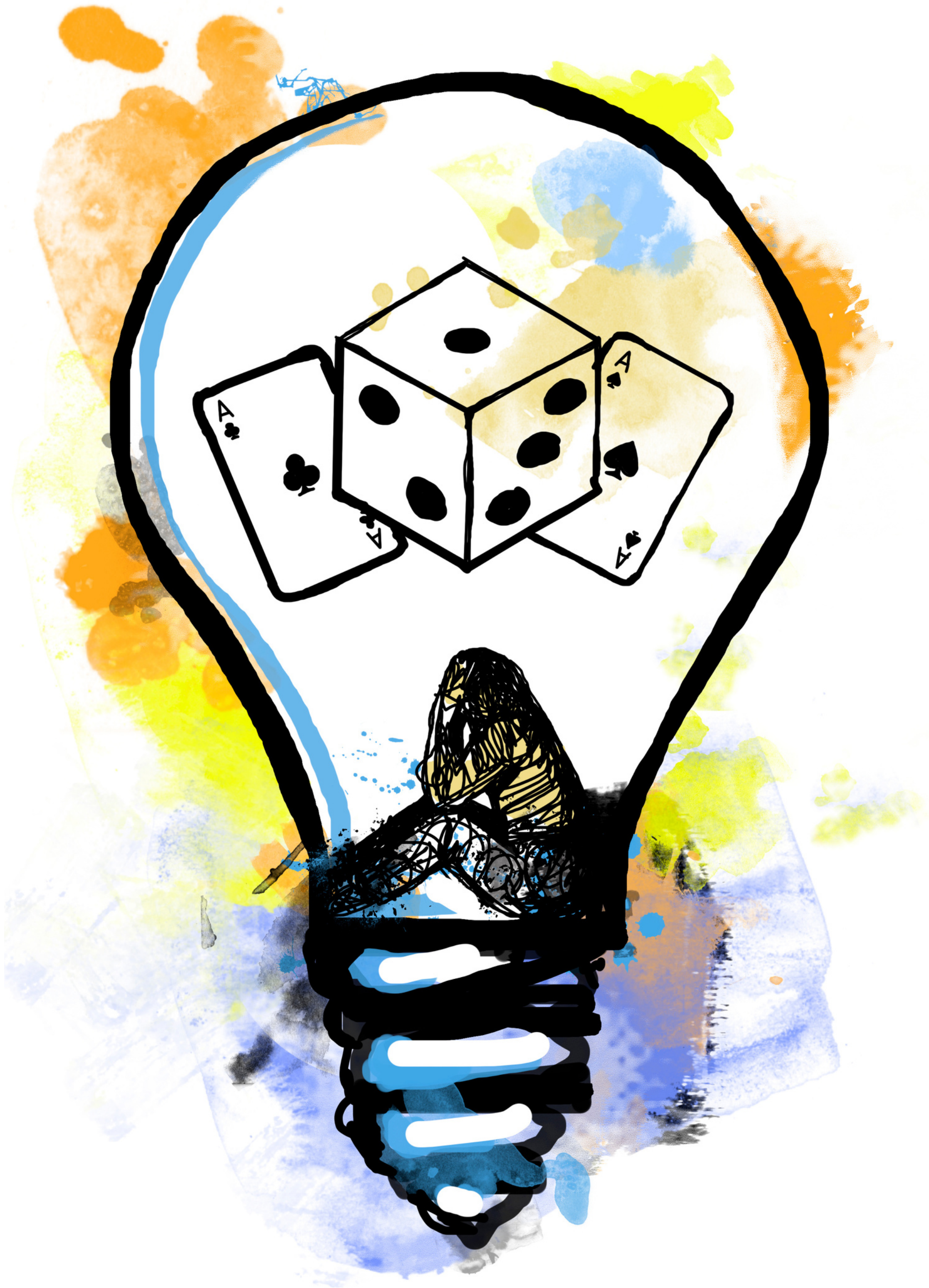# Innovations for the assessment and treatment of gambling disorder

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UNIVERSITAT JAUME·I

Programa de Doctorado en Psicología

Escuela de Doctorado de la Universitat Jaume I

Innovaciones para la evaluación y tratamiento del trastorno por juego

Innovations for the assessment and treatment of gambling disorder

Memoria presentada por Laura Díaz Sanahuja para optar al grado de doctora por la Universitat Jaume I

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A mis padres, mi hermano y mis abuelos/as que han sido siempre un gran apoyo para mí.

AGRADECIMIENTOS/ACKNOWLEDGEMENTS

Esta tesis doctoral se enmarca en una nueva línea de investigación que se ha iniciado en el grupo de investigación LabPsiTec sobre innovaciones para la evaluación y tratamiento del trastorno por juego. Cuando empecé este camino, nunca me imaginé lo que iba a suponer. Ha habido momentos muy buenos y otros momentos de mayor dificultad, pero que, sin lugar a duda, me han hecho crecer personal y profesionalmente. He podido tener la oportunidad de coincidir con grandes profesionales, compañeros y personas que me han acompañado y han sido un gran apoyo a lo largo de este tiempo. Esta tesis doctoral ha sido el resultado del esfuerzo y dedicación de muchas personas que se han implicado a lo largo de estos cinco años. Por ello, me gustaría agradecerles su contribución e implicación.

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You are looking in your side mirror so actually, you're looking back, but the road just continues. An important part of recovery is (re)discovering who you are and who you want to be.

(Testimonies of women recovered from addiction)

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CHAPTER 4: Efficacy of an internet-based psychological intervention for problem gambling and gambling disorder: Study protocol for a randomized controlled trial.

CHAPTER 5: A self-applied psychological treatment for problem and pathological gambling via the Internet: A pilot feasibility study.

PRESENTATION

The present dissertation is a compendium of five publications. Two of these publications have already been published in an indexed journal, one article was sent for publication, and two are in preparation. In addition, a general introduction and discussion of the results are included. The following table summarizes the studies that comprise this dissertation:

Chapter 1	Diaz-Sanahuja, L., Paredes-Mealla, M., Suso-Ribera, C., García-Palacios, A., & Bretón-López, J. M. (2022). Validation of a Spanish adaptation of the Gambling Symptom Assessment Scale (G-SAS) in persons with recent history of gambling. Submitted to the Journal of Gambling Studies. Impact factor: 3.396; Category "Psychology, Multidisciplinary" (Rank: 49/147; Quartile: 2)
Chapter 2	Diaz-Sanahuja, L., Paredes-Mealla, M., Suso-Ribera, C., García-Palacios, A., Quero, S., & Bretón-López, J. M. (2022). Development and validation of the Emotional Gambling Scale (EGS) in a community sample from Spain with recent history of gambling. In preparation for submitting.
Chapter 3	Diaz-Sanahuja, L., Miralles, I., Granell, C., Mira, A., González-Pérez, A., Casteleyn, S., García-Palacios A., & Bretón-López, J. (2022). Client's Experiences Using a Location-Based Technology ICT System during Gambling Treatments' Crucial Components: A Qualitative Study. *International Journal of Environmental Research and Public Health, 19*(7), 3769. https://doi.org/10.3390/ijerph19073769 Impact factor: 4.614; Category "Environmental Sciences" (Rank: 100/279; Quartile: 2); Category "Public, environmental and occupational health (Rank:71/210; Quartile: 2).
Chapter 4	Diaz-Sanahuja, L., Campos, D., Mira, A., Castilla, D., García-Palacios, A., & Bretón-López, J. M. (2021). Efficacy of an internet-based psychological intervention for problem gambling and gambling disorder: Study protocol for a randomized controlled trial. *Internet interventions, 26,* 100466. Impact factor: 5.358; Category "Health care sciences and services" (Rank:17/109; Quartile:1).
Chapter 5	Diaz-Sanahuja, L., Suso-Ribera, C., Lucas, I., Tur, C., Gual-Montolio, P., Paredes-Mealla, M., García-Palacios, A., & Bretón-López, J. (2022). A self-applied psychological treatment for problem and pathological gambling via the Internet: A pilot feasibility study. In preparation.

This thesis has been accepted by the co-authors of the above-mentioned publications, who have waived the right to present them as a part of another Ph.D. thesis (see Annex 1).

ABSTRACT

Gambling disorder (GD) is a non-substance addiction characterized by problematic gambling behavior that persists. It recurs despite harmful consequences and clinically significant impairments in different life domains (e.g., financial, social, occupational, and family) (APA, 2013). It is a significant health problem, and its prevalence has increased. Therefore, it is important to pay attention to research on assessment instruments and psychological treatments to address this pathology.

The attention provided to the assessment of GD has not been the same as in other disorders in the literature, and that is a fundamental commitment that needs to be made among professionals who study this problem. One of the central instruments in the assessment of gambling and its severity is the Gambling Symptom Assessment Scale (G-SAS) which assesses gambling urges, gambling-related thoughts and behaviors, and interpersonal functioning symptomatology in the past week. Gambling severity evaluation tools have focused more on screening (e.g., NORC DSM-IV Screen for Gambling Problems, NODS), usually considering symptoms in the previous 12 months. However, it is also crucial to assess gambling symptomatology by taking shorter periods into account, as on the G-SAS, which is a well-established measure and the one most frequently used, and makes it possible to know the pattern of changes in order to monitor the patient's progress. On the other hand, there is a lack of assessment of emotions associated to gambling as important triggers of gambling behavior. This issue also motivated us to develop a new tool to assess emotions and feeling that can lead to higher gambling urges, associated with an increased probability of gambling behavior. All in all, the aim is to contribute to the supply of psychological assessment tools for GD.

There are other measures that evaluate mechanisms related to GD (e.g., emotional regulation difficulties and impulsivity), such as the Difficulties in Emotion Regulation Scale (DERS) and the short UPPS impulsivity scale. But there is no assessment tool that measures the extent to which different emotions with positive and negative valences lead to feeling stronger gambling urges, which is related to higher gambling lapse rates.

Regarding psychological treatments for GD, cognitive-behavioral treatment is the approach with the most empirical evidence, along with motivational interviewing. Despite the

existence of effective treatments, few people seek help, probably due to barriers such as stigma, problems with geographical mobility, and lack of time. Information and Communication Technologies (ICT) could be a means to overcome these barriers. Internet and smartphone apps could help to increase accessibility of psychological treatments for GD. Internet-based treatments have proven to be effective, and smartphone apps to deliver treatments through ecological momentary interventions, have obtained good results on gambling-related outcomes (e.g., reducing gambling episodes, craving occurrences and intensity, and increasing self-efficacy). A commitment of the present thesis is to follow up on the contribution made by ICT to deliver psychological treatments in gambling disorders.

This thesis aims to contribute to scientific progress in the assessment and treatment of GD by adapting and developing new instruments, validating them, and introducing ICT to treat GD. Chapters 1 and 2 focus on research and innovation in GD assessment. They present, on the one hand, the Spanish adaptation and validation of the scale for the evaluation of gambling disorder symptoms (G-SAS) and, on the other hand, the development and validation of the emotional gambling scale in people who have recently gambled. The Chapters 3, 4 and 5 present new proposals for the psychological treatment of this problem, including ICTs. Specifically, Chapter 3 describes a mobile geolocation application used as an adjunct support treatment to traditional face-to-face therapy. It is based on the cognitive-behavioral approach and used when applying two fundamental therapeutic components, stimulus control (SC) and exposure with response prevention (ERP). When using this application, a qualitative study is conducted to determine the first experiences of use by the opinions of two participants with problematic and pathological gambling. Chapter 4 consists of the development of an online psychological treatment program ('SIN JUGAR, GANAS') and the registration of the intellectual property of this program, and it presents the protocol for a randomized controlled trial. In addition, it describes the assessment and intervention protocol in detail, as well as other complementary tools (e.g., Ecological Momentary Assessment/Intervention, EMA/EMI) used to promote treatment adherence. Finally, Chapter 5 consists of a pilot feasibility study of the same program. Preliminary results are shown for measures of feasibility (e.g., reach, appropriateness, system usability, fidelity, and adherence) and effectiveness (e.g., degree of the urge to gamble, self-efficacy to resist gambling, and symptoms of anxiety and depression) across the first three modules (motivation to change, psychoeducation and SC, and responsible debt repayment).

First, regarding the results obtained in Chapters 1 and 2, it can be observed that the G-SAS scale has a four-factor structure (gambling-related symptoms, impulse control/thoughts of gambling, interference, and activation), and the emotional gambling scale has two factors (positive and negative emotions). The construct validity, as well as its psychometric and conceptual adequacy, is confirmed for both scales. With regard to Chapter 3, the "Symptoms" application was well accepted by the participants as a complementary tool in applying the therapeutic components, SC and ERP. Participants expressed high levels of satisfaction and favorable expectations, and the system's usability ranged from "excellent" to "best imaginable". Furthermore, they considered that it served as accompaniment and protection and helped to prevent relapses and achieve habituation of gambling urges during the application of the ERP component. Finally, for Chapters 4 and 5, intellectual property registration was obtained for the program, which could be transferred and integrated into health platforms. Regarding the pilot feasibility study, preliminary data showed difficulties in reach and modest results for adherence to EMA/EMI and weekly phone calls. However, there were good results for the commitment to the web platform in terms of appropriateness and usability and preliminary efficacy outcomes (e.g., degree of the urge to gamble and self-efficacy to resist the urge to gamble) from pre-treatment to Module 3.

In conclusion, this thesis contributes to advancing the scientific knowledge on the assessment and treatment of GD by incorporating new proposals and alternatives, including both assessment instruments and interventions that incorporate ICT and would make the available psychological therapies more accessible and cost-effective.

RESUMEN

El trastorno por juego es una adicción sin sustancias que se caracteriza por una conducta problemática de juego que persiste y se repite a pesar de las consecuencias negativas y del deterioro clínicamente significativo en diferentes ámbitos de la vida (por ejemplo, financiero, social, laboral y familiar) (APA, 2013). Es un problema de salud importante y su prevalencia ha aumentado. Por lo tanto, es importante prestar atención a la investigación sobre los instrumentos de evaluación y los tratamientos psicológicos destinados a abordar esta patología.

La atención prestada a la evaluación del trastorno por juego no ha seguido el mismo ritmo que la de otros trastornos, y ese es un compromiso fundamental que deben asumir los profesionales que estudian este problema. Uno de los instrumentos centrales en la evaluación del juego y su gravedad es la Escala de Evaluación de los Síntomas del Juego (G-SAS) que evalúa el impulso de jugar, los pensamientos y conductas relacionados con el juego, y el funcionamiento interpersonal durante la última semana. Por un lado, por lo que respecta a la evaluación en el campo de la investigación del trastorno por juego, las herramientas de evaluación de la gravedad del juego se han centrado más en el cribado (p.ej., NORC DSM-IV Screen for Gambling Problems, NODS), normalmente considerando los síntomas en los 12 meses anteriores. Sin embargo, también es fundamental evaluar la sintomatología del juego teniendo en cuenta períodos más cortos, como en la Escala de Evaluación de los Síntomas del Juego (G-SAS), que es la medida más utilizada y está bien establecida y que permite conocer el patrón de cambios para poder controlar la evolución del paciente. Por otro lado, falta evaluar las emociones asociadas al juego ya que pueden ser importantes desencadenantes de la conducta de juego. Esta cuestión también nos motivó a desarrollar una nueva herramienta para evaluar las emociones y los sentimientos que pueden influir en la experimentación de un mayor impulso de juego, ya que esto está asociado a una mayor probabilidad de que suceda la conducta de juego. En definitiva, el objetivo es contribuir a la oferta de herramientas de evaluación psicológica del trastorno por juego. Por otro lado, en relación a los tratamientos psicológicos para el trastorno por juego, el tratamiento cognitivo-conductual es el enfoque más evidenciado, así como la entrevista motivacional. Y a pesar de la existencia de tratamientos eficaces, pocas personas buscan ayuda. Probablemente, debido a algunas barreras como el estigma, los problemas de movilidad geográfica, la falta de tiempo, entre otros. Las Tecnologías de la

Información y la Comunicación (TIC) podrían ser un medio para superar estas barreras. Internet y las aplicaciones móviles podrían ayudar a aumentar la accesibilidad a los tratamientos psicológicos para el abordaje del trastorno por juego. Los tratamientos aplicados a través de Internet, han demostrado su eficacia. Y estudios recientes se han centrado en el desarrollo de aplicaciones móviles para administrar intervenciones momentáneas ecológicas, obteniendo buenos resultados en las medidas relacionadas con el juego (p.ej., reduciendo episodios de juego, frecuencia e intensidad del impulso por jugar y aumentando la autoeficacia). Un compromiso de la presente tesis es seguir con la contribución que hacen las TIC para dispensar tratamientos psicológicos en los trastornos del juego.

El objetivo de esta tesis es contribuir al progreso científico en la evaluación y el tratamiento del trastorno del juego mediante la adaptación y el desarrollo de nuevos instrumentos y su validación, así como mediante la introducción de las TIC en el tratamiento del trastorno por juego.

El capítulo 1 y 2, se centran en la investigación e innovación sobre el ámbito de la evaluación del trastorno por juego. Se presentan, por un lado, la adaptación y validación española de la escala para la evaluación de los síntomas del trastorno por juego (G-SAS) y, por otro lado, el desarrollo y validación de la escala de jugar emocional en personas que han jugado recientemente a algún tipo de juego de azar. Los capítulos 3, 4 y 5 plantean nuevas propuestas para el tratamiento psicológico de esta problemática, incluyendo las TIC. En concreto, el capítulo 3, describe una aplicación móvil de geolocalización que se utiliza como un tratamiento adyuvante de apoyo a la terapia cara a cara tradicional basada en la corriente cognitivo-conductual, y que se emplea durante la aplicación del dos de los componentes terapéuticos fundamentales, el control estimular y la exposición con prevención de respuesta. Se lleva a cabo un estudio cualitativo para conocer las primeras experiencias de uso y la opinión que tienen dos participantes con juego problemático y patológico al emplear esta aplicación. El capítulo 4, plantea el desarrollo de un programa de tratamiento psicológico online ('SIN JUGAR, GANAS'), y el registro de la propiedad intelectual de dicho programa, y se presenta el protocolo de un ensayo controlado aleatorizado. En éste, se describen el protocolo de evaluación e intervención con detalle, así como otras herramientas complementarias (p.ej., Evaluación/Intervención Ecológica Momentánea, EMA/EMI) utilizadas para fomentar la adherencia al tratamiento. Finalmente, el capítulo 5 consiste en un estudio piloto de viabilidad sobre la aplicación de este mismo programa. Se muestran resultados preliminares de las

medidas de viabilidad (p.ej., alcance, adecuación, usabilidad del sistema, fidelidad y adherencia) y de eficacia (p.ej., grado de impulso por jugar, autoeficacia para resistirlo, y síntomas de ansiedad y depresión) a lo largo de los tres primeros módulos (motivación para el cambio, psicoeducación, y control estimular y devolución responsable de deudas). En primer lugar, en cuanto a los resultados obtenidos en el capítulo 1 y 2, se observa que el G-SAS tiene una estructura de cuatro factores (síntomas relacionados con el juego, control de los impulsos/pensamientos de juego, interferencia y activación) y la EGS dos factores (emociones positivas y negativas), y se confirma para ambas, la validez de constructo, así como su adecuación psicométrica y conceptual. En relación al capítulo 3, la aplicación "Symptoms", es bien aceptada por los participantes como herramienta complementaria en la aplicación de los componentes terapéuticos, control estimular y exposición con prevención de respuesta, expresaron altos niveles de satisfacción y expectativas favorables, y la usabilidad del sistema osciló entre "excelente" y "mejor imaginable". Además, consideraron que servía de acompañamiento y protección, y que fue útil para prevenir recaídas y para conseguir la habituación del impulso por jugar durante la aplicación del componente de exposición con prevención de respuesta. Finalmente, en cuanto al capítulo 4 y 5, se obtuvo el registro de la propiedad intelectual del programa, que podría transferirse e integrarse en plataformas sanitarias. En cuanto al estudio de viabilidad, los datos preliminares mostraron dificultades en el alcance y resultados modestos en la adherencia a las EMA/EMI y a las llamadas telefónicas semanales. Sin embargo, hubo buenos resultados en la adherencia a la plataforma web, también en relación con la adecuación y la usabilidad, así como en los resultados preliminares de eficacia (p.ej., grado de impulso por jugar y en la autoeficacia para resistir el impulso por jugar) desde el pretratamiento hasta el módulo 3.

En conclusión, esta tesis doctoral contribuye al avance del conocimiento científico sobre la evaluación y del tratamiento del trastorno por juego, a través de la incorporación nuevas propuestas y alternativas, tanto en relación a instrumentos de evaluación como a intervenciones que incorporan las TIC y que favorecerían que los tratamientos psicológicos disponibles sean más más accesibles y costo-efectivos.

GENERAL INTRODUCTION

Gambling behavior is a frequent activity that involves placing something of value at risk to gain something of outstanding value, and it has different components such as the amount bet (often money), elements of chance, and prizes (Stefanovics & Potenza, 2021). It is considered a recreational and socially acceptable means of entertainment (Calado & Griffiths, 2016; Stucki & Rihs-Middel, 2007). Land-based gambling is still the most common format (Sancho et al., 2018). However, online gambling has increased worldwide due to easier accessibility to a wide range of types of games from any location, lower costs, comfort, anonymity, social acceptance, and the possibility of immediate feedback (Díaz & Pérez, 2021; Gainsbury, 2015). According to the 'Dirección General de Ordenación del Juego, DGOJ' (2022), in Spain, the monthly means of currently active and new accounts in the second quarter of 2022 were 993,149 and 146,057, respectively. The Gross Gaming Revenue (the net amount of money spent on gambling) corresponds to 203.95 million €, and it was higher for casino games (57.44%), followed by sports betting (29.86%), poker (11.05%), and Bingo (1.64%). Thus, although gambling is perceived as a popular leisure activity and has a significant economic impact in the nations where it is legal, there are important unfavorable costs. It can lead to a risk of gambling disorder (GD) escalation and severe negative consequences (Chóliz, Marcos & Lázaro-Mateo, 2019; Gainsbury, Russell, Hing, Wood, & Blaszczynski, 2013).

GD is a psychological disorder resulting from various biological, psychological, and social risk factors (Bodor, Ricijaš, Filipčić, 2021). There are different theoretical models that explains the aetiology and maintenance of GD. Early models such as the general model of addiction (Jacobs, 1986) and the behavioral models of addiction (McCormick, 1988) considered that gambling behaviour is a manner to regulate emotional arousal. Although there is a strong correlation between arousal and gambling behavior, none of these hypotheses explains why some people gamble despite the negative effects on their lives, as occur on GD (Dickerson, 1989). The Cognitive-behavioural theory of gambling (Sharpe & Terrier, 1993) assumes that gambling behaviour is acquired by the operant and classical conditioning. Environmental cues, beliefs and arousal are associated with gambling behaviour and functions as triggers of gambling urges and gambling episodes. The absence of certain coping skills due to environmental deficits or biological predisposition (e.g., lack of self-control of autonomic

arousal, irrational cognitions, delay decision making, reinforcement, and deficit in problem solving skills), are factors that influence the acquisition of problem gambling. Process model of emotion regulation (Rogier & Velotti, 2018) considered that deficits in emotional regulation (ER) processing throughout their interaction with cognitive, behavioral, and interpersonal variables. accounts for etiologic and maintenance of GD. Failure in ER processes after the occurrence of the arousal of emotional states can be produced on the identification of emotional states, selection or implementation of ER strategies and explains the heterogeneity of pathological gamblers. (Sheppes, Suri & Gross, 2015).

GD is included in the "Substance-Related and Addictive Disorders" section of the "Diagnostic and Statistical Manual of Mental Disorders (DSM-5®)" (American Psychiatric Association [APA], 2013) and in the disorders due to substance use or addictive behaviors of the "International Statistical Classification of Diseases and Related Health Problems (ICD-11)" (World Health Organization, 2019). It is characterized by involvement in gambling behavior that persists despite significant impairment in various spheres of life (e.g., financial, occupational, social), due to a lack of control over different aspects of gambling behavior, such as the onset, frequency, intensity, duration, termination, or context. People suffering from GD commonly experience tolerance and need to gamble with larger amounts of money in order to achieve the desired sensation of excitement. Moreover, they feel irritable when trying to reduce or cease gambling behavior, and although they have attempted to control gambling several times, they have been unsuccessful. Preoccupations with gambling are frequently present and could be related to how to get money for gambling, planning future bets, or reliving past experiences. Gambling behavior often occurs when experiencing unpleasant emotions (e.g., guilty, anxiety, and sadness), and it is also related to gambling after losing to chase these losses. Gambling can lead people suffering from GD to a desperate situation, and they usually rely on others to provide money to cope with their affected financial situation. GD prevalence rates worldwide range from 0.12% to 5.8% (in the past year) and from 0.7% to 6.5% (lifetime). In Europe, the past-year prevalence oscillated from 0.12% to 3.4% (Calado & Griffits, 2016). Specifically, in a study by Becoña (2004) in a specific Spanish region, the past-year prevalence for pathological gamblers measured with the Norc Diagnostic Screen for Gambling Disorders (Becoña, 2004; Gerstein et al., 1999) was 0.31%, and for problem gamblers, 0.25%. However, Chóliz et al. (2019) recently found a greater GD prevalence in Spain (0.72%). Despite these prevalence numbers, it is important to note that GD is commonly underdiagnosed because few people seek help (Potenza et al., 2019; Shah, Quilty, Kim, Graff-Guerrero, & Gerretsen, 2020).

Therefore, a higher prevalence rate could be expected. Regarding sex differences, GD has been more prevalent in men than in women, with a ratio of about 2:1 (Gartner, Bickl, Härtl, Loy, & Häffner, 2022; Potenza et al., 2019), showing a different evolution related to the telescoping effect. Whereas men generally become involved in gambling activities earlier, women do so later in life but develop problematic gambling behavior faster than men. Men usually prefer skill-oriented games (e.g., poker), whereas women choose activities that are completely chance-based (e.g., bingo and slot machines), probably because women generally use them in a maladaptive manner to regulate emotions and escape from problems. Men might be looking for sensations of excitement (Stefanovics & Potenza, 2021). Nevertheless, although several studies study sex differences, research on gender differences is scarce (Gartner et al., 2022).

Considering the complexity of GD symptomatology, 96% of patients present other psychological disorders (Solé-Morata et al., 2022). The most common psychological conditions are nicotine dependence (60.1%) and other substance use disorders (57.5%), followed by mood (37.9%) and anxiety disorders (37.4%) (Lorains, Cowlishaw, & Thomas, 2011). Moreover, in accordance with Solé-Morata et al. (2022), although at lower rates, there is also comorbidity with attention-deficit hyperactivity disorder (ADHD) (Mestre-Bach et al., 2021) and other behavioral addictions such as gaming disorder and compulsive buying (Ford & Häkansson, 2020). In addition, Dowling et al. (2014) also mentioned that the comorbidity with personality disorders was high, with 17.6% being Cluster B disorders, 12.6% Cluster C disorders, and 6.1% Cluster A disorders. The most prevalent were narcissistic (16.6%), antisocial (14.0%), avoidant (13.4%), obsessive-compulsive (13.4%), and borderline (13.1%) personality disorders.

In addition, although it is not currently included in the DSM5 as a criterion for the diagnosis of GD, performance of illegal acts is related to GD. It may be a consequence of gambling behavior, as a way to continue to gamble or cope with financial debts. In fact, 23.26% of pathological gamblers performed at least one illegal act, a percentage that is higher in the case of young adults, increasing to 36% (Jiménez-Murcia et al., 2019; Mestre-Bach et al., 2021; Solé-Morata et al., 2022). These acts are associated with greater gambling severity and duration of the disorder (Gorsane et al., 2017; Jiménez-Murcia et al., 2019; Solé-Morata et al., 2022). High levels of impulsivity generally characterize GD, as well as sensation seeking, avoidance of harm, emotional regulation difficulties, erroneous gambling beliefs, and deficits in impulse control related to higher cognitive processes such as decision-making (Granero et al., 2020; Mallorquí-Bagué et al., 2018; Solé-Morata et al., 2022; Zilberman et al., 2018).

GD and its comorbid symptomatology cause significant impairment and are a considerable public health problem. Serious repercussions, including suicide ideation and attempts, are present in addictive disorders, including GD. The prevalence of suicidal ideation in non-substance related disorders was higher in GD (22.9%) than in other behavioral addictions (e.g., buying-shopping disorder, 18.4%; sex addiction, 18.2%; gaming disorder, 6.1%), and the prevalence rate of suicide attempts was 6.7% (Valenciano-Mendoza et al., 2021). Karlsson & Häkansson (2018) reported that suicide behavior rates among individuals with GD are 15 times higher than in the general population, with depression being a predictor of death by suicide.

However, GD is a heterogeneous disorder, and the pathways model proposes three types of profiles: behaviorally conditioned, emotionally vulnerable, and antisocial and impulsive problem gamblers (Blaszczynski & Nower, 2002; Kurilla, 2021). The three subtypes develop in response to the accessibility of gambling activities, classical and operant conditioning processes, and erroneous perceptions of the probability of winning. Gamblers of the first type (behaviorally conditioned) are initially involved in gambling activities for entertainment or socialization purposes. They do not present significant premorbid psychopathology, substance abuse, or impulsivity. Instead, they are generally worried about gambling and present alcohol abuse, anxiety, and depressive symptoms resulting from their gambling behavior. In the second type (emotionally vulnerable), there is usually a presence of premorbid anxiety and/or depressive symptoms, poor coping and problem-solving skills, and adverse childhood experiences (e.g., rejection, low self-esteem). The reason for the gambling behavior is mainly related to emotional regulation states. Finally, the third type (antisocial and impulsive) is distinguished particularly by impulsivity, attentional deficits, and antisocial personality traits, and it is translated into maladaptive behaviors (e.g., experimentation with alcohol and other drugs, illegal acts) that affect the person's psychosocial functioning (e.g., interpersonal relationships). The emotional and impulsive subtypes are the most problematic (Kurilla, 2021), which agrees with Vintró-Alcaraz et al. (2022), who report that higher levels of impulsivity and emotional regulation difficulties have been related to greater gambling severity (Solé-Morata et al., 2022).

Assessment of gambling disorders

Several screening and assessment instruments are available, but many have not undergone rigorous psychometric evaluation (Potenza et al., 2019). A systematic review by Otto et al. (2020) only identified three validated screening instruments that met semi-structured

interview reference standards. They correspond to the South Oaks Gambling Screen (SOGS) (Goodie et al., 2013), the Massachusetts Gambling Screen (MAGS) (Weinstock, Whelan, Meyers, & McCausland, 2007), and the Problem Gambling Severity Index (PGSI) (Dellis et al., 2014). The SOGS was the one most frequently used. However, other measures have often been employed, such as the Diagnostic and Statistics Manual of Mental Disorders (DSM-IV and DSM-5) and the NORC DSM-IV Screen for Gambling Problems (NODS), which have also shown satisfactory reliability, validity, and classification accuracy (Brazeau & Hodgins, 2022; Pickering, Keen, Entwistle & Blaszczynski, 2018; Stinchfield et al., 2016).

In addition to screening measures, it is essential to evaluate the patients' progress and recovery measures. A systematic review by Pickering et al. (2018) mentioned that 39.7% of the studies primarily reported gambling-specific outcome measures. It is relevant to assess the symptoms of GD, psychiatric comorbidities, psychological processes linked to the treatment approach, and global functioning and well-being. In terms of gambling symptom severity, some instruments assess this construct during shorter periods; the scale that is used the most and shows good psychometric proprieties is the Gambling Symptom Assessment Scale, G-SAS, (Kim, Grant, Potenza, Blanco, Hollander, 2009). It evaluates gambling severity through gambling urges, gambling-related thoughts and behaviors, and interpersonal functioning, considering a time frame of one week. The original version was adapted and validated in countries such as the USA, Singapore, and Japan (Kalkan & Griffiths, 2021; Ong, Peh, Asharani & Guo, 2016; Yokomitsu & Kamimura, 2019), but it has not been validated in Spanish. Other variables related to gambling correspond to gambling-related cognitions. Pickering et al. (2018) found that the Gambling-Related Cognitions Scale (GRCS) and the Gambling Beliefs Questionnaire (GBQ) were the most frequently used instruments to assess these cognitions. Finally, important aspects related to gambling outcomes are gambling behavior and urges. Gambling behavior was commonly measured by using the Timeline Follow/back diary method (e.g., gambling episodes, gambling duration over the past week/month/day, and expenditure) and the Gambling Abstinence Self-Efficacy Scale (GASS). In terms of gambling urges, the most common tool used was the Gambling Urges Scale (GUS). However, a problem arose in measuring gambling urges and self-efficacy, among other variables. Daily variations in these variables could cause a relapse, making the time of the assessment critical (Shiffman, 2009). Thus, it is crucial to introduce ecological momentary assessments in order to be able to collect real-time data in people's natural environments (Hawker, Merkouris, Youssef, & Dowling, 2021).

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Other outcomes that are not specific to gambling would be anxiety and depression, impulsivity, emotional regulation, and well-being (Pickering et al., 2018; Velotti, Rogier, Beomonte & Billieux, 2021). Emotional regulation difficulties and impulsivity play an essential role in the onset, maintenance, and relapse of GD (Velotti, et al., 2021). Thus, it is important to know about possible changes in these measures during the application of the psychological treatment. There are instruments for evaluating these outcomes, such as The Difficulties in Emotional Regulation Scale (DERS; Gratz & Roemer, 2004) and the Urgency, Premeditation, Perseverance, Sensation Seeking, Positive Urgency, Impulsive Behavior Scale (Lynam et al., 2006), respectively. However, there are no instruments that assess the extent to which different types of emotions lead to higher gambling urges in a similar way to the 'Emotional Eating Scale' for eating disorders (Arnow, Kenardy & Agras, 1994; Perpiñá, Cebolla, Botella, Lurbe & Torro, 2011). This is a key point in preventing possible relapses because gambling behavior is influenced by intense gambling urges that arise to maladaptively cope with different emotions (Marlatt & Gordon, 1985; Velotti, et al., 2021).

Psychological treatment of gambling disorders

Regarding the treatment of GD, according to a significant body of research, psychological therapies, particularly those based on cognitive-behavioral therapy and motivational interviewing, are the most effective therapeutic approaches. Thus, the treatment focuses on enhancing the willingness to change behaviors, correcting cognitive distortions and irrational thoughts, and controlling gambling-related stimuli (SC) in the first stage (e.g., availability of money, risk situations, self-exclusion program) to prevent gambling behavior. Once the withdrawal syndrome has been overcome, Echeburúa, Báez, & Fernández-Montalvo (1996) also indicate that, in addition to SC, another component that has demonstrated its effectiveness is exposure with response prevention (ERP). ERP consists of inducing gambling urges in the patients by exposing them to a gambling environment in order to habituate them to gambling urges and teach them how to resist them (Cowlishaw et al., 2012; Menchon, Mestre-Bach, Steward, Fernández-Aranda, & Jiménez-Murcia, 2018; Yau, & Potenza, 2015). In addition, innovations and extensions of CBT have also shown to be useful in addictions. A systematic review by Sancho et al. (2018) reported that mindfulness-based interventions in addictions effectively reduced emotion dysregulation, mood disorders, and other symptoms such as dependence, craving, depression, anxiety, and perceived stress. Different self-help programs and mindfulness are additional interventions that have shown potential benefits

(Bodor et al., 2021; Goslar, Leibetseder, Muench, Hofmann, & Laireiter, 2017; Menchon, et al., 2018).

Despite the existence of evidence-based treatments for GD, less than 10% of people suffering from gambling problems seek professional help, and people with GD have generally been experiencing symptoms for 7 to 10 years (Potenza et al., 2019). However, another recent study reports that one in 25 moderate-risk gamblers and 1 in 5 people with problem gambling have sought help for problems related to their gambling (Bijker, Booth, Merkouris, Dowling, & Roda, 2022).

The most robust reasons for not seeking help are related to shame and fear of stigma, preferring to address the problem by themselves. Women and individuals with higher gambling severity are more affected by self-stigma (Quigley, 2022). Other barriers could be a lack of available or easily accessible services, difficulties attending treatment sessions due to geographical distance, absence of local expertise and resources, time constraints, and competing work and domestic demands (Shah et al., 2020).

Information and Communication Technologies in the assessment and treatment of gambling disorder.

ICT could be a means to overcome assessment difficulties and treatment barriers and enhance treatment adherence. The Internet could be an option to offer more accessible and cost-effective treatments. Previous literature shows that self-applied treatments present encouraging results (Goslar et al., 2017), with medium to significant short-term effects up to the three-month follow-up. Although fewer studies have assessed gambling symptomatology in the long term, they also found evidence of improvement maintenance in the long term, up to the 12-month follow-up (Carlbring & Smit, 2008; Potenza et al., 2019). Goslar et al. (2017) suggest that the effectiveness of face-to-face and high-intensity structured Internet-based programs with motivational interviewing and CBT components is comparable, but this assertion should be interpreted with caution due to the small number of trials with these characteristics. Another recent meta-analytic study conducted by Augner, Vlasak, Aixhhorn, & Barth (2022) on online psychological treatments for GD found a moderate short-term effect, indicating that online multi-session therapies had more significant effects on reducing gambling behavior duration and expenditures than brief interventions (Peter et al., 2019). Some studies report evidence that therapeutic support, through emails or phone calls, among others, may result in better effects

than therapies without it, even though there is a need for more research on the contribution of therapeutic support to self-guided interventions (Petry, Ginley & Rash, 2017; Rash & Petry, 2014; Sagoe et al., 2021). Despite the above data, the use of ICT for treatment delivery still leads to high dropout rates, for instance, in Internet-based interventions vary from 6% to 65% (Bücker, Bierbrodt, Hand, Wittekind, & Moritz, 2018; Magnusson, Nilsson, Andersson, Hellner, & Carlbring, 2019; Hodgins, Cunningham, Murray, & Hagopian, 2019). This could be addressed by incorporating different smartphone app functions, which have been increasingly used for assessment purposes and in psychological interventions for people with mental health (Miralles et al., 2020; Hawker et al., 2021). Although the literature is scarce, Pfund et al. (2019) developed and tested an app as an adjunct intervention to enhance homework completion, demonstrating its utility. Other studies have proposed smartphone apps to deliver stand-alone interventions (Humphrey et al., 2020), but they have not yet been tested. These apps offer static content, but Hawker et al. (2021) developed an ecological momentary intervention that could provide an adequate type and amount of support after assessing relevant variables through an EMA. Their results support its acceptability, feasibility, and preliminary effectiveness in preventing gambling episodes through gambling urge management. However, adherence to the EMA was 51%, and adherence to the EMI was 15%. Thus, the adherence rates to the EMA and EMI are modest, and more research is needed because literature is scarce.

Among the most relevant functionalities of smartphones as ICT used for delivering psychological treatments are the location-based technologies with location monitoring and personalized feedback for patients based on their position. It can be helpful in various risk situations related to gambling during the SC therapeutic component. Jiménez-Murcia et al. (2011) found higher dropout rates when applying ERP, and LBT-based ICT systems could also help to increase adherence when delivering ERP. This type of function has been used previously in other studies for depression (Addepally & Purkaayastha, 2017) where the software was able to determine whether depressed patients were in less crowded locations. If they were, messages with therapeutic options and self-help assessments were sent to them. Moreover, location-based technologies in smartphone apps were used in a case report study for obsessive-compulsive disorder (i.e., extensive outdoor checking behavior) to set alarms indicating when patients were in the same place for a long period of time (Olbrich, Stengler, Olbrich, 2016). For panic disorder and agoraphobia, in the in vivo exposure therapeutic component, patients were located and sent notifications with personalized messages when they arrived at the established exposure area (Miralles et al., 2019). Finally, Humphrey, Newcombe, Whittaker, Parag & Bullen (2019)

developed an app for GD that also offers static content (Hawker et al., 2021) that aids in relapse prevention by sending two notifications per day based on Marlatt's theory of cognitive behavior for relapse prevention. In addition, it uses geo-positioning technology that detects when a user is close to locations with slot machines and provides a few brief notifications to assist the user in adhering to their aims. However, it requires an Internet connection to send these messages, and its configuration cannot be updated or customized for each patient. Although some studies have focused on these more advanced functionalities of ICT (smartphones) for the treatment of gambling disorder, they are scarce.

In sum, because GD is a relevant health problem and impacts well-being and quality of life, it is necessary to continue to investigate and propose innovations in the assessment and treatment research field. Despite the existence of different types of assessment instruments for gambling severity, they mainly focus on screening and long-term time frames, and it is important to adapt and develop other tools that make it possible to evaluate short-term gambling severity during interventions. Furthermore, new assessment instrument proposals are necessary to measure the extent to which different emotions can lead to higher gambling urges because emotions are central aspects of gambling behavior. In addition, it is relevant to continue to innovate with psychological interventions for GD and ICT, such as the Internet, which would increase accessibility for people who could not receive treatment any other way. Therefore, ICT become central tools for the treatment progress in GD. In addition, for smartphone app functions such as EMA /EMI and location-based technologies, despite the scarce research, preliminary data show encouraging results in terms of acceptability, feasibility, and effectiveness.

AIMS OF THE THESIS

The present dissertation has several objectives. The first two objectives are related to improving the assessment of GD and associated variables. The last three aims are to improve the accessibility and quality of psychological treatments for GD by incorporating Information and Communication Technologies (ICT) such as the Internet and smartphone applications.

I. To validate a Spanish adaptation of the 'Gambling Symptom Assessment Scale (G-SAS)', so that clinicians and researchers can assess short-term evidence of change in gambling symptomatology. Specifically, we intend to determine its psychometric properties, such as component structure and data sources for construct validity. We also anticipate supplying further proof of the internal organization of the measure.

II. To create and validate the 'Emotional Gambling Scale (EGS),' a tool that assesses a novel construct called 'emotional gambling,' which involves positive and negative emotions that may increase a person's desire to gamble and engage in gambling-related activities. Our purpose is to establish its psychometric properties, including component structure, data sources for construct validity, and the optimum cut-off points.

III. To describe the 'Symptoms app,' a location-based ICT system, and how it was used in the SC and ERP components during the treatment of two patients diagnosed with GD. Additionally, we conduct a qualitative analysis to measure the patients' perceptions of the app's usability.

IV. To create and develop the 'SIN JUGAR, GANAS' program, an online psychological treatment for GD, and register it in the office for research and technology development collaboration at the "Universitat Jaume I". We also describe a protocol study that includes the application of this Internet-based program combined with an ecological momentary intervention (EMI).

V. To determine whether it is feasible to carry out the "SIN JUGAR, GANAS" program enhanced with EMA/EMI and supported by brief phone calls. In addition, we aim to assess preliminary evidence of its efficacy over the first three treatment modules (motivation for change, psychoeducation and SC, and responsible debt payment) and evaluate whether carrying out the treatment further and in larger samples is recommended.

CHAPTER 1

Validation of a Spanish adaptation of the Gambling Symptom Assessment Scale (G-SAS) in persons with recent history of gambling.

Validation of a Spanish adaptation of the Gambling Symptom Assessment Scale (G-SAS) in persons with recent history of gambling.

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Abstract

Gambling is becoming increasingly frequent and problematic, especially due to the explosion of online alternatives. Evaluating the severity of gambling symptomatology is therefore more important than ever. However, innovations in the gambling field have generally focused on its treatment rather than its evaluation. The Gambling Symptom Assessment Scale (G-SAS) is a well-established measure of gambling-related symptomatology (e.g., gambling urges, gambling-related thoughts and behaviours, and interpersonal functioning). The aim of this study is to validate a Spanish adaptation of the G-SAS so that individual differences in gambling symptomatology can be assessed by clinicians and researchers. The internal structure of the G-SAS was investigated using an exploratory factor analysis with a sample of 364 individuals from the general population in Spain (mean age = 28.84 years, SD=11.73; 54% males). A four-factor structure was preferred considering fit indices (Chi-square=22.62, p=.162, RMSEA=.030, CFI=.998, TLI=.995) and internal consistency estimates (.67≤α≤.89). The factors were labelled gambling-related symptoms, control of gambling urges/thoughts, interference, and arousal. Regarding construct validity, the four factors of the G-SAS were positively and significantly (all p<.001) correlated with measures of problematic gambling severity (.40≤r≤.73), problematic gambling diagnostic (.40≤r≤.67), gambling cognitions (.48≤r≤.57), impulsivity (.26≤r≤.42), anxiety (.22≤r≤.38), and depression (.16≤r≤.42), and negatively with quality of life (-.24≤r≤-.42). In sum, this study provides Spanish clinicians and researchers with a tool that serves to assess the status of individuals in relation to gambling

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symptomatology, which can be used to screen for at-risk profiles and evaluate treatment response.

Keywords: gambling symptoms; G-SAS; validation; assessment; general population.

Introduction

Gambling behaviour is a relatively acceptable, easily accessible, and available recreation activity for adults (O'Loughlin and Blaszczynski, 2018; Russell, Langham, and Hing, 2019). Although some individuals consider gambling an enjoyable and harmless activity, it also can become a problematic behaviour leading to a significant financial, social, and/or personal impairment (Calado and Griffiths, 2016; Meyer, Hayer and Griffiths, 2009). In

particular, Gambling Disorder (GD) is defined as a non-substance-related disorder (APA, 2013) in which there are difficulties in stopping gambling behaviour despite the negative consequences associated to it. Even when problematic gamblers lose, they usually bet again to "chase losses" and lie about their involvement with the behaviour. In problematic gambling, it is also frequent to observe recurrent and ruminative thoughts about gambling, irritability feelings during abstinence periods, and the need to increase the amount of money spent on gambling to accomplish the desired feeling of excitement. GD represents a worldwide health problem, with a prevalence ranging from 0.1% to 5.8% (Calado and Griffiths, 2016). In Spain, prevalence rates of 0.72% have been proposed (Chóliz, Marcos, Lázaro-Mateo, 2019).

Research advances in the field of gambling have generally focused on its treatment rather than on evaluation. The assessment of the severity of gambling symptomatology, which ranges on a continuum from non-gambling or recreational gambling to GD, is, however, crucial for screening and diagnostic purposes (Volberg, 2015). For these reasons, several instruments of gambling severity have been developed in the past years (Otto et al., 2020). Some popular examples are the South Oaks Gambling Screen (Goodie et al., 2013), the Problem Gambling Severity Index (PGSI; Dellis et al., 2014), the National Opinion Research Center Diagnostic Screen (NODS; Gerstein et al.,1999; Wickwire, Burke, Brown, Parker and May, 2008), and the Massachusetts Gambling Screen (MAGS; Weinstock, Whelan, Meyers and McCausland, 2007). These instruments have been validated using a semi-structured interview based on the diagnostic criteria of the two most popular manuals, namely the Diagnostic and Statistical Manual of Mental Disorders (DSM) and the International Classification of Diseases (Otto et al., 2020). However, because of their focus on diagnostic guidelines, all of these questionnaires refer to the experience of symptoms over the past year. Particularly for treatment purposes, it is important to evaluate the severity of gambling-related symptomatology during shorter periods to obtain a measure of short-term change, but also to minimize recall bias. Several instruments have addressed this issue and have evaluated the severity of gambling using shorter timelines ranging from 1 to 4 weeks. These include the Gambling Symptom Assessment Scale (GSAS), the Addiction Severity Index-Problem gambling, the Yale-Brown Compulsive Scale for PG, the Clinical Global Impression Scales for Problem Gambling, and the Control of Pathological Gambling Questionnaire. Of these, the most widely used is the G-SAS (Kim, Grant, Potenza, Blanco and Hollander, 2009; Pickering, Keen, Entwistle, and Blaszczynski, 2018). Different to other measures of problematic gambling, the G-SAS evaluates the severity of gambling across a series of facets as they consider that gambling is a complex phenomenon.

In particular, the G-SAS evaluates gambling urges, gambling-related thoughts and behaviours, and interpersonal functioning over the past week. Research so far suggests that the G-SAS is a reliable and valid scale of the severity of gambling symptomatology, and they have found it to be useful to evaluate the progress of individuals on the aforementioned subgroups of symptoms during treatment (Kim, Grant, Potenza, Blanco and Hollander, 2009). The G-SAS has also been validates cross-culturally (Kalkan and Griffiths, 2021; Kim, Kim, Shin, Shin, Grant, and Lee, 2005; Ong, Peh, Asharani and Guo, 2016; Yokomitsu and Kamimura, 2019) and has been found to be useful to track the progress of gambling severity symptoms both in pharmacological and psychological interventions (Alho, Mäkelä, Isotalo, Toivonen, Ollikainen and Castrén, 2021; Bae, Han, and Kim, 2015; Casey et al., 2017; Grant, Donahue, Odlaug, and Kim, 2011; Guo et al., 2014; Kim and Grant, 2001; Kim, Grant, Adson, and Shin, 2001; Kim, Grant, Potenza, Blanco and Hollander, 2009; Manning et al., 2014; Månsson, Molander, Carlbring, Rosendahl and Berman, 2022; Ong, Peh, Asharani and Guo, 2016; So et al., 2020).

The initial version of the G-SAS proposed either a one- or a two-factor structure (Kim, Grant, Adson, and Shin, 2001). The one-factor referred to gambling symptom severity and the two-factor model to (i) urge intensity, gambling-related subjective distress, interpersonal difficulty, and gambling activities and (ii) urge frequency, thought frequency, and gambling frequency. However, the internal structure of the G-SAS has not always been replicated and different factor solutions have been proposed across cultural adaptations, ranging from one to three dimensions, arguably due to differences in the type of analyses conducted (e.g., exploratory vs confirmatory) or the samples included (e.g., severe gambling vs general population with or without gambling history). For example, Yokomitsu and Kamimura (2019) validated the Japanese version of the GSAS with 707 participants from the general population that had gambled in the previous 12 months and supported the one-factor structure using confirmatory analyses. On the contrary, Ong, Peh, Asharani and Guo (2016) validated the measure in Singapore with 521 patients with problematic gambling at a tertiary psychiatric hospital. With an exploratory factor analysis, they obtained a two-factor solution, namely gambling urges (items 1 to 10; the intensity/frequency/duration/control of gambling urges; frequency/duration/control of gambling thoughts; gambling behaviour; and anticipatory tension or excitement/excitement from winning) and adverse consequences (items 11 and 12: adverse consequences related with the emotional distress and psychosocial impairments). Finally, Kalkan and Griffiths (2021) also conducted an exploratory factor analysis with 326 participants of the general population in the USA, but this time a three-factor solution of the G-SAS showed

the best fit to the data. Further research, including cross-cultural adaptations, are needed regarding the internal structure of the G-SAS due to the limited number of replication studies and investigations conducted in different countries.

Validating a Spanish version of the G-SAS, which is the fourth most spoken language in the world, is important because measures of short-term evidence of change in gambling symptomatology are important both for research and clinical purposes. The aim of this study is therefore to evaluate the psychometric properties, including factor structure and sources of construct validity evidence, of a Spanish adaptation of the G-SAS. In doing so, we also expect to provide further evidence for the internal structure of the measure. Because, as noted earlier, different studies have yielded very diverse factor structures of the G-SAS (e.g., from 1 to 3 factors), the factor structure will be examined in an exploratory manner with no a priori hypothesis. Despite the previous, we do anticipate that, irrespective of the final factor structure of the G-SAS, the questionnaire or its subscales will correlate with other measures of gambling severity, distress, and quality of life.

Method

Procedure

The Spanish version of the G-SAS was obtained following a back translation process by two native English speakers who were also fluent in Spanish. Specifically, after completing a forward translation from English to Spanish, another translator unfamiliar with the original version of the G-SAS translated the questionnaire back into English. After that, both English versions were compared to confirm the equivalence of item meaning. Next, the Spanish version of the G-SAS was revised and refined by the researchers (LD-S and CS-R) with a focus on the quality of Spanish language. To disseminate the instrument, an online survey was created in the Qualtrics platform. The full assessment protocol included the informed consent, sociodemographic variables, the final version of the G-SAS, and other scales used for construct validity assessment (see the Measures section). The survey was disseminated using social media paid advertisements (LinkedIn, Facebook, Instagram, and twitter), as well as pamphlets and flyers. Data was collected between July 2021 and April 2022. The inclusion criteria included being 18 years old or over, having gambled at least once on chance games (e.g., sports betting, poker, slots, roulette, lottery, etc.) during the last three months before the assessment, and having a Spanish nationality or currently living in Spain.

Participants

In total, 322 participants met our inclusion criteria. Of these, 48.8% (n=157) were non-problematic gamblers, 33.5% (n=108) were risk gamblers, 9.7% (n=31) were problematic gamblers, and 8.1% (n=26) were pathological gamblers according to the NODS. The participants' mean age was 28.84 (SD=11.73), which ranged from 18 to 72 years. Sex distribution was: 54% males (n=174), 45.7% females (n=147), and .3% intersexual (n=1). Regarding marital status, most participants were married or in a relationship (58.1%), while 41.3% of them were single and 0.6% were separated or divorced. In terms of educational level, 0.3% had no studies, 2.2% completed primary education, 3.4% had completed secondary education, 37.5% had finished high school, 15.8% held technical studies, 24.2% had completed undergraduate studies, and 16.5% had master or higher studies. Concerning occupational status, 49.7% were students, 10.7% were employed, 5% were unemployed, 1.2% were on a sick leave, and 2.2% were retired. Most participants (99.1%) had never received treatment for gambling problems, and most had never received psychotherapy at all (69.3%). All the participants who fulfilled the survey, including the control items, received a gift card of 5€ from a sports shop.

Measures

Demographic variables included age, gender, sex, marital status, educational level, profession, occupational situation, country of origin and residence, and whether they had previously received psychological treatment for gambling problems or for other reasons.

The G-SAS (Kim, Grant, Adson, and Shin, 2001; Kim, Grant, Potenza, Blanco and Hollander, 2009) is a selfreport instrument that evaluates gambling symptom severity in the past week. It is composed of 12 items rated on a 4-point scale that refer to different subgroups of symptoms, such as gambling urges, gambling-related thoughts and behaviours, and interpersonal functioning. The initial version of the G-SAS was proposed to have one dimension that corresponds to gambling severity. A total score, which ranges from 0 to 48, can thus be obtained by summing all items. Mild, moderate, severe, and extreme symptomatology are represented by scores ranging from 8-20, 21-30, 31-40, and 41-48, respectively. This scale has obtained high internal consistency estimates ($\alpha = 0.87$) and good construct validity in relation to other measures of gambling symptom severity in past research (Kim, Grant, Adson, and Shin, 2001; Kim, Grant, Potenza, Blanco and Hollander, 2009). For this study, the Spanish translation of the original scale (Appendix 1) was used.

Six additional measures were used to assess sources of construct validity of the G-SAS, namely the NODS, the PGSI, the Gambling-Related Cognitions Scale (GRCS), the Hospital Anxiety and Depression Scale (HADS), the UPPS-P impulsivity scale, and the Quality of Life Index (QLI).

The NODS (Gerstein et al., 1999; Becoña, 2004) is a screening instrument to identify gambling problems according to the experience with gambling throughout the patient's life and particularly in the last year. It is based on DSM-IV criteria and is composed of 17 items, which are scored as yes or no. The total score ranges from 0 to 10, which is used to set different degrees of severity of pathological gambling (e.g., a total score of 1 or 2 is labelled as "at risk gambling", 3 or 4 indicate "problematic gambling", and 5 to 10 is interpreted as "pathological gambling"). The NODS presents adequate levels of specificity and sensitivity. The test-retest reliability obtained in past research is 0.98, and its validity has been excellent (Gerstein et al., 1999; Becoña, 2004).

The PGSI (Ferris and Wynne, 2001; Lopez-Gonzalez, Estévez and Griffiths, 2018) is a self-report instrument designed to assess gambling severity. It consists of 9 items, 4 to evaluate problem gambling behaviours and 5 to measure adverse consequences of gambling. However, a unidimensional structure is proposed. Items use a 4-point Likert scale (0=never to 3=almost always). The final score ranges from 0 to 27. Four exclusive groups can be differentiated based on this score: 0=non-problem gambler; 1-2= low-risk gambler who experiences some problems with relatively few or no negative consequences; 3-7= moderate-risk gambler who experiences moderate problems with some negative consequences; 8 or more= problematic gambler. The reliability of the scale has been excellent (0.97) and construct validity evidences are also encouraging. Although the PGSI is not a diagnostic tool, the scale has shown good precision and power (sensitivity= 0.93 and specificity=0.79) (Ferris and Wynne, 2001; Lopez-Gonzalez, Estévez and Griffiths, 2018).

The GRCS-S (Raylu and Oei, 2004; Del Prete et al., 2017) is a self-report instrument that evaluates cognitive distortions related to gambling. Twenty-three items refer to five domains (interpretive bias, illusion of control, predictive control, gambling expectancies, and perceived inability to stop gambling). Items are rated on a 7-point Likert-type scale (1 = I strongly disagree; 7 = I strongly agree). A total score can be obtained by summing all items. However, a score for each subscale can also be used. As the total score increases, this implies more cognitive distortions related to gambling. The GRCS has demonstrated adequate

psychometric properties in terms of construct validity, as well as reliability indices of the full scale (α=0.95) and the subscales (0.68≤α≤0.91) (Raylu and Oei, 2004; Del Prete et al., 2017).

The HADS (Zigmond and Snaith,1983; Castresana et al., 1995) was used to evaluate the patients' symptoms of depression and anxiety in the last week. It is composed of 14 items (seven to evaluate depressive symptoms and the other seven anxiety symptoms). Each item is rated from 0 to 3 depending on the frequency of symptoms. For each scale, scores can range from 0 to 21. An 8 represents absence of significant morbidity, 8 to 10 corresponds to a borderline case, and a score above 10 indicates morbidity. Internal consistency estimates have ranged from 0.42 to 0.71 for the depression subscale and from 0.36 to 0.64 for the anxiety subscale (Zigmond and Snaith,1983; Castresana et al., 1995).

The short UPPS-P (Lynam et al., 2006; Cándido et al., 2012) was used to measure of impulsivity. This self-report scale assesses five traits of impulsivity (negative urgency, lack of premeditation, lack of perseverance, sensation seeking, and positive urgency). It is composed of 20 items, 4 for each trait. Items are rated on a four-point Likert scale (1 = strongly agree; 4 = strongly disagree). To obtain a total score and subscales, the existence of direct and inverse items must be considered. The higher the score, the higher the level of impulsivity in each of the traits. The UPPS-P has presented good psychometric properties, including good internal consistency (0.61≤α≤ 0.81) and construct validity (Lynam et al., 2006; Cándido et al., 2012).

Finally, the QLI (Mezzich et al., 1999; Mezzich et al., 2000) was administered to assess quality of life. The QLI allows assessment of 10 dimensions of quality of life (i.e., physical well-being, psychological/emotional wellbeing, self-care and independent functioning, occupational functioning, interpersonal functioning, socioemotional support, community and service support, personal and spiritual fulfilment, and global perception of quality of life). It consists of 10 items rated on a 10-point Likert-type scale (1 = poor; 10 = excellent). To obtain a total score, the average of the items is calculated, thus obtaining total scores from 1 to 10 (1-4.5 = perception of quality of life below average; 4.6-8.1 = perception of quality of life at average; 8.2-10 = perception of quality of life above average). Internal consistency (α = 0.89) and test-retest reliability (0.89) have been high and discriminant validity has been demonstrated in a sample of psychiatric patients (Mezzich et al., 1999; Mezzich et al., 2000).

Data Analysis

Firstly, we investigated the factor structure of the G-SAS. Because the factor-solutions obtained in different validations of the G-SAS have been inconsistent (Kalkan and Griffiths, 2021; Kim, Grant, Adson, and Shin, 2001; Ong, Peh, Asharani and Guo, 2016; Yokomitsu and Kamimura, 2019), we conducted an Exploratory Factor analysis (EFA) using the Mplus software version 6.12. We selected an oblimin rotation method, set all variables as categorical due to their Likert-type response style, and selected the preferred estimator for categorical variables, that is the Weighted Least Square Mean and Variance Adjusted (WLSMV). To choose the most appropriate model fit, we took as reference the indexes proposed by Hu and Bentler (1999) and Checa, Perales and Espejo (2018). According to these studies, an acceptable and excellent model fit is indicated by values of root mean square error of approximation (RMSEA) smaller than 0.08 or 0.06, respectively. In addition, the comparative fit index (CFI) and Tucker-Lewis index (TLI) were calculated. Values greater than 0.9 and 0.95 show an adequate and excellent model fit, respectively. To decide the most adequate model fit when comparing several models, we took into account both increments in the CFI $\geq$ .01 and improvements in the RMSEA and TLI and considered preferably parsimonious models when fit was comparable (Morin, Arens, and Marsh, 2016). We subsequently explored the construct validity of the G-SAS by computing Pearson correlations with well-established measures of gambling symptomatology (PGSI and NODS), together with measures of trait impulsivity (UPPS), gambling-related cognitions (GRCS), anxiety and depression (HADS), and quality of life (QLI).

Results

Factor Structure of the G-SAS

The results from the EFA are presented in Table 1. The factorial structure model that fitted better was the five-factor model: factor 1 (items 1, 2, 3, 5 and 8); factor 2 (items 4 and 7); factor 3 (item 6); factor 4 (item 11 and 12) and factor 5 (items 9 and 10). However, we proposed to remove item 6 ("time spent thinking on gambling") because it was the only item representing factor 3 and because it was problematic in all factor solutions (i.e., crossloadings; $0.32 \geq \lambda \geq 0.53$) (Table 2).

Table 1 Goodness of fit indices for the different exploratory models of the G-SAS.

Factors	Chi-square	p	RMSEA	90% CI RMSEA	CFI	TLI
1	243.278	<.001	0.098	0.086, 0.111	0.954	0.944
2	179.859	<.001	0.094	0.080, 0.108	0.967	0.949
3	100.931	<.001	0.075	0.059, 0.092	0.984	0.967
4	58.466	<.001	0.063	0.043, 0.083	0.992	0.977
5	22.666	0.123	0.034	0.000, 0.063	0.998	0.993

RMSEA, root mean square error of approximation; CFI, comparative fit index; TLI, Tucker-Lewis index.

Table 2 Item loadings of the different models.

Items	EFA, 3 factors F1	F2	F3	EFA, 4 factors F1	F2	F3	F4	EFA, 5 factors F1	F2	F3	F4	F5
1	.83			.78				.76				
2	1.02			1.05				1.09				
3	.57	.45		.55		.37		.37				
4		.55			1.04				1.03			
5	.92			.89				.73				
6	.53	.42		.49		.32				1.08		
7	.39	.61			.55				.59			
8	.49	.34		.52		.38		.41				
9		.33	.73			.37	.62				.35	.60
10			.80				.96					.98
11		.75				.72					.74	
12		.77				.92					.91	

EFA, Exploratory Factor Analysis.

We then conducted the exploratory factorial analysis (EFA) without item 6. The results from the EFA after removing item 6 are presented in Table 3 and item loadings are shown in Table 4. A four-factor structure was preferred considering fit indices (Chi-square=22.62, p=.162, RMSEA=.030, CFI=.998, TLI=.995) and parsimony reasons. Factor 1, which was named Symptoms, included items related to gambling-related symptoms (items 1, 2, 3, 5 and 8), such as the degree, frequency, and duration of gambling urges, as well as the frequency of thoughts associated with gambling and time spent on gambling and gambling-related behaviour. Factor 2, which we labelled as Control, incorporated items associated with control of gambling urges and thoughts associated with gambling (items 4 and 7). Factor 3 which we called Interference, consisted of items that tapped into interference caused by gambling (item 11 and 12), such as emotional distress (e.g., mental suffering, anxiety, shame, guilt, or embarrassment) and personal challenges (e.g., interpersonal relationships, financial and legal aspects, job, medical, or health factors). Finally, factor 4, which we named Arousal was represented by items on anticipatory tension and/or excitement caused by an imminent gambling act, as well as excitement and pleasure associated with winning (item 9 and 10). Factor three also had small loadings by items 3, 7, and 8 ($0.34 \geq \lambda \geq 0.38$). However, because these items had higher loadings on factor 1 ($0.49 \geq \lambda \geq 0.84$) and items 11 and 12 from factor 3 were clearly more representative of the factor ($0.73 \geq \lambda \geq 0.93$), items 3, 7, and 8 were incorporated solely into factor 1.

Table 3 Goodness of fit indices for the different exploratory models after removing item 6.

Factors	Chi-square	p	RMSEA	90% CI RMSEA	CFI	TLI
1	219.96	<.001	0.105	0.091, 0.119	0.948	0.935
2	152.66	<.001	0.098	0.082, 0.114	0.965	0.943
3	74.00	<.001	0.073	0.054, 0.093	0.985	0.968
4	22.62	0.162	0.030	<.001, 0.060	0.998	0.995
5	9.65	0.471	<.001	<.001, 0.055	1.00	1.00

RMSEA, root mean square error of approximation; CFI, comparative fit index; TLI, Tucker-Lewis index.

Table 4 Item loadings of the four-factor structure model after removing item 6.

Items	Factor 1	Factor 2	Factor 3	Factor 4
1	0.77			
2	1.08			
3	0.50		0.34	
4		1.03		
5	0.84			
7		0.61	0.37	
8	0.49		0.38	
9				0.59
10				1.00
11			0.73	
12			0.93	

F1, factor one (symptoms); F2, factor two (control); F3, factor three (interference); F4, factor four (arousal).

Sources of construct validity evidence of the G-SAS in relation to other measures

To evaluate sources of construct validity of the G-SAS, we calculated its correlation with measures of gambling severity, gambling-related cognitions, impulsivity trait, anxiety, depression, and quality of life (Table 5). The means, standard deviations, and internal consistency (Cronbach's alpha) of all the measures used are also presented in Table 5. The four factors of the G-SAS were significantly and moderately associated ($.41 \leq r \leq .56$, all $p < .001$). The G-SAS factors were also significantly and moderately-to-strongly associated with measures of gambling severity, namely the NODS ($.40 \leq r \leq .67$, all $p < .001$) and the PGSI ($.48 \leq r \leq .57$, all $p < .001$) and gambling related cognitive distortions of the GRCS ($.48 \leq r \leq .57$, all $p < .001$). In addition, small-to-moderate correlations emerged between the four factors of the G-SAS and measures of impulsivity, anxiety, depression, and quality of life, namely the UPPS ($.26 \leq r \leq .42$, all $p < .001$), the HADS-anxiety ($.22 \leq r \leq .38$, all $p < .001$), the HADS-depression ($.16 \leq r \leq .42$, all $p < .001$), and the QLI ($-.24 \leq r \leq -.42$, all $p < .001$). All measures, including the four factors in the GSAS, presented good internal consistency estimates of between .67 and .91.

Table 5 Means, standard deviations, Cronbach's alphas, and Pearson bivariate associations between study variables (n=322).

Variable	α	M (SD)	GSAS F1	GSAS F2	GSAS F3	GSAS F4	NODS	GRCS	PGSI	UPPS	HADS A	HADS D	QLI
GSAS F1	.89	3.39 (3.11)		.66	.52	.52	.55	.55	.51	.32	.22	.22	-.24
GSAS F2	.89	.84 (1.32)			.56	.41	.59	.48	.52	.29	.25	.23	-.30
GSAS F3	.67	.55 (1.09)				.41	.67	.57	.73	.42	.38	.42	-.42
GSAS F4	.78	2.71 (2.09)					.40	.48	.40	.26	.26	.16	-.29
NODS	.77	1.26 (1.85)						.63	.81	.48	.31	.37	-.38
GRCS	.94	45.49 (23.26)							.63	.49	.38	.38	-.43
PGSI	.86	2.26 (3.21)								.47	.38	.41	-.45
UPPS	.85	42.62 (8.71)									.38	.49	-.45
HADS A	.81	5.80 (3.88)										.65	-.62
HADS D	.76	3.82 (3.55)											-.69
QLI	.91	7.38 (1.50)											

All significant at p<.001. HADS A: the Hospital Anxiety and Depression Scale -anxiety subscale; HADS D: the Hospital Anxiety and Depression Scale-depression subscale; F1: factor one (symptoms); F2: factor two (control); F3: factor three (interference); F4: factor four (arousal); GSAS: the Gambling Symptom Assessment Scale; GRCS: the Gambling-Related Cognitions Scale; M: mean; NODS: the National Opinion Research Center Diagnostic Screen; PGSI: the Problem Gambling Severity Index; QLI: the Quality of Life Index; SD: standard deviation; UPPS: the UPPS-P impulsivity scale.

Discussion

This study aimed to validate a Spanish adaptation of the G-SAS (Kim, Grant, Adson, and Shin, 2001; Kim, Grant, Potenza, Blanco and Hollander, 2009) to be used in Spanish-speaking individuals with recent history of gambling. After eliminating item 6 (duration of gambling thoughts) due to methodological and conceptual problems (i.e., important cross-loadings in all solutions and appearing as a single item onto a factor to solve cross-loading problems), the exploratory analyses supported a four-factor solution. Considering the content of items and previous work with the G-SAS (Kim, Grant, Adson, and Shin, 2001; Kim, Grant, Potenza, Blanco and Hollander, 2009), these factors were labelled as gambling-related symptoms, control of gambling urges/thoughts, interference, and arousal. The analyses of construct validity evidence were also supported the psychometric and conceptual adequacy of our Spanish adaptation of the G-SAS. In particular, the positive and strong associations between the four factors of the G-SAS and measures of gambling severity (e.g., the NODS and PGSI) and gambling-related cognitive distortions (GRCS) support that the language and cultural adaptations made on the scale did not alter the interpretation of items and point to the utility of the four dimensions in the G-SAS to be included as important therapeutic targets in prevention and treatment programs for GD. These results are consistent with past research and also support the idea that the G-SAS evaluates the construct it is supposed to (Ledgerwood, Dyshniku, McCarthy, Ostojic-Aitkens, Forfitt and Rumble, 2020; Manning, Gomez, Guo, Lo, Koh and Wong, 2011; Yokomitsu et al., 2019).

As mentioned at the beginning of the text, the factor structure of the G-SAS has been unclear. Our investigation provides further evidence in this regard. While one, two, or three factor solutions have been proposed (Kalkan and Griffiths, 2021; Ong, Peh, Asharani and Guo, 2016; Yokomitsu and Kamimura, 2019), the optimal fit of the scale in our sample included four dimensions. Our results show similarities with those obtained by Kalkan and Griffiths (2021), who found a three-factor solution of the G-SAS. Factor two corresponds to the control of gambling urges/thoughts dimension. Also, factor three is consistent with our fourth dimension, that is, arousal. However, the authors found a unique factor for the items that refer to the degree, frequency and duration of gambling urges, the frequency and duration of thoughts associated with gambling, the time spent on gambling and gambling-related behaviour, as well as for items that correspond to the negative consequences caused by gambling. In our analyses, items that concern gambling-related symptoms (gambling associated thoughts/urges/behaviour) were

better conceptualized in a different factor than the interference that they caused on the individual, which suggests that symptoms and their actual impact might be two different components, as specified in diagnostic manuals such as the CIE and the DSM. It is possible that the populations selected partly explain the discrepancies in the factor solutions. For example, we included persons with recent history of gambling, while other investigations have opted for undergraduate and graduate students with no reference to recent history of gambling (Kalkan and Griffiths, 2021) or persons with GD seeking treatment (Ong, Peh, Asharani and Guo, 2016). Considering the potential problems with some items unlikely to be experienced by infrequent gamblers, as revealed in the present study, we recommend adaptations of the factor structure and item distribution of the G-SAS according to the severity of the target population. Additionally, the fact that exploratory analyses were not used in some past research (Yokomitsu, and Kamimura, 2019) might explain why a one-factor solution was accepted, even if that might not have been the most optimal option. It is unclear whether three or four factor solutions would have been preferable in these studies. Also, because exploratory models are preferred when a scale structure is not robust and universally established, more cross-cultural and replication studies similar to the present are needed.

There are some limitations in this study too. On the one hand, the validation was conducted with data from persons from the general population and recent history of gambling (e.g., past three months), as opposed to a clinical sample of persons diagnosed with gambling disorder. Having a measure of gambling symptom severity than can be administered to the whole population of gamblers, not only really problematic ones, is clearly of interest. However, it is also true that the present study results and the proposed factor structure of the G-SAS might not be necessarily generalizable to persons with a very severe gambling profile only. Therefore, replication studies with specific populations would be recommendable. On the other hand, because the G-SAS is a self-report instrument, biases such as social desirability cannot be ruled out. Even though this was controlled with data anonymity, in person interviews could yield additional data about gambling severity not revealed with self-report assessments. Finally, while the critical period of time assessed in the G-SAS (i.e., seven days) is clearly shorter compared to other instruments of gambling symptomatology like the PGSI or the NODS (e.g., 3 or 12 months), recall bias can also occur in shorter periods of time (Lopez-Gonzalez, Estévez, and Griffiths, 2018). Therefore, it could be interesting to adapt and test the current Spanish version of the G-SAS in the context of ecological momentary assessment for daily appraisal of symptoms and potential changes, for example, during therapy.

To sum up, despite the present study did not confirm the one-factor structure of the G-SAS, a four-factor structure that clusters symptom subgroups (gambling-related symptoms, control of gambling urges/ thoughts, interference, and arousal) is rational and could be useful also for clinicians to obtain patient's personalized profiles. The fact that the Spanish adaptation of the G-SAS obtained several factors should be considered as a benefit for clinical purposes, as it taps to different symptoms that could be particularly addressed in therapy according to the patients' needs and specific vulnerabilities. This would allow researchers and clinicians to offer more personalized treatments focused on certain therapeutic components (e.g., stimulus control, exposure with response prevention, cognitive restructuring, emotional regulation) and to monitor patient progress according to the pattern of changes for each subgroup of symptoms. This is in accordance to the clinical implications reported by Ong, Peh, Asharani and Guo (2016), who mentioned that the clinicians could use the G-SAS as a tool that allows a more collaborative approach to treatment that could facilitate patient's engagement. For this reason, the Spanish adaptation of the GSAS can be considered an appropriate tool for research and clinical purposes to assess gambling symptomatology.

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Appendix A: The Gambling Symptom Assessment Scale (G-SAS) items, as used in this study/ Escala para la evaluación de los síntomas del trastorno por juego (G-SAS)

El siguiente cuestionario está pensado para evaluar los síntomas del trastorno por juego. Por favor, lee las preguntas atentamente antes de responder.

1. Si la SEMANA PASADA tuviste impulso por jugar, ¿cómo de fuerte dirías que fue, por término medio? Por favor, indica el número apropiado.

    0) Ninguno

    1) Leve

    2) Moderado

    3) Fuerte

    4) Extremo

2. Durante la SEMANA PASADA, ¿Cuántas veces tuviste impulso por jugar? Por favor, indica el número apropiado.

    0) Ninguna

    1) Una vez

    2) Dos o tres veces

    3) Varias veces

    4) Constantemente o casi constantemente

3. Durante la SEMANA pasada, ¿cuántas horas estuviste preocupado por tu impulso por jugar (suma las horas)? Por favor, indica el número apropiado.

    0) Ninguna

    1) 1 hora o menos

    2) de 1 a 7 h.

    3) 7 a 21h.

    4) más de 21 h.

4. Durante la SEMANA PASADA, ¿en qué medida fuiste capaz de controlar tu impulso por jugar? Por favor, indica el número apropiado.

    0) Completamente

    1) Mucho

    2) Moderadamente

3) Mínimamente

4) Sin control

5. Durante la SEMANA PASADA, ¿cuántas veces pensaste en jugar o apostar? Por favor, indica el número apropiado.

    0) Ninguna

    1) Una vez

    2) De dos a cuatro veces

    3) Varias veces

    4) Constantemente o casi constantemente

6. Durante la SEMANA pasada, ¿cuántas horas aproximadamente pasaste pensando en el juego o las apuestas, sumando las horas? Por favor, indica el número apropiado.

    0) Ninguna

    1) 1 hora o menos

    2) de 1 a 7 h.

    3) 7 a 21 h.

    4) más de 21 h.

7. Durante la SEMANA PASADA ¿en qué medida fuiste capaz de controlar tus pensamientos sobre el juego? Por favor, indica el número apropiado.

    0) Completamente

    1) Mucho

    2) Moderadamente

    3) Mínimamente

    4) Sin control

8. La SEMANA pasada, ¿cuánto tiempo pasaste, aproximadamente, jugando o en actividades relacionadas con la conducta de juego? Por favor, indica el número apropiado.

    0) Nada

    1) 2 horas o menos

    2) de 2 a 7 h.

    3) 7 a 21 h.

    4) más de 21 h.

9. Durante la SEMANA pasada, ¿cuánto nerviosismo y/o euforia sentiste justo antes de empezar a jugar, por término medio? Si no jugaste, cuánto nerviosismo y/o euforia crees que podrías haber sentido si hubieses jugado. Por favor, indica el número apropiado.

    0) Ninguna

    1) Mínima

    2) Moderada

    3) Mucha

    4) Extrema

10. Durante la SEMANA pasada, ¿cuánta euforia y placer sentiste cuando ganaste en tus apuestas por término medio? Si no ganaste, ¿cuánta euforia y placer crees que habrías sentido si hubieses ganado? Por favor, indica el número apropiado.

    0) Ninguna

    1) Mínima

    2) Moderada

    3) Mucha

    4) Extrema

11. Durante la SEMANA pasada, ¿cuánto dolor emocional (sufrimiento, angustia, vergüenza, culpa, bochorno) te causó el juego? Por favor, indica el número apropiado.

    0) Ninguno

    1) Leve

    2) Moderado

    3) Fuerte

    4) Extremo

12. Durante la SEMANA pasada, ¿qué nivel de interferencia personal (problemas de relación, financieros, legales, laborales, médicos o de salud) te ocasionó el juego? Por favor, indica el número apropiado.

    0) Ninguno

    1) Leve

    2) Moderado

    3) Fuerte

    4) Extremo

CHAPTER 2

Development and validation of the Emotional Gambling Scale (EGS) in a community sample from Spain with recent history of gambling.

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Development and validation of the Emotional Gambling Scale (EGS) in a community sample from Spain with recent history of gambling.

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ABSTRACT

Background and aims: The deficit in emotional regulation of both positive and negative emotions is key in gambling disorder. The objective of this study is to develop and validate an instrument that evaluates positive and negative emotions that can lead to greater gambling urges and gambling-related behavior.

Methods: The Emotional Gambling Scale (EGS) assesses the degree of gambling urges triggered by different emotions. It consists of 55 items that use a five-point Likert-type scale. Items in the EGS have been inspired by other instruments, such as the Emotional Eating Scale, the Profile of Mood States, and Positive and Negative Affect Scale, and has followed a review procedure by experts. It has been validated in 328 persons in a Spanish community sample with recent history of gambling (i.e., last three months).

Results: An exploratory factorial analysis supported a two-factor solution ($\chi2$=2287.39, p=.<.001, RMSEA=0.042, CFI=0.961, TLI=0.958). This solution also obtained good internal consistency estimates for positive (α =.96) and negative emotions (α=.98). Regarding sources of construct validity evidence, the two subscales of the EGS correlated positively with impulsivity, severity of gambling symptoms, anxiety, and depression (.23≤r≤.62; p<.001) and

negatively with quality of life (.30≤ r≤.43, p<.001). The optimal cut-off point for both factors of the scale corresponds to 16 with well-balanced sensitivity and specificity.

Discussion and conclusions: This scale will allow clinicians and researchers to improve the psychological assessment of persons with gambling disorders and monitoring of the effectiveness of psychological treatments.

Keywords: emotion regulation, scale development, gambling disorder, gambling urges.

INTRODUCTION

Gambling disorder (GD) is a non-substance related addiction that consists of a recurrent gambling behavior that becomes persistent over time, leading to financial, occupational, academic, personal, and/or social impairment (American Psychiatric Association, 2013). GD constitutes a public health problem with a yearly prevalence ranging from 0.12% to 5.8% and a lifetime prevalence ranging from 0.7% to 6.5% (Calado & Griffiths, 2016). It is also highly comorbid with other psychological disorders such as depression, anxiety, substance use disorders, and other behavioral addictions (Håkansson, Karlsson, & Widinghoff, 2018; Lorains, Cowlishaw, & Thomas, 2011).

The development and maintenance of GD is influenced by several transdiagnostic processes, among which deficits in Emotional Regulation (ER) have received increased attention in the past years. ER refers to a set of processes involved in modulating the valence, intensity, and/or duration of affective experiences (Rogier & Velotti, 2018). According to Gratz and Roemer's model (2004), deficits in ER are complex phenomena and would include difficulties in awareness and acceptance of emotional experiences, in the ability to engage in goal-directed behaviors and inhibit impulsive behaviors when experiencing negative emotions, in the flexibility to use situationally adequate strategies to modulate the intensity and/or duration of emotional responses, and unwillingness to experience negative emotions as part of pursuing meaningful goals in life (Sloan et al., 2017).

Failures in the selection of appropriate ER strategies considering long-term goals and interests, as well as difficulties on adequate planning of the behavior consequences by underestimating the costs of impulsive actions (Passanisi & Pace, 2017; Roger & Velotti, 2018) could result in gambling endorsement as a way to escape from intense emotional arousal. This is related to emotional urgency, which Kim & Hodgins (2018) suggest that is a transdiagnostic

factor underlying gambling behavior. Emotional urgency, hence, is related to a facet of impulsivity and refers to the disposition to act rashly when experiencing emotional states, both positive and negative (Hershberger, Um & Cyders, 2017). Negative/positive urgency consists of the integration of negative/positive affect and impulsivity and has been proposed to be a sign of maladaptive emotion regulation mechanisms. Negative/positive urgency predicts the severity of GD (Lynam, Smith, Whiteside, & Cyders, 2006; Teese, Willie, Jago, & Gill, 2021; Willie, Gill, Teese, Stavropoulos & Jago, 2022), as well as poorer treatment outcomes, such as higher relapse rates and dropouts (Quintero, Navas & Perales, 2020). Therefore, the evaluation of negative and positive emotional states that increase the likelihood of gambling behaviors is of paramount importance in this population.

Instruments that assess the mechanisms underlying ER difficulties are available. For example, the Difficulties in Emotional Regulation Scale (DERS; Gratz and Roemer, 2004; Hervás & Jódar, 2008) evaluates constructs like non-acceptance of emotional responses, difficulties engaging in goal-directed behavior, difficulties in impulse control, lack of emotional awareness, limited access to effective ER strategies, and lack of emotional clarity. There are also scales that measure the negative/positive urgency, such as the Urgency, Premeditation (lack of), Perseverance (lack of), Sensation Seeking, Positive Urgency, Impulsive Behavior Scale (UPPS; Lynam et al., 2006). However, to the best of our knowledge there are no instruments that evaluate the extent to which certain positive and/or negative emotions lead to gambling urges. We will refer to this construct as "emotional gambling", based on previous work with a similar construct, namely "emotional eating" (Arnow, Kenardy & Agras, 1994; Perpiñá, Cebolla, Botella, Lurbe & Torro, 2011).

Emotional eating refers to eating urges and maladaptive eating behaviour that occur in an attempt to regulate a range of intense negative (e.g., anxiety, depression, anger and lowliness) or positive emotions (Faith, Allison, & Geliebter, 1997; Perpiñá et al., 2011; Van Strien, Herman & Verheijden, 2009). Similarly, emotional gambling would correspond to increased gambling urges and gambling behaviour in the presence of intense negative or positive emotions. The goal of the present study is to develop a measure of emotional gambling and validate it in a community sample of Spanish persons with recent history of gambling.

METHODS

Participants

In total, 328 participants met our inclusion criteria, which included being at least 18 years old, having gambled at least once during the last three months, and being Spanish. The participants had a mean age of 28.64 years (SD=11.65), which ranged from 18 to 72 years. Sex distribution was: 53.4% males (n=175), 46.3% females (n=152), and .3% intersexual (n=1). According to the National Opinion Research Center DSM Screen for Gambling Problems (NODS; Becoña, 2004; Gerstein et al., 1999), almost half of the sample (47.6%) were non-problematic gamblers (n=156), 33.3% were at-risk gamblers (n=109), 9.5% were problematic gamblers (n=31), and 9.7% were pathological gamblers (n=32). Regarding educational level, 2.4% completed primary education or had no studies, 41.5% had completed secondary education or high school, 15.5% of them had technical studies, and 40.5% had university studies or higher education. Most participants were students (50.3%) or active workers (39.9%). Only a small percentage of them were unemployed (5.2%), on a long sick leave (1.2%), or retired (2.1%). Almost all individuals (99.4%) had never received treatment for gambling problems and only a few of them had received psychological help for other psychological problems unrelated to gambling disorder (30.2%).

Measures

The Emotional Gambling Scale (EGS)

The EGS consists of 55 items in which the participants are asked to indicate the degree to which several emotions made them feel the desire to gamble in the past 3 months. The instrument uses a 5-point scale (0 = no gambling urges; 1 = slight gambling urges; 2 = moderated gambling urges; 3 = strong gambling urges; 4 = an irresistible urge to gamble). This scale includes two factors that refers to positive and negative emotions/feelings that could lead to experience gambling urges. Each subscale score is obtained by summing the items, which range from 0 to 72 for positive emotions/feelings subscale and from 0 to 120 for negative emotions/feelings. Higher scores indicate a greater desire to gamble in response to negative and/or positive mood states. The Spanish and English versions of the scale is available in Appendix A. Even though the Spanish version of the EGS was the only one validated in this study, an English version was created following a back translation process by two native Spanish speakers who are fluent in English to facilitate the readability of the current work and the dissemination of the scale. The internal consistency of our two subscales of the EGS (positive and negative emotions that lead to gambling urges and gambling behavior) was excellent (α=.96 and α=.98, respectively).

The National Opinion Research Center DSM Screen for Gambling Problems (NODS)

The NODS (Becoña, 2004; Gerstein et al., 1999) was created to identify gambling problems according to the definition by the DSM-IV. It evaluates behavioral and affective indicators of the gambling experience. Through 17 items with dichotomous answers (Yes/No), a total score between 0 and 10 can be obtained, where 1 or 2 points are equivalent to risk gambling, 3 or 4 indicate problematic gambling, and 5 to 10 correspond to pathological gambling. In this study, the NODS was used to characterize the participants in relation to the severity of the gambling behavior. Its internal consistency in the present study was very good (α=.78).

Problem Gambling Severity Index (PGSI)

The PGSI (Ferris & Wynne, 2001; Lopez-Gonzalez, Estevez, & Griffiths, 2018) is a standardized measure of problem gambling risk behavior. Based on 9 items rated on a 4-point Likert scale (0=never to 3=almost always), it assesses problem gambling behaviors (4 items) and adverse consequences of gambling (5 items). The final score is obtained by summing the item scores (from 0 to 27), where 0 represents a non-problematic gambler; 1-2 a low-risk gambler with few or no negative consequences; 3-7 a moderate-risk gambler with some negative consequences; and 8 or more a problem gambler. In terms of internal consistency, the scale showed an excellent performance in our study (α=.88).

Gambling-Related Cognitions Scale (GRCS-S)

The GRCS-S (Del Prete et al., 2017; Raylu & Oei, 2004) aims to assess 5 domains of gambling-related cognitions: interpretive bias, illusion of control, predictive control, gambling expectancies, and perceived inability to stop gambling. It consists of 23 items rated on a 7-point Likert-type scale (1 = I strongly disagree; 7 = I strongly agree). A total score or one for each subscale can be calculated. Higher scores reflect more severe cognitive distortions about gambling. The Cronbach's alpha of the GRCS-S in our sample was excellent (α=.94).

The Hospital Anxiety and Depression Scale (HADS)

The HADS (Castresana et al., 1995; Zigmond & Snaith,1983) is composed of two subscales, namely depression and anxiety. It contains 14 items (seven for each subscale), where the participant is asked to evaluate the frequency of symptoms on a 4-point Likert scale (0 =

absence/minimum presence; 3 = maximum presence) during the last week. Subscale scores are obtained by summing the corresponding items. The total values can range from 0 to 21, where a score up to 8 implies absence of significant morbidity, from 8 to 10 a borderline case, and a score above 10 corresponds to morbidity. Both the depression and the anxiety subscales obtained excellent internal consistency estimates in our sample (α=.77 and α=.82, respectively).

The Urgency-Premeditation-Perseverance-Sensation Seeking-Positive Urgency (UPPS-P)

The short UPPS-P impulsivity scale (Cándido, Orduña, Perales, Verdejo, & Billieux, 2012; Lynam et al., 2006) assesses 5 factors that could lead to impulsive behaviors, that is negative urgency, lack of premeditation, lack of perseverance, sensation seeking, and positive urgency. It consists of 20 items rated on a 4-point Likert scale (1 = strongly agree; 4 = strongly disagree). Each scale ranges from 4 to 16. The higher the score, the higher the impulsivity level. The internal consistency of the scale in our sample was excellent (α=.85)

Quality of Life Index (QLI)

The QLI (Mezzich et al., 2000; Mezzich, Ruiz, Muñoz, 1999) uses 10 items to measure 10 dimensions of quality of life (e.g., physical well-being, psychological/emotional well-being, self-care and independent functioning, occupational functioning, interpersonal functioning, socioemotional support, community and service support, personal fulfillment, spiritual fulfillment, and global perception of quality of life). Each item is scored on a 10-point Likert scale (1 = poor; 10 = excellent). The total score corresponds to the average score of the items from 1 to 10, corresponding to 1 - 4.5 = perception of quality of life below average; 4.6 - 8.1 = perception of quality of life at average; 8.2 – 10 = perception of quality of life above average. The internal consistency of the QLI in our sample was excellent (α=.91).

In the present study, the PGSI, the GRCS-S, the HADS, the UPPS-P, and the QLI were used to evaluated sources of construct validity of the EGS.

Procedure

To develop the EGS, we followed the phases proposed by Boateng, Neilands, Frongillo, Melgar-Quiñonez & Young (2018) for scale development and validation. We firstly identified the domain to evaluate, which was called "emotional gambling". We confirmed that there were no existing instruments to assess specific emotions/feelings that can lead to experiencing

different intensities of gambling urges. We specified the dimensions of interest (positive and negative emotions/feelings) and generated items inspired by other psychological assessment tools, mainly The Emotional Eating Scale (EES) (Arnow et al.,1994) which evaluates the same construct but in eating disorders. This is a 25-item self-report instrument with a 5-point Likert-type format (no desire; small desire; moderate desire; strong urge; and an overwhelming urge to eat) that assesses the urge to cope with negative affect by eating. Three factors were differentiated: anger/frustration (e.g., resentful, discouraged, not doing enough, disobedient, irritated, jealous, frustrated, furious, angry, guilty, helpless), anxiety (e.g., shaky, excited, stressed out, uneasy, worried, on edge, confused, nervous, upset), and depression (e.g., worn out, down, sad, lonely, bored). In the Spanish adaptation and validation of the EES conducted by Perpiñá et al. (2011), however, the authors found five dimensions: anger (e.g., jealous, worried, frustrated, furious, on edge, angry), anxiety (e.g., shaky, excited, stressed out, uneasy, lonely, nervous, upset), depression (e.g., resentful, discouraged, down, sad), restlessness (e.g., worn out, disobedient, irritated, confused, bored), and helplessness (e.g., not doing enough, guilty, helpless).

As noted earlier, the EES only includes negative emotions associated with emotional eating. Gambling urges, however, are also associated with positive emotions (Casey, Oei, Melville, Bourke, & Newcombe, 2008; Rogier & Velotti, 2018). Therefore, our items in the EGS were also inspired by the Profile of Mood States (Andrade, Arce, & Seaone, 2002; Arce, Andrade & Seoane, 2000; Grove & Prapavessis, 1992; McNair, Lorr, & Droppleman, 1971) and the Positive Affect and Negative Affect Scale (Díaz-García et al., 2020; Watson, Clark, & Tellegen, 1988). The POMS is a widely used multidimensional measure of mood that evaluates both positive (e.g., vigor, self-esteem, and friendliness) and negative (e.g, tension, depression, and anger) emotional states (De Pasquale, et al., 2021; Jeong & Oh, 2020). The PANAS also evaluates positive and negative mood states, with items like interested, excited, strong, enthusiastic, proud, alert, inspired, determined, attentive, and active for positive affect and adjectives like distressed, upset, guilty, scared, hostile, irritable, ashamed, nervous, jittery, and afraid for negative affect (Díaz-García et al., 2021; Spears et al., 2019).

To develop the items in the EGS, authors L-DS, M-PM, and C-SR had a series of meetings and discussions based on the aforementioned measures and gambling-related literature. We differentiated items regarding anger/frustration, anxiety/tension, depression, fatigue, vigor, sociability, and self-esteem, and proposed 47 items representing

emotions/feelings that could lead to experiencing different intensities of gambling urges. Then, the EGS was evaluated by 17 psychologists with at least 5 years of clinical experience, including experience with gambling disorder, and who held a PhD in Psychology. The expert judges offered qualitative information and suggested adding and/or deleting emotions/feelings based on their representativeness for gambling disorder. After this step, L-DS, M-PM, C-SR, and J-BL reviewed the comments and proposed a final version of the EGS with 55 items including both positive and negative emotions/feelings. Then, an online survey was created in the Qualtrics platform, which included the informed consent, sociodemographic variables, the EGS, and other scales used for construct validity assessment (see the Measures section). The survey was disseminated through LinkedIn, Facebook, Instagram, WhatsApp, and Twitter, as well as pamphlets and flyers at the University campus. Data was collected between July 2021 and April 2022. Participants read the informed consent and voluntarily accepted to participate. The participants that fulfilled the complete survey and adequately responded to the control questions received a gift card of 5€ from a sports shop.

Statistical analysis

The factor structure of the EGS was investigated using an Exploratory Factor Analysis (EFA) with the Mplus software version 6.12. We used the oblimin rotation method, set all variables as categorical due to their Likert-type response style, and selected the Weighted Least Square Mean and Variance Adjusted (WLSMV) estimator in the analyses, which is the preferred one for categorical variables. The reason for conducting an EFA was that the EGS is a new instrument, so it is necessary to examine different model fits before choosing the most appropriate one. For this purpose, we took into account the indexes proposed by Hu & Bentler (1999) and Checa, Perales & Espejo (2018) that correspond to the root mean square error of approximation (RMSEA), the comparative fit index (CFI), and the Tucker-Lewis index (TLI). We considered both increments in the CFI ≥ .01, as well as improvements in the RMSEA and TLI, having preference for parsimonious models when fit was comparable (Morin, Arens, & Marsh, 2016). RMSEA values smaller than 0.08 and 0.06 are usually interpreted as indicating an acceptable and excellent model respectively, while CFI and TLI values greater than 0.9 and 0.95 correspond to an adequate and excellent model fit, respectively. In addition, we explored the sources of construct validity evidence of the EGS by calculating Pearson correlations with measures of gambling symptomatology, impulsivity, gambling-related cognitions, anxiety, depression, and quality of life.

Finally, to examine the precision of the EGS scores in detecting emotions/feelings that could lead to experience different intensities of gambling urges related with problem gambling, the receiver operating characteristic (ROC) curve and the area under the curve (AUC) were analyzed. We considered a 95% confidence interval for the AUC and its statistical significance. We also analyzed the optimal cut-off point following the Youden index method (Fluss, Faraggi, & Reiser, 2005) and the sensitivity and specificity for each factor, as well as the positive and negative predictive values (PPV/NPV) and likelihood ratios.

Ethics

The study procedures were carried out in accordance with the Declaration of Helsinki and good clinical practice. The Innovation Office and TI audit and the Ethics Committee of the Universitat Jaume I (Castellón, Spain) on April 15, 2021 (CD/17/2021) approved the study. All subjects received information about the study and provided their written consent to participate.

RESULTS

Factor Structure of the EGS

The results from the EFA are shown in Table 1 and the item factor loadings are reported in Table 2. Through an exploratory factorial analysis, the most appropriate model was that of two factors ($\chi 2$=2287.39, p=.001, RMSEA=0.042, CFI=0.961, TLI=0.958). Factor 1 included items related to positive emotions/feelings, that is items 1 to 11, item 13, and from item 17 to 22 (0.55$\geq\lambda\geq$0.94). Factor 2 included items related to negative emotions/feelings, specifically items 12, 14, 15, 16, and from item 23 to 55 (0.42$\geq\lambda\geq$1.02). The internal consistency of the EGS was .96 and .98 for factors 1 and 2, respectively (Table 3).

Table 1 Goodness of fit indices for the one and two factor exploratory models of the EGS (n=371)

Factors	X2	p	RMSEA	90% CI RMSEA	CFI	TLI
1	4912.86	<.001	0.081	0.079, 0.084	0.851	0.846
2	2287.39	<.001	0.042	0.039, 0.045	0.961	0.958

CFI: the comparative fix index; CI: confidence interval; p: significance; RMSEA: the root mean square error of approximation; TLI: Tucker-Lewis index; X2: chi-squared.

Table 2 Item loadings of the different models (n=371)

Items	Factor 1	Factor 2
1	0.81	
2	0.73	
3	0.65	
4	0.78	
5	0.74	
6	0.80	
7	0.66	
8	0.61	
9	0.65	
10	0.55	
11	0.71	
12		0.86
13	0.62	
14		0.84
15		0.81
16		0.83
17	0.89	
18	0.91	
19	0.94	
20	0.90	
21	0.86	
22	0.84	
23		0.86
24		0.81
25		0.95
26		0.85
27		0.85
28		0.97

29	0.96
30	0.67
31	0.92
32	1.02
33	1.01
34	0.93
35	0.93
36	0.96
37	0.90
38	0.69
39	0.83
40	0.84
41	0.72
42	0.80
43	0.63
44	0.86
45	0.83
46	0.77
47	0.92
48	0.42
49	0.86
50	0.89
51	0.89
52	0.88
53	0.87
54	0.83
55	0.65

Construct validity evidence of the EGS

To assess the evidence of construct validity of the EGS, we analyzed the correlations of factor 1 (positive emotions/feelings) and factor 2 (negative emotions/feelings) of the EGS with

measures of gambling severity, gambling-related cognitions, impulsivity, anxiety and depression symptoms, and quality of life (Table 3). Both factors of the EGS were positively and moderately correlated with gambling severity ($.50 \leq r \leq = .62$; $p < .001$), gambling-related cognitions ($.56 \leq r \leq = .60$; $p < .001$), and impulsivity ($.32 \leq r \leq = .41$; $p < .001$). In addition, there were small correlations between factor 1 and anxiety and depressive symptoms ($.23 \leq r \leq = .24$; $p < .001$) and moderate correlations between factor 2 and anxiety and depressive symptoms ($.35 \leq r \leq = .42$; $p < .001$). Regarding the correlation between both factors of the EGS and quality of life, we found a negative small-to-moderate correlation with our scale ($.29 \leq r \leq .43$, $p < .001$).

Table 3. Means, standard deviations, Cronbach's alphas, and Pearson bivariate associations between study variables (n=328)

Variable	α	M (SD)	Pearson intercorrelations								
			EGS F1	EGS F2	NODS	GRCS	PGSI	UPPS	HADS A	HADS D	QLI
EGS F1	.96	14.85 (13.72)		.56	.50	.56	.53	.32	.23	.24	-.29
EGS F2	.98	16.08 (24.09)			.58	.60	.62	.41	.35	.42	-.43
NODS	.78	1.39 (2.03)				.66	.82	.47	.32	.40	-.41
GRCS	.94	46.28 (23.67)					.67	.49	.39	.40	-.45
PGSI	.88	2.39 (3.59)						.45	.39	.43	-.48
UPPS	.85	44.88 (6.02)							.39	.49	-.47
HADS A	.82	5.86 (3.92)								.66	-.63
HADS D	.77	3.91 (3.62)									-.71
QLI	.91	7.35 (1.52)									

HADS A: The Hospital Anxiety and Depression Scale-anxiety subscale; HADS D: The Hospital Anxiety and Depression Scale-depression subscale; F1: factor one (positive emotions/feelings); F2: factor two (negative emotions/feelings); GRCS: Gambling-Related Cognitions Scale; M: mean; NODS: The National Opinion Research Center Diagnostic Screen; PGSI: The Problem Gambling Severity Index; QLI: The Quality of Life Index; SD: standard deviation; UPPS: impulsivity scale.

ROC Analysis

      To analyze the optimal cut-off point for both factors of the scale, a ROC curve was calculated. We split the sample of 328 participants into two, one with 63 persons suffering from problem/pathological gambling and another with 265 participants without problem gambling. The scores on the NODS were used as criterion, thus participants with ≥3 were classified as suffering from problem/pathological gambling, whereas those participants with scores below 3 were classified as not suffering problem gambling. The AUC, 95% confidence interval (CI), significance (p), the Youden index, sensitivity, specificity, and the optimal cut-off point for factor 1 (positive emotions/feelings) and factor 2 (negative emotions/feelings) are shown in Table 4. The AUC indicates statistically significant predictive ability of factor 1 and factor 2 to detect positive and negative emotions, respectively, that could influence in feeling higher gambling urges related with problem gambling. According to the Youden Index for factor 1 (0.51) and factor 2 (0.60), we propose a cut-off point of 16 with well-balanced sensitivity and specificity. For this cut-off point, regarding factor 1, the positive predictive value (PPV) was 46.67% (95% CI: 41.81% to 51.59%) and the negative predictive value (NPV) was 100%. Considering factor 2, the PPV was 61.76% (95% CI: 54.73% to 68.34) and the NPV was 100%. Positive likelihood ratios were 3.68 and 6.79 for factor 1 and 2, respectively, and the negative likelihood ratio was .00 for both factors.

Table 4 Statistics to assess the optimal cut-off for both subscales

Factors	AUC	95% CI	p	J	Se	Sp	Cut-off
1	0.79	0.73, 0.85	>.001	0.51	0.83	0.69	16
2	0.85	0.80, 0.90	>.001	0.60	0.79	0.80	16

AUC: area under the curve; CI: confidence interval; p: significance; J: Youden index; Se: sensitivity; Sp: specificity.

      Figure 1 and 2 show a graphical representation of the ROC curve for factor 1 and factor 2, respectively.
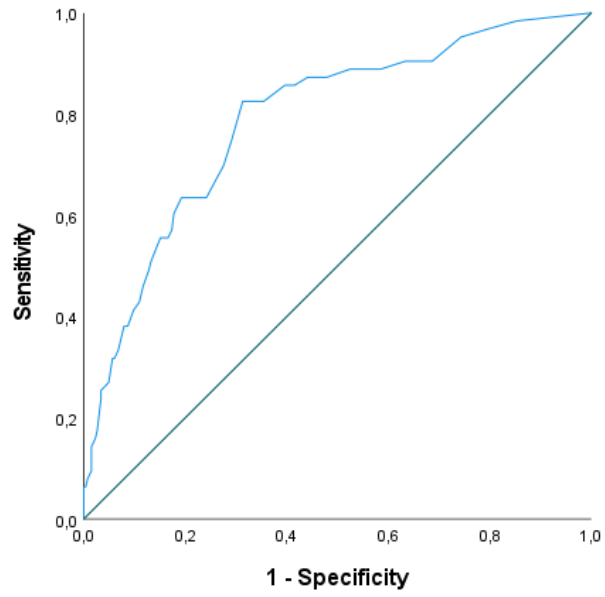
Figure 1 ROC curve of factor 1 (positive emotions/feelings that leads to experience gambling urges)
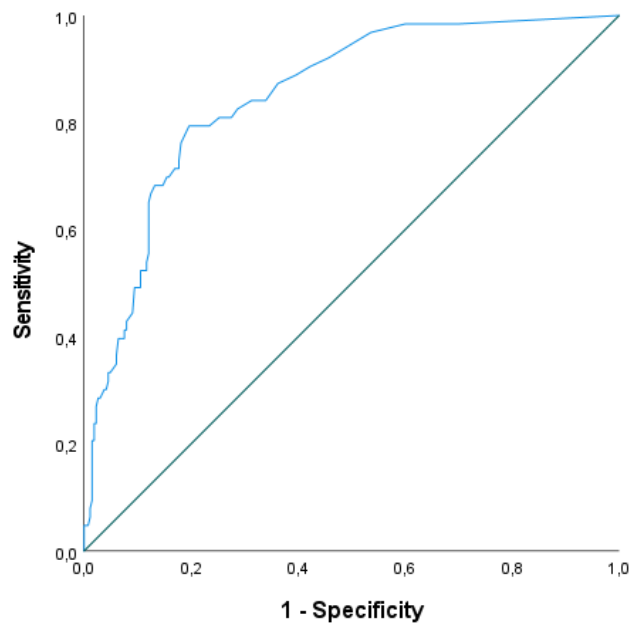
Figure 2 ROC curve of factor 2 (negative emotions/feelings that leads to experience gambling urges)

DISCUSSION AND CONCLUSIONS

In this study we intended to create a new measure of a novel construct called "emotional gambling", which would refer to the degree of gambling urges experienced in response to positive and/or negative emotions and feelings that could lead to act rashly by gambling. Emotional urgency facets are relevant predictors of different problem behaviors, such as gambling behavior (Willie et al., 2022). Although there are instruments that assess emotional regulation mechanisms (e.g., DERS) and impulsivity traits, such as positive and negative urgency (e.g., UPPS-P), there is no instrument to evaluate the specific emotions that lead to experience different intensity of gambling urges. Thus, the development of a novel measure that assesses positive and negative emotions/feelings that can lead to greater gambling urges might be a significant contribution to the field.

The results regarding the internal structure of the EGS, as obtained with the exploratory factor analyses, showed a two-factor solution that differentiate emotions according to their valence into positive and negative. These factors were labelled as positive and negative emotions/feelings that lead to experience gambling urges. Good internal consistency estimates were found in both factors, with Cronbach alpha values of .96 (factor 1=positive emotions) and .98 (factor 2=negative emotions). In addition to the good reliability estimates, we also found good evidence of construct validity of the EGS. The correlations between both factors of the EGS and related constructs were significant and in the expected directions. Both factors were positively and moderately correlated with gambling severity, gambling-related cognitions, and impulsivity. Factor 2 (negative emotions/feelings) was also moderately and positively correlated with anxiety and depressive symptoms, while factor 1 (positive emotions/feelings) showed a weak correlation with anxiety and depressive symptoms. Also, there was a negative weak-to-moderate correlation between both factors of the EGS and quality of life. Data from the current study suggests that the optimal cut-off to discriminate between problematic "emotional gambling" and non-problematic "emotional gambling" is 16 for both factors, with a good balance between sensitivity and specificity.

Understanding and being aware of the emotions/feelings that could influence the experience of greater gambling urges is important because gambling-related urge is significantly associated with gambling episodes and is a predictor of relapses in problem gambling (Hawker, Merkouris, Youssef, & Dowling, 2021; Oei & Gordon, 2008; Smith, Battersby, Pols, Harvey, Oakes, & Baigent, 2015). Gambling engagement could be used to

regulate emotional states, but it consists of a maladaptive escape strategy (Rogier & Velotti, 2018). Thus, it would be useful to assess this new construct of "emotional gambling" to prevent relapses and to teach how to cope with emotional states adaptively. For instance, Aldao & Nolen-Hoeksema (2010) differentiate several adaptive strategies such as the ability to remain in contact with feelings, thoughts, and psychical sensations (acceptance), problem solving, and reinterpreting the meaning of an event in order to alter its emotional impact (reappraisal) in contrast to harm avoidance. This instrument gives us information on patient profiles, where certain emotions (positive, negative or both) may be triggers for gambling behaviour. This allows us to further personalize treatments and to work more precisely with therapeutic components such as stimulus control or emotional regulation of emotional states specifically linked to that patient's gambling behaviour.

This study presents several strengths, such as the involvement of expert judges for developing the scale items. This is in favors the robustness of our conclusions regarding the representativeness of items according to the domain of interest. Also, the sample size is higher than the one recommended by Haynes, Richard & Kubany (1995). Sample size was also sufficient according to Nunnally (1978), who established a rule of 10 participants for each scale item, and also in accordance with the proposal by Clark & Watson (1995) of using 300 respondents and Guadagnoli & Velicer (1988) and Comrey (1988) that recommend a range of 200-300 as appropriate for factor analysis. In addition, the target population was the general population (with recent history of gambling behavior) and it included people with different gambling severity symptomatology (no problem gambling; at-risk gambling; problem and pathological gambling). This allowed us to analyze the optimal cut-off points for positive and negative emotions that could influence in feeling higher gambling urges related with problem gambling.

The study also has some limitations. Firstly, despite considering the recommendations by Boateng et al. (2018) for developing assessment scales, sensitivity to change and test-retest reability indexes were not calculated because of our cross-sectional design. In addition, even though the dissemination was conducted both online and onsite using pamphlets and flyers, the survey was responded online, so individuals unfamiliar with technology or without access to the Internet probably are not represented in the study. Finally, although in the present study we included people with different levels of gambling severity, the results might not be applicable to very severe cases of GD. It would be relevant to validate this instrument in a clinical sample.

Despite the mentioned shortcomings, this study might contribute to advance the field of evaluation in gambling problems. The EGS will facilitate the investigation of the relation between positive and negative emotional states and gambling urges. This will be useful for clinicians interested in addressing gambling problems and to improve GD treatment by highlighting the relapse prevention as well as the emotional regulation and stimulus control components.

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Appendix A: Escala de Jugar Emocional (Spanish version)

Indica el grado en que las siguientes emociones o estados de ánimo desencadenan un impulso por apostar dinero a juegos de azar. Piensa en lo que has experimentado en los últimos 3 meses:

		Ningún impulso por jugar	Un ligero impulso por jugar	Un moderado impulso por jugar	Un fuerte impulso por jugar	Un irresistible impulso por jugar
1	Ilusionado/a					
2	Orgulloso/a (de mí)					
3	Valioso/a					
4	Seguro/a de mí mismo/a					
5	Inspirado/a					
6	Con confianza en mí mismo/a					
7	Amistoso/a					
8	Considerado/a (con los demás)					
9	Comprensivo/a					
10	Con ganas de ayudar					
11	Amable					
12	Rechazado/a					
13	Generoso/a					
14	Abandonado/a por los demás					
15	Solo/a					
16	Sin interés por la gente					
17	Animado/a					
18	Activo/a					
19	Entusiasmado/a					
20	Alegre					

21	Lleno/a de energía
22	Eufórico/a
23	Sin fuerzas
24	Sin energía
25	Débil
26	Cansado/a
27	Agotado/a
28	Inútil
29	Triste
30	Aburrido/a
31	Sin esperanza de mejorar
32	Hundido/a
33	Deprimido/a
34	Desesperado/a
35	Culpable
36	Desmotivado/a
37	Avergonzado/a
38	Ansioso/a
39	Estresado/a
40	Preocupado/a
41	Nervioso/a
42	Indeciso/a
43	Impaciente
44	Agobiado/a
45	Asustado/a
46	Celoso/a
47	Decepcionado/a
48	Frustrado/a
49	Furioso/a
50	Ofendido/a

51	Enfadado/a
52	Con rabia
53	Agresivo/a
54	Irritable
55	Envidioso/a

Emotional Gambling Scale (EGS; English version)

Indicate the degree to which the following emotions or moods trigger an urge to spend money on gambling. Think about what you have experienced in the last 3 months:

		No gambling urges	Slight gambling urges	Moderated gambling urges	Strong gambling urges	An irresistible urge to gamble
1	Hopeful					
2	Proud of myself					
3	Worthy					
4	Self-assured					
5	Inspired					
6	Self-confident					
7	Friendly					
8	Considerate (of others)					
9	Understanding of others					
10	Eager to help					
11	Kind					
12	Turned down					
13	Generous					
14	Abandoned by other people					
15	Isolated					

16	Not interested in people
17	Lively
18	Active
19	Enthusiastic
20	Cheerful
21	Full of energy
22	Euphoric
23	Lacking strength
24	Powerless
25	Weak
26	Tired
27	Exhausted
28	Worthless
29	Sad
30	Bored
31	Hopeless
32	Miserable
33	Depressed
34	In despair
35	Guilty
36	Discouraged
37	Ashamed
38	Anxious
39	Stressed out
40	Worried
41	On edge
42	Hesitant
43	Impatient

44	Overwhelmed
45	Scared
46	Jealous
47	Disappointed
48	Frustrated
49	Furious
50	Resentful
51	Angry
52	Enraged
53	Aggressive
54	Irritable
55	Envious

CHAPTER 3

Client's Experiences Using a Location-Based Technology ICT System during Gambling Treatments' Crucial Components: A Qualitative Study.

Client's Experiences Using a Location-Based Technology ICT System during Gambling Treatments' Crucial Components: A Qualitative Study

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Abstract

Cognitive Behavioral Therapy is the treatment of choice for Gambling Disorder (GD), with stimulus control (SC) and exposure with response prevention (ERP) being its two core components. Despite their efficacy, SC and ERP are not easy to deliver, so it is important to explore new ways to enhance patient compliance regarding SC and ERP. The aim of this study is to describe and assess the opinion of two patients diagnosed with problem gambling and GD that used the Symptoms app, a location-based ICT system, during SC and ERP. A consensual qualitative research study was conducted. We used a semi-structured interview, developed ad-hoc based on the Expectation and Satisfaction Scale and System Usability Scale. A total of 20 categories were identified within six domains: usefulness, improvements, recommendation to other people, safety, usability, and opinion regarding the use of the app after completing the intervention. The patients considered the app to be useful during the SC and ERP components and emphasized that feeling observed and supported at any given time helped them avoid lapses. This work

can offer a starting point that opens up new research paths regarding psychological interventions for gambling disorder, such as assessing whether location-based ICT tools enhance commitment rates.

Keywords: gambling disorder; control stimuli; exposure with response prevention; location-based technologies; satisfaction.

1. Introduction

Gambling Disorder (GD) is classified as a non-substance-related disorder. GD involves repeated problematic gambling behavior that results in distress and significant problems. Individuals with GD have a lack of control over their behavior and, in spite of trying to stop gambling several times, they are unsuccessful. Individuals with GD have frequent thoughts about gambling, feel irritable when they cannot gamble, and need to increase the amount of money they gamble to accomplish the desired feeling of excitement. When they lose money, they often gamble again to "chase losses" and usually lie about the extent of their involvement. Due to these features, different areas of their life can be impaired (e.g., job, relationships, education). In addition to this complex symptomatology, GD has high comorbidity with other psychological disorders, with mood, anxiety, and substance use disorders being most prevalent [1–4].

GD is emerging as a relevant public health problem. In Spain, a recent study states that the prevalence of pathological gambling is 0.72% [5], higher than that indicated in DSM-5 (0.2–0.3%) [6]; a previous representative survey performed in a Spanish region using NODS [7] also indicates a prevalence of 0.3%. A study carried out by the Directorate General for the Regulation of Gambling [8] shows that, according to the NODS criteria, 24.3% of the studied population (n = 6816) are non-gamblers, 69.4% non-risk gamblers, 4.4% at-risk gamblers, 1% problem gamblers, and 0.9% pathological gamblers (PG) at any time in their life.

The first-line treatment for GD is Cognitive-behavioral therapy (CBT) [9–12], which has been further reinforced by systematic review and meta-analysis efficacy studies that report important and long-lasting improvements [13,14]. The core features of CBT for gambling disorder are stimulus control (SC) and exposure with response prevention (ERP) to gambling opportunities and cues. SC aims to prevent gambling

behaviors, and ERP confronts the patient with an overwhelming urge with the purpose of habituating or extinguishing it [15–17].

SC is introduced initially to avoid gambling cues and establish an abstinence period. Afterwards, ERP is incorporated to achieve the habituation process of the urge to gamble considering the presence of a particular emotional reaction or gambling related stimulus. Both components are well established [18–20]. Despite the efficacy of CBT, SC and ERP components are not easy to deliver, and they are hard for the patients. There are inherent difficulties related to commitment during SC for those people who suffer GD, and high attrition rates and relapses are generally present [21]. This leads to a complex administration of treatment for patients diagnosed with GD and, therefore, it is important to enhance key therapeutic components and their motivational features.

Media-based tools have contributed to the development of new strategy designs to target psychological disorders. New communication technologies are not just tools, they are part of our culture [22]. In this sense, new technologies are embedded in everyday life and must be treated as natural elements of post-modern society [23,24]. Post-modern culture implies a deep and updated study of human interaction with new technologies, since, according to meta-analysis studies, they pose an important and urgent challenge [25,26]. In recent years, there has been increased interest in using technology-associated psychological interventions as a form of treatment for psychological disorders, including GD. Several studies have been conducted to improve the effectiveness of psychological treatments or clinical utility. The first promising technology was virtual reality (VR), which emerged as a viable and effective tool for psychological disorders, reporting efficacy in the treatment of GD and the ERP component [27–30]. Furthermore, media development has led to the use of the internet to deliver CBT, obtaining adequate results in randomized control trials (RCT) [31–39]. The efficacy of these self-guided treatments has been confirmed in many countries by scoping and systematic reviews or meta-analyses [14,40–43].

Information and Communication Technologies (ICT) systems for psychological intervention and their clinical effectiveness have been empirically tested. The issue of acceptability of technology-guided treatment is also important when considering whether or not the use of ICT systems will affect therapeutic adherence and clinical outcomes [44]. Acceptability is described as the degree to which users are satisfied or at ease with

the service and willing to use it [45], and it is considered as an important influence in the perception of the treatment as fair and reasonable, appropriate, and non-intrusive in addressing a problem [46,47]. In the Technology Appraisal Guidance from the United Kingdom, to properly assess the intervention acceptability is considered a priority, and expectations, satisfaction, and usability are mentioned as variables linked to it. This, in turn, makes these variables crucial features in psychotherapy results [48]. Several studies have focused on expectations and satisfaction with different ICT systems. For instance, VR or internet-based systems for delivering psychological treatments [49–51], including for gambling disorder [31,32], have reported high satisfaction with the exposure component mediated by technologies. Studying acceptability and usability of an ICT system must take into account a very specific conceptualization within the user experience. With the aim of enhancing ICT system development, the ease of use of a product by a specific user should be explored with clearly defined context and goals. Even though few studies have addressed this topic [46,52,53], the aforementioned ICT system-driven examples have shown to be well-supported regarding acceptability.

Other tools included under ICT systems are mobile phone and smartphone apps. The large increase in mobile phones and smartphones over the years [54] offers additional and largely unexplored advantages for implementing psychological treatments for different mental disorders with the support of these technologies [55,56]. Hawker, Markouris, Youssef & Dowling [57] conducted a single-arm study that supports the acceptability, feasibility and preliminary efficacy of an app-delivered EMI for craving management in people with gambling problems. The app's EMI feature recommends using 12 urge-curb tips or exercises that take 1 to 5 min to complete. The content is related to psychoeducation, relaxation techniques, and mindfulness (e.g., about my urge, delay and distract, and urge surfing). Smartphone apps have also been demonstrated to be feasible and acceptable as CBT adjunctive components to enhance homework completion in people suffering from a gambling disorder (e.g., decisional balance exercise, functional analysis of gambling behavior, development of healthy alternatives to gambling, problem-solving, and relapse prevention exercises) [58]. Moreover, a randomized controlled trial in which a self-help CBT program was combined with a messaging app showed promising results for overcoming the high dropout rate of unguided internet-based interventions for gambling disorders. Every day at 9 pm, participants in the intervention group received monitoring, personalized feedback, and messages based on

CBT. Only 6.7% of the participants dropped out at follow-up and 77% continued participating during the trial period [59]. Recent RCT protocol studies include apps for assessing and delivering interventions for gambling problems [60,61]. It is important to improve the quality of psychological programs considering smartphone apps. Smartphone portability could be very useful in a variety of feared situations in which GD symptoms occur, and to enhance therapeutic components and adherence. A subset of ICT corresponds to location-based technologies (LBT-based ICT system) with location tracking and personalized feedback towards the patient based on their position. Smartphone apps that use LBT-based ICT systems could enhance key therapeutic components in specific disorders and could signify a starting point to initiate and sustain the behavior required during SC and ERP components. Consequently, this could lead to improvement in the patients suffering gambling problems by maximizing their motivation and commitment. Although LBT-based ICT systems could become a tool when prescribing some therapeutic components, it will be upon the patient to carry out the tasks on his/her own in several situations where gambling happens, both in offline and online gambling. Some advantages of using mobile devices with LBT-based ICT systems include ensuring that patients are committed to the SC and that they remain in the exposure situation for the necessary time to fulfill the ERP component goals.

In previous studies, when carrying out the treatment, the context and LBT-based ICT system have been considered and treated as a variable. In the study of Addepally & Purkayastha [62], the authors studied using a mobile application (app) that monitors the location of depressed people. The app detected if the depressed patients were in less-crowded areas (a common trait in depressed individuals according to the study) and, if affirmative, the patient would receive therapeutic strategies and self-help assessment through notifications. In a case report study [63], a patient suffering from obsessive-compulsive disorder was allowed to configure alarms for when she remained for an extended time period in the same place using a location tracking app. In a case study carried out by our research team, an LBT-based ICT system was used during the in vivo exposure (IVE) component in the Unified Protocol treatment of a 47-year-old patient with Panic Disorder and agoraphobia. The focus of the study was to enhance key therapeutic components during in vivo exposure and the patient reported positive expectations, high satisfaction scores, and an overall satisfactory experience [64]. Another tool was developed in Auckland (New Zealand) to treat gambling disorder. This tool, called the

SPGETTI app, consists of two functions. On one hand, it supports relapse prevention by sending two notifications a day with content based on the Marlatt's relapse prevention cognitive behavior theory; and on the other hand, it aims to help reduce harmful gambling, specifically the use of electronic gaming machines. The app uses geo-positioning technology (GPS) that recognizes when one is near places that have pokie machines and sends a few small messages to help the individual stick to their goals. This app needs an internet connection to send these messages and it is necessary to previously establish and configure general gambling zones. A prospective cohort study was conducted to explore the impact of the SPGETTI app (National Institute for Health Innovation (NIHI and University of Auckland, Auckland, New Zealand). Data were analyzed qualitatively using an inductive approach and notification messages were reported as positive in terms of how they supported gamblers to quit or reduce their harmful gambling [65]. However, to the best of our knowledge, there are no reports that account for an LBT-based ICT system in a smartphone application for the treatment of GD during SC and ERP, which allows its configuration to be tailored to each patient, be updated, and does not need internet connection to send notifications. The main aim of this study was to describe the use of LBT-based ICT systems in SC and ERP components during the treatment of two patients diagnosed with GD, and to assess the patients' opinion about this LBT-based ICT system and the preliminary platform usability through qualitative analysis.

2. Materials and Methods

2.1. Patients

Patient 1 was a 28-year-old male with higher education who worked in a family company and was diagnosed with problematic gambling according to the Spanish-language version of the National Opinion Research Center DSM-IV Screen for Gambling Problems (NODS) [7]. He had not previously received treatment for this problem. He lived with his parents and had been in a relationship with his girlfriend for over two years. He placed bets on sports, especially soccer, and couldn't remember exactly when the betting started, although he thinks that it probably started more than five years ago when he and his friends used to bet on soccer matches as a way of entertainment. During the last year before the treatment, he started to bet alone and spent most of his free time betting. The patient had no debts, but he recognized that he spent money uncontrollably during his gambling sessions. His main thoughts were focused on his sports betting skills

and "the possibility of winning a lot of money through gambling". He described himself as a competitive person who likes to win. He didn't identify specific emotions linked to gambling but indicated feeling a kind of thrill while gambling linked to the possibility of winning money. He started to have significant problems, especially severe arguments with his girlfriend, because of the time he spent betting or thinking about it. It was then when he perceived gambling as a situation that was out of control and decided to request psychological help. He also decided to talk to his parents to inform them about the situation and received everyone's support. At the beginning of the treatment, no co-therapist was involved, given that the patient was not currently gambling, the patient had not acquired any debts and had reported his gambling situation to his relatives. His girlfriend's contact information (with her consent) was noted in case it was needed at any time during therapy. There was no substance abuse, and the patient wasn't receiving pharmacologic treatment at the time. The patient mentioned having some social problems, probably linked to the social anxiety that can appear in those who are willing to receive psychological treatment once a gambling problem is addressed. When the patient attended therapy, he was trying to stop gambling.

Patient 2 was a 46-year-old single male with basic studies who was employed at a company. He met the diagnostic criteria for pathological gambling according to the Spanish language version of the National Opinion Research Center DSM-IV Screen for Gambling Problems (NODS) [7]. He had not previously received treatment for this problem. He mostly played slot machines and additionally placed bets on different types of gambling. He started to play in 2009 as a way of entertainment, coinciding with the acquisition of a credit for the construction of his new house. Soon he started to think about the possibility of gambling as a way of winning money to pay for some of his expenses. He started to play more during the day, between 10 min to 3 h, changing the places where he played but with 3–4 favorite places. One day he spent more than 1000 euros playing slot machines and he progressively ran up important debts of approximately 23,000 euros from credit banks, friends and his work company. The main thoughts stated by the patient were "Now I'm going to win and I will be able to recover the loss" or "today I am going to be lucky". Even when trying to stop his gambling behavior, he never succeeded. The patient identified some negative emotions strongly linked to his gambling behavior such as feeling alone. His sister and brother knew about the situation, and his brother was the person involved in the therapy process as a co-therapist. There was no substance abuse

and no other psychological diagnosis. The patient was not receiving pharmacologic treatment at the time. As the patient's positive characteristics and strengths, it is important to note that he was very dynamic, with significant social support and a wide range of pleasure activities which he used to practice on a daily basis. When the patient attended therapy, he was trying once again to stop gambling after significant economic and family problems.

2.2. Therapist

The therapist (J.B.) was a member of our research team with more than ten years of experience in the therapeutic field, including both psychological intervention and technology-mediated therapy.

2.3. Measures

Several common psychiatric testing measures were used to establish the diagnosis and to evaluate the effects of the intervention. However, given that the component under study were SC and ERP by location-based technologies (SC + LBT-based ICT system; ERP + LBT-based ICT system), only the measures related to both components are presented in this article (with the exception of the diagnosis measures).

2.3.1. Diagnosis Measures and Measures for the Target Behaviors

Primary Outcome Measures:

NORC DSM-IV Screen for Gambling Problems (NODS) [7,66]. The NODS is a hierarchically structured 17-item screen that is designed to assess at-risk, problem, and pathological gambling. It refers to the gambling experience both throughout the person's life and in the last year, with the alternatives being dichotomous (Yes/No). The total score ranges from 0 to 10 (1–2 affirmative items correspond with at-risk gambling; 3–4 items with problem gambling; and 6 or more with pathological gambling). The data obtained on specificity and sensitivity is good, its test-retest reliability is 0.98, and its validity is excellent considering that it corresponds strictly to the DSM-IV criteria.

Target behavior scales (adapted from Marks & Mathews) [67] were used to identify problem situations because of gambling. The target behaviors were defined as

the behaviors linked to gambling and creating substantial impairment in the patient's daily life. The patients rated the level in terms of the overwhelming urge or craving state prior to engaging in the specific gambling behavior (0 = nothing; 10 = maximum).

2.3.2. Measures for Expectations and Satisfaction with the LBT-Based ICT System

The Expectation and satisfaction scale (adapted from Borkovec & Nau) [68] regarding the SC/ERP + LBT-based ICT system component was used previously in our research team in other ICT contexts [50,69], including pathological gambling [28]. This questionnaire was used to measure patient's expectations, before, and satisfaction after, the SC/ERP + LBT-based ICT system component. The questionnaire includes six items: how logical the SC/ERP + LBT-based ICT system component seemed; to what extent it could satisfy the patient; whether the patient would recommend this component treatment to others; whether it would be useful in treating other problems; the component's usefulness for the patient's problem, and to what extent it could be invasive. This last item was considered a key factor in assessing the LBT-based ICT system during SC/ERP. Due to the main characteristics of the LBT-based ICT system, it was important to assess any disruption, annoyance or intrusion on the patient's privacy caused by the LBT-based ICT system. Both parts (expectations and satisfaction) ranged from 0 to 10, being 0 = "not at all" and 10 = "very much".

2.3.3. Measures for Acceptability and Usability of the LBT-based ICT System

The System Usability Scale [70] is one of the most used tools for assessing perceived usability [51]. It consists of ten items, half written in a direct style and the other half in an inverse style. A five-point scale is used for rating the level of agreement, from 1 (strongly disagree) to 5 (strongly agree). This scale has a score contribution of the scale position minus 1 for the items 1, 3, 5, 7 and 9, and 5 minus the scale position for the items 2, 4, 6, 8 and 10. A formula is used to calculate the score as a percentage scale from 0 to 100.

2.3.4. LBT-Based ICT System Qualitative Interview

This is a semi-structured interview developed ad-hoc based on the Expectation and Satisfaction Scale (adapted from Borkovec & Nau) [68] and the System Usability Scale [70] (See Supplementary Materials). It was developed following the principles

specified in the CQR guidelines [71]. The primary team (L.D.; A.M.) discussed interview construction, then elaborated the questions, and the professor also did this separately (J.B.). Finally, agreement was reached when figuring out the number of questions. This included six open-ended questions that assess: satisfaction using the LBT-based ICT system; why they would recommend it to other people with gambling problems; utility; intrusiveness due to aspects of threat to confidentiality when using this technology; aspects of the tool that make it easier and/or more difficult to use; Likert scale measuring to what extent it could be helpful beyond treatment completion to help cope with gambling problems (from 0 "none" to 10 "very much"), and the reasons behind the score they give.

2.4. Treatment

The patients received a face-to-face intervention based on cognitive behavioral treatment (CBT) comprised of eight sequential therapeutic modules: motivation for change; psychoeducation; stimulus control (e.g., self-prohibition and blocking of usual gambling) and responsible return of debts (in the case of patient 2); cognitive restructuring; emotion regulation; planning of significant activities; coping skills and exposure with response prevention, and relapse prevention. The sessions included in each module were delivered weekly in around 1-h sessions. The SC + LBT-based ICT system and ERP + LBT-based ICT system components were carried out during the stimulus control and exposure with response prevention modules, respectively, keeping the structure of the aforementioned CBT-based intervention and including the LBT-based ICT system, which allowed the patient to receive personalized messages during the treatment process and specifically during the SC and ERP components. That is, during the exposure with response prevention modules, the patients were exposed to their main target behavior and used the LBT-based ICT system included in the study. The program's content, including the eight modules with objectives and contents, can be seen in Table 1. All of these modules exhibit a similar structure: a therapeutic content part presented with text; exercises and activities; a brief summary of the module, and tasks to complete before continuing through to the following modules.

Table 1. Treatment content.

Module	Objectives	Contents
M1. Motivation for change.	Giving information about the specific program and increasing motivation for change.	-Brief description of the content of each module. -Change stages in addictions. -Decisional balance. -Differentiation between lapse and relapse. -Establishment of general and specific objectives, and steps required to achieve these aims according to personal values.
M2. Psychoeducation.	Understanding gambling.	-Chance games' characteristics. -Reasons for gambling. -Gambling stages. -Types of gamblers. -Factors influencing the onset and maintenance of GD and its features.
M3. Stimulus control and responsible return of debts.	Gambling cessation and commitment to returning debts responsibly.	-Justification of the need for this therapeutic component, and the relevance of a co-therapist. -Limiting accessibility to money, gambling venues, and gambling friends. -Commitment to accomplish stimulus control through a behavioral contract. -List of debts and returns planning.
M4. Cognitive restructuring	Identification and correction of thoughts that contribute to GD onset and maintenance.	-Explanation of the importance of thoughts and how they influence emotions, behaviors and physiological responses through the ABC model. -Definition of dysfunctional thoughts or thinking traps related to gambling. -Identification and correction of own dysfunctional thoughts.
M5. Emotion regulation	Identifying emotions and understanding its function and how to tolerate and change emotional responses.	-Understanding emotions. -Emotional avoidance and Emotion Driven Behaviors (EDBs). -Emotion regulation strategies.
M6. Planning of significant activities	Lifestyle balance.	-Planning of different significant activities according with their values (e.g., activities participants used to or already enjoy, and new activities they would like to be involved in). -Involving significant others in alternative activities.
M7. Coping skills and exposure with response prevention	Habituation to the gambling conditioned stimulus without gambling.	-Explanation of the exposition with response prevention fundaments. -Establishment of the exposition hierarchy. -Gradual exposure to different gambling-related situations according to the established hierarchy.
M8. Relapse prevention	Avoid relapses and maintain changes gained through the intervention.	-Evaluation of the patient's progress and achievements. -Identification of high-risk situations, and anticipation of possible breakdowns. -Review of the techniques learned to deal with these situations.

2.5. System Description

For the present study the Symptoms platform was used, adapted to the gambling disorder pathology considered for this work. The full tool has been described in previous studies [64].

Symptoms is a technological platform that allows therapists to build, using the Symptoms Web application, an Ecological Momentary Intervention (EMI) smartphone app customized to the patient's needs. For each patient, the therapist is able to indicate the relevant places for treatment and corresponding contents (e.g., personalized messages) to be delivered when the patient is in a particular place. Once the smartphone app is configured, patients install it on their smartphone and the app starts to monitor their movements on a regular basis (e.g., every five minutes). As soon as patients approach one of the relevant places, the app detects it through the LBT-based ICT system and reacts by delivering the associated content as indicated by the therapist depending on the therapeutic component patients are receiving, SC (Figure 1) and ERP (Figure 2). Finally, the therapist is able to check and evaluate the patient's progress in a Web application to which the smartphone app communicates relevant data (whether or not patients have gone to the indicated places or if they have viewed the delivered messages, for example).
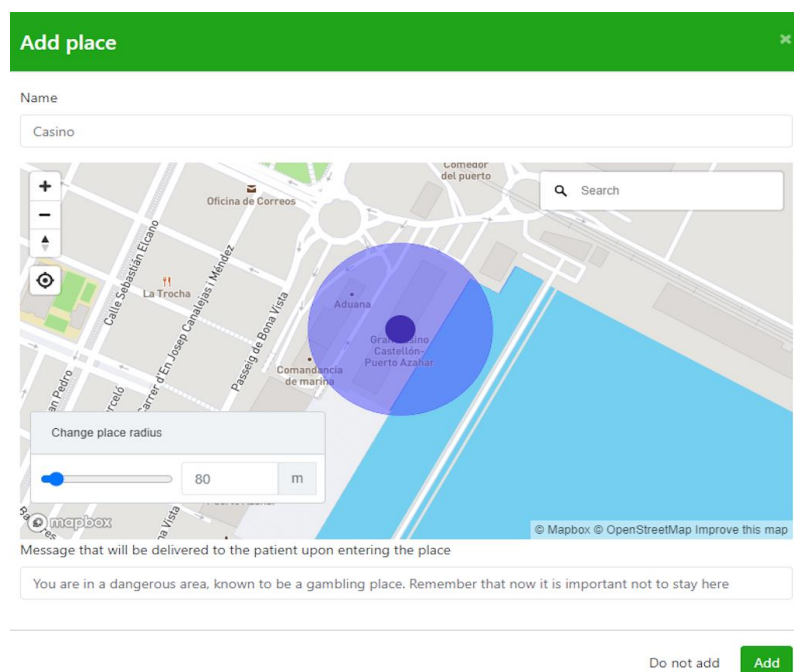
Figure 1. Smartphone app configuration during the SC therapeutic component.
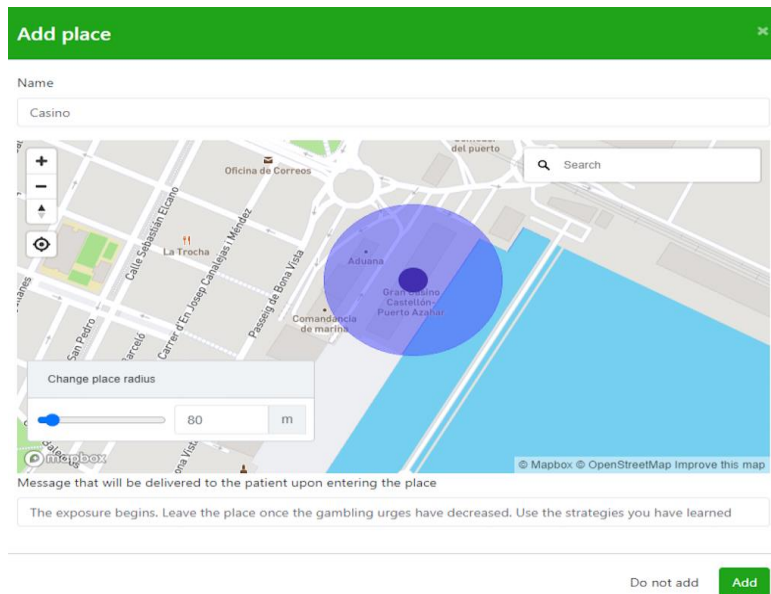
Figure 2. Smartphone app configuration during the ERP therapeutic component.

The Symptoms platform was designed to be flexible and configurable for different disorders, e.g., it has previously been used for agoraphobia as well [64]. In this study the platform was oriented to pathological gambling; therefore, the identified places and delivered information to patients were contextualized to gambling behaviors.

2.6. Design

This study follows a qualitative research method to evaluate the experience of two participants after using an LBT-based ICT system during SC and ERP. Specifically, the qualitative methodology used corresponds to the Consensual Qualitative Research (CQR) [67] based on the grounded theory. Both methodologies collect data using open-ended questions and conclusions from these data are reached through an inductive process. To report the study, the consolidated criteria for reporting qualitative research (COREQ) was followed [72].

2.7. Data Analysis

The narrative content from the qualitative interview was analyzed following the CQR process. For this purpose, a primary team was formed which consisted of a PhD student (L.D.) and a PhD graduate (A.M.), both females, with around five years of clinical training experience and also experience with the use of ICT for delivering interventions. Both attended a qualitative research course which addressed CQR. They had no previous

therapeutic contact with the participants, and served as judges in the coding process. For the qualitative data codification, domains, core ideas, and categories were established separately. Domains consist of topic areas, core ideas are abstracts or brief summaries from the participant's dialog, and categories correspond to consistencies in the core ideas within the domains. The primary team reached a consensus regarding this codification through discussion, and if there were discrepancies, an auditor, female full professor (A.G.-P.), expert in the field of psychopathology treatments, would help solve them. The auditor also checked the codification and gave comments to the primary team, which continually went back to the raw data to make sure that the results and conclusions were accurate and based on the data. The consensus process relies on mutual respect and equal involvement [73].

In addition to the qualitative interview, results for assessing patient's opinion about the use of the LBT-based ICT system for delivering SC and ERP therapeutic components, raw scores regarding expectation, and both the satisfaction and usability scales are reported. Even though it was not a goal of the present study, scores regarding the overwhelming urge in the target behavior are reported at the 1, 3, 6 and 12-month follow-up periods to show improvements.

2.8. Procedure

The patients asked for help at the Jaume I University Anxiety Disorders Clinic, Spain. First, they underwent a face-to-face screening assessment and, having met the inclusion criteria, they signed a consent form to participate in the present study. Inclusion criteria included the following: (a) meeting the gambling disorder diagnostic criteria (GD or problematic gambling), and (b) providing written, informed consent and also consenting to being recorded. Exclusion criteria included: (a) suffering from a severe comorbid mental disorder (schizophrenia, bipolar disorder, and alcohol and/or substance dependence disorder); (b) medical disease/condition that prevents the participant from carrying out the psychological treatment, and (c) receiving another psychological treatment during the study. The assessment consisted of around two 60-min face-to-face sessions to evaluate the diagnosis and establish the target behaviors related to the gambling behavior. The NODS was carried out in the first session and the second session was used to fill other self-report measures and establish the patient's target behaviors. Additional measures linked to the treatment were carried out in the context of the full

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therapy. Given that the component under study was the SC/ERP + LBT-based ICT system, only the measures related to this component are presented in this article and emphasized in the measures section. Following the assessment, and before starting the treatment, the therapist explained the basis of the treatment and the use of the LBT-based ICT system to support the mentioned therapeutic components. The patients agreed to take part in the research. The expectation with the SC/ERP + LBT-based ICT system components was evaluated by the patients before the treatment was conducted.

When the consent form for participating in the research and the consent form to use the LBT-based ICT system were filled out properly, the treatment started. Therapist and patient created the core situations linked to the gambling behavior and consequently established their target behaviors, which were assessed before each treatment session with the target behavior scale. The app was installed on their own smartphones, and the locations were positioned by the LBT-based ICT system and configured to receive the notification when the patient arrived at these core places during SC and ERP. During the SC module, every time the patient arrived at one of the core places, they received a notification with the particular message configured previously by the therapist "You are in a risk area because it was a place of gambling for you. Remember that it is now important not to stay here". After the first use of the app, following the recommendations given by the theoretical framework of ICT usability [50,51], the System Usability Scale was filled out by the patients. During the ERP module, every time the patient arrived at one of the core places during the exposure tasks, he received a notification with the particular message configured previously by the therapist "You are in a relevant place, the exposure begins. If there is an urge to gamble, use the strategies you have learned and leave the place when the urge has decreased". Following all the exposure tasks and after treatment, the satisfaction with the SC/ERP + LBT-based ICT system components was measured by the patients with the self-report measures, and the LBT-based ICT system component usability assessment. Finally, a qualitative interview was conducted at a 12-month follow up via videoconference. The interview was led by L.D., who had not been involved in the intervention process and lasted between 30 and 40 min. It was audio-recorded and later transcribed by two independent researchers (L.D and A.M). Once a single unified version of the transcription was obtained, the narrative content was analyzed independently to establish domains, core ideas, and categories. The primary team came together to discuss ideas and reach a consensus regarding codification. The

auditor checked the work of the primary team and gave feedback. The primary team then assessed this feedback through a consensual process to establish a single unified version.

3. Results

Patient 1 carried out the weekly treatment for a period of 4 months and patient 2 carried out 5 months of weekly treatment during the time of the study.

3.1. Target Behaviors

In Figures 3 and 4, the main target behaviors established by the patients and therapist regarding the gambling behavior, as well as the overwhelming urge ratings from the patients are shown. As shown in Figures 3 and 4, they are "sports betting" (for patient 1) in which the patient highlights the "excitement and urge to follow a strategy and the possibility of winning money" and "slot machines" (for patient 2) where the patient emphasizes a "strong overwhelming urge to gamble and distrust regarding his own capacity to resist it". The selected main target behaviors caused a certain (severe in the case of patient 2) level of impairment in different areas of the patients' life. Once the treatment started, there were no relapses reported by the patient or the co-therapist. Even though it was not a goal of the present study, preliminary results regarding the overwhelming urge in the target behavior show an important score reduction in the scheduled situations, supported by the LBT-based ICT system during the treatment and were maintained at the 1, 3, 6 and 12-month follow-up periods.
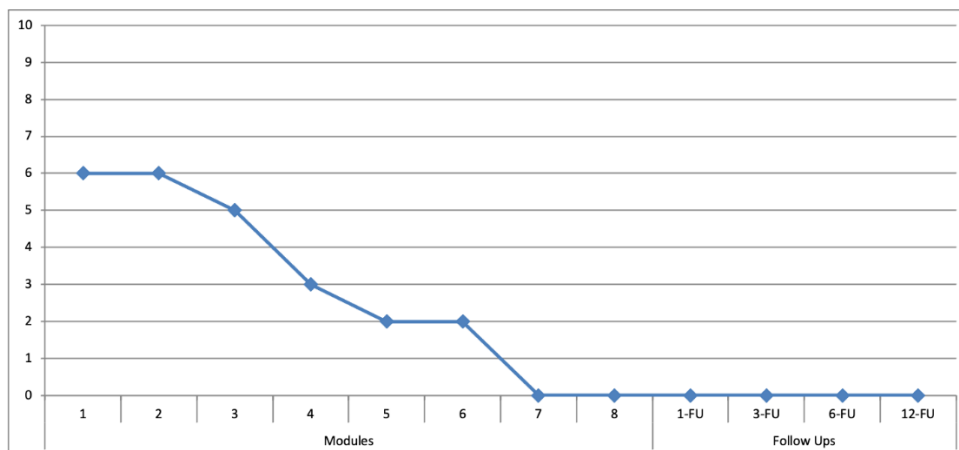
Figure 3. Excitement and urge (0–10) to follow a strategy and the possibility of winning money through sports betting for patient 1. (Modules = 1 to 8 session treatment; 1-FU, 3-FU, 6-FU, 12-FU: 1-, 3-, 6-, 12-month follow-ups).
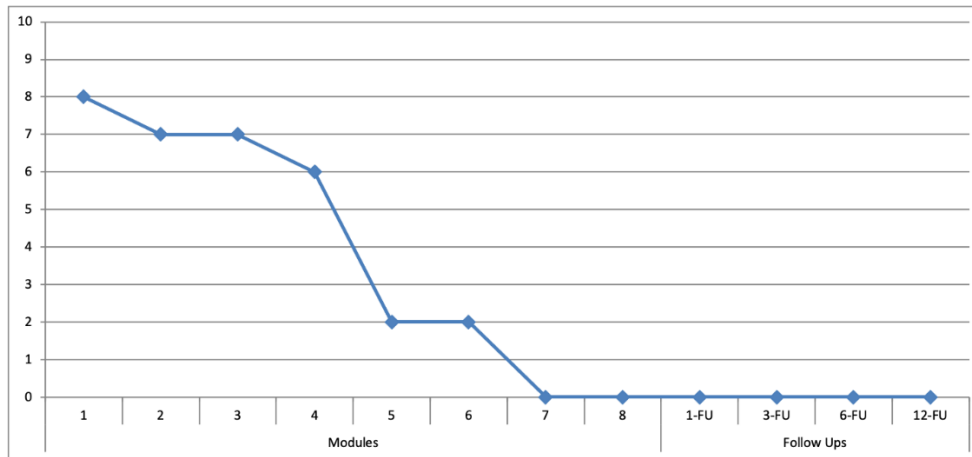
Figure 4. Overwhelming urge to play slot machines (0–10) and distrust regarding his own capacity to resist it for patient 2. (Modules = 1 to 8 session treatment; 1-FU, 3-FU, 6-FU, 12-FU: 1-, 3-, 6-, 12-month follow-ups).

3.2. Expectations and Satisfaction regarding the SC/ERP + LBT-Based ICT System Components

3.2.1. Patient 1

Patient 1 reported high expectations before starting the treatment and a high satisfaction after receiving it. Specifically, the patient considered that it could be invasive in a moderate form before starting the treatment, but after the intervention, invasiveness was assessed as low (Figure 5).

115
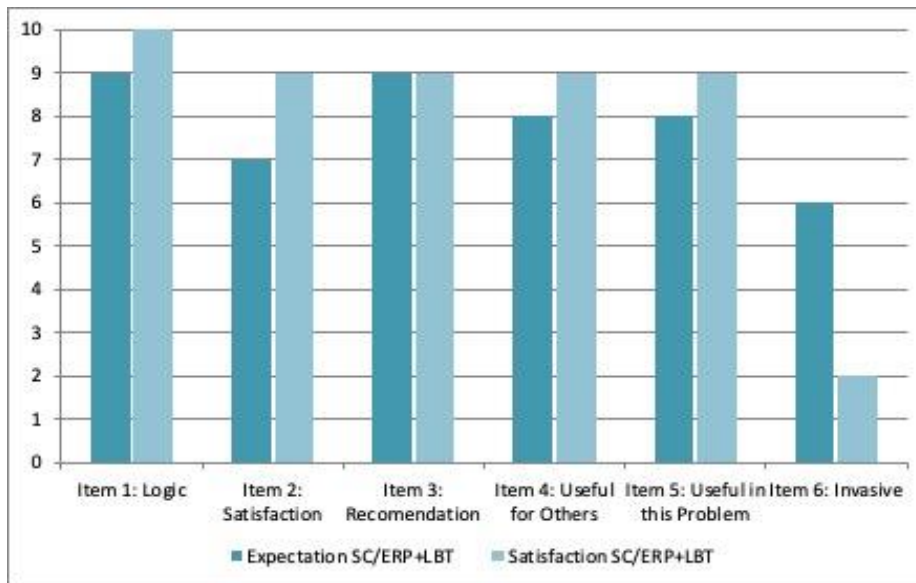
Figure 5. Expectation and satisfaction with the SC/ERP + LBT-based ICT system by patient 1.

The perceived usability score was high in both assessment moments (first app's use and after treatment) and increased slightly after the intervention (Table 2). In particular, one of the important aspects that improved was confidence when using the system.

Table 2. SC/ERP + LBT-based ICT system usability test.

Items	First use	After intervention
1: I think that I would like to use this system frequently	4	4
2: I found the system unnecessarily complex	1	1
3: I thought the system was easy to use	5	5
4: I think that I would need the support of a technical person to be able to use this system	1	1
5: I found that the various functions in this system were well integrated	5	4
6: I thought that there was too much inconsistency in this system	2	1
7: I would imagine that most people would learn to use this system very quickly	5	5
8: I found the system very cumbersome to use	1	1
9: I felt very confident using the system	2	4
10: I needed to learn a lot of things before I could get going with this system	1	1

The overall value for satisfaction and usability was 87.5 points after the first use and 92.5 after treatment, which, according to the qualitative scale developed by Bangor, Kortum, & Miller [74], means that the system was within an acceptable range, with adjectives rating between "excellent" and "best imaginable".

3.2.2. Patient 2

Data about expectations at pre-intervention and the satisfaction after receiving it are reported in Figure 6. He reported high expectations before starting the treatment and high satisfaction after finishing it.
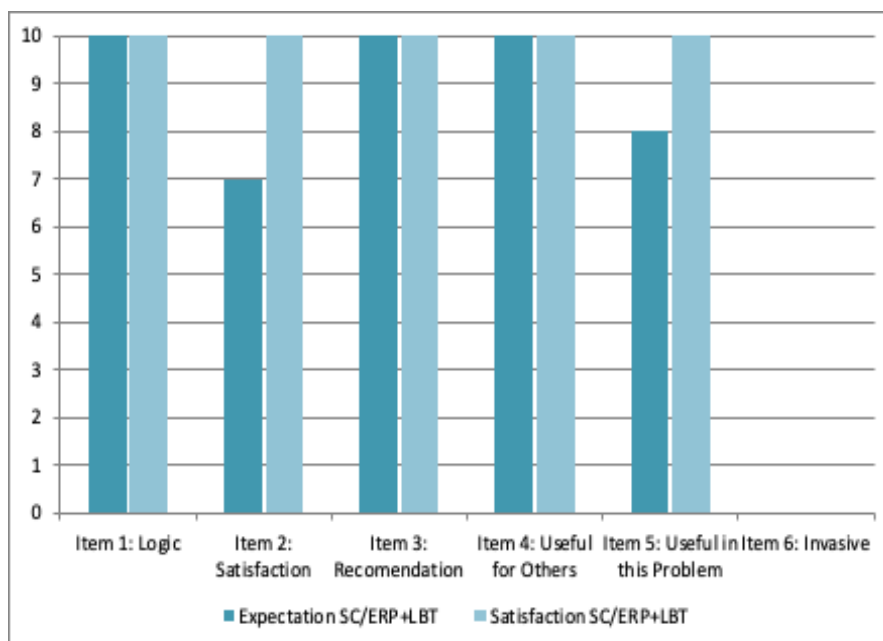
Figure 6. Expectation and satisfaction with the SC/ERP + LBT-based ICT system by patient 2.

In addition, patient 2 reported a high perceived usability after the first use and after the intervention (Table 3). He did not consider it at all invasive, and the overall value for satisfaction and usability was 100 points for patient 2 in both assessment periods. This score is the maximum of the scale and, according to the qualitative scale developed by Bangor, Kortum, & Miller [74], it means that the system usability perceived for this participant was the "best imaginable".

Table 3. SC/ERP + LBT-based ICT system usability test.

Items	First use	After intervention
1: I think that I would like to use this system frequently	5	5
2: I found the system unnecessarily complex	1	1
3: I thought the system was easy to use	5	5
4: I think that I would need the support of a technical person to be able to use this system	1	1
5: I found that the various functions in this system were well integrated	5	5
6: I thought that there was too much inconsistency in this system	1	1
7: I would imagine that most people would learn to use this system very quickly	5	5
8: I found the system very cumbersome to use	1	1
9: I felt very confident using the system	5	5
10: I needed to learn a lot of things before I could get going with this system	1	1

3.3. Qualitative Interview

Following the CQR methodology, the three main aspects to report correspond to domains, categories and core ideas. On the whole, six domains and twenty categories were found. Table 4 shows the results of the qualitative analysis.

Table 4. Domains, categories, and illustrative ideas.

Domains	Categories (frequency)	Illustrative core idea
Usefulness	Vigilance (13)	The sensation the app offers of being observed is an advantage, and it gives one the confidence to be abstinent.
	Lapse/relapse prevention (11)	Messages such as "It is not a good idea to be here" or "we recommend you leave this place" were useful to cope with gambling urges when risk situations were present and to avoid lapses.
	Stimuli control (10)	The tool helps prevent being at risk situations such as gambling-related venues.
	Accompaniment/protection (6)	It supports one throughout the intervention and protects from gambling activities.
	Reduction of the lapse/relapse duration (5)	The fact that one receives support messages for leaving the gambling activity when a lapse is produced could be useful to reduce the lapse's duration and to avoid a relapse.
	Gambling urges habituation (1)	The app helped to stay in the gambling situation without betting until the gambling urges decreased and the ability to cope with gambling urges increased.
Improvements	Adding places to the app by contrasting the information with the co-therapist (5)	It could be interesting to contrast the information with the co-therapist about the different gambling venues patients used to go to.
	Increasing the feedback to the therapist (4)	It would be relevant for therapists to know the amount of time patients spend at every site that could be related with gambling activities in order to increase control over patients and protect them.
	Rise of the emotional impact of the messages (3)	Messages could be related to the negative consequences of gambling with a higher emotional effect in order to influence people to stop gambling when located at a gambling venue.

	Therapist assistance during a risky lapse situation (2)	The therapist could receive more information about the patient's location for increasing support when they are in a risky situation or in the face-to-face therapy sessions.
Recommendation to other people	Extra support for other people suffering gambling problems (3)	The use of the app would be recommended to other people with gambling problems because it has several advantages (e.g., accompaniment for increasing self-efficacy to cope with gambling urges and preventing lapses).
	Assistance in the treatment of other psychological problems (1)	This tool could be useful for the treatment of other addictions, for instance, regarding cocaine, marijuana, or alcohol substances.
Safety	Confidence (8)	The app gives one the confidence that it can help because it accomplishes the function of guiding in coping with gambling problems.
	Intrusiveness (2)	The sensation of discomfort or insecurity due to aspects of threats to confidentiality using this technology only are present at the initial moment.
Usability	Ease of installation (5)	The procedure to download and install the application was easy.
	Ease of use throughout the intervention (7)	Once the app is installed and you have activated the location-based position it functions autonomously and it is easy.
Opinion for using the app after completing the intervention	Support to be abstinent (6)	The use of the app after completing the intervention, it can help cope with gambling urges and to be abstinent.
	Severity of gambling-related symptomatology (3)	Depending on the gambling severity symptoms it could be convenient to continue using the app after the intervention. In more severe cases it would be useful to remind patients when they are at risk situations and avoid lapses.
	Updating (2)	It could be convenient to use the app after the intervention updating the risky gambling-related places, because routines can change over time.

3.3.1. Domain 1: Usefulness

Patients indicated that the app was useful for different purposes throughout the intervention. We can divide them into six categories ordered according to their importance: vigilance; lapse/relapse prevention; stimuli control; accompaniment/protection; reduction of the lapse/relapse duration, and gambling urge habituation.

Vigilance: This category refers to the perception of being observed. This perception gives the patient and their families the confidence to be abstinent. For example, patients explained: "I think it can be useful, it is a warning, as if someone is observing me, thus I do not go into gambling-related places" (patient 1). "Knowing I am observed helps me to not give into the temptation, nor into the confidence of thinking 'I have this problem, but since I am not being observed and no one knows what I am doing, I am going to bet again'"; "I think that feeling that one is observed is an advantage, to be alert to not have a lapse, and it offers assurance to both me and my family" (patient 2).

Lapse/relapse prevention: This category is described as the ability to cope with gambling urges when risk situations are present. For example, patients mentioned: "The app is one more tool to cope with gambling urges when one is in risk situations. It is as if one had a 'Jiminy Cricket'. If one's conscience does not help to cope with gambling urges, the app is useful because it gives recommendations to avoid lapses" (patient 1). "It helped me cope with gambling urges and to deal with risk situations (i.e., if I was close to gambling venues). Also, to reassert I was on the right path and prevent lapses" (patient 2).

Stimuli control: This category corresponds to the prevention of finding oneself at risk situations such as a gambling-related venues. When the SC therapeutic component is applied, gambling urges are probably high, and it is important that patients avoid these types of places. They considered that the app helped them achieve this objective. For example, they reported: "It is a tool that stops oneself from going into gambling venues, and in case one continues to be close to these areas, the app sends the message again, which I think is positive" (patient 1). "It helps you to be aware that going to those places is not a good idea, that it is wrong and, therefore, you don't go directly, or when you are getting closer, you decide to leave" (patient 2).

Accompaniment/protection: This category refers to the perception of being supported throughout the intervention, keeping oneself safe from gambling. For instance, patient 2

mentioned: "The app was part of my day to day, I carried it, and it protected me"; "For allergies I take a pill to avoid sneezing and it protects me, in the same way the application at that time was a protector against gambling"; "The app protects me from gambling as my environment (i.e., my friends or family) does".

Reduction of the lapse/relapse duration: This category is described as the ability to shorten the time patients are gambling when a lapse is produced. For instance, patients mentioned: "It can even be useful when a person who did not respond to the first message and did not cope with gambling urges adequately goes into the gambling venue, because once inside, the message 'you are making a mistake' continues. It can help for limiting the time that one is making the mistake or relapse" (patient 1). "It would have helped me if I had had a relapse, because when one sees the message twice, one thinks 'I'm going home to the safe zone'" (patient 2).

Gambling urges habituation: This category means that the app can help participants when the exposure with response prevention therapeutic component is introduced to reduce the intensity of the gambling urges. For instance, patient 1 mentioned: "When I had to stay in that situation until the gambling urges decreased, the app helped me achieve that goal".

3.3.2. Domain 2: Improvements

This domain refers to the improvements that could be considered when using the app. There are four categories related to it: adding places to the app by contrasting the information with the co-therapist; increasing the feedback to the therapist; therapist assistance at the risk situation of a lapse, and increase in the emotional impact of the messages.

Adding places to the app by contrasting the information with the co-therapist: Patients could deceive themselves and not give all the gambling sites when configuring the app. They could go to other gambling venues that have not been mentioned when configuring the app. So, a possible improvement is to contrast the information with the co-therapist regarding the different gambling venues patients used to go to. Although it is a measure that could improve the intervention efficacy, there is always the possibility of forging the answers, and sincerity is really important for therapy success. For example, patients said: "It can be tricky if one is not fully involved in the treatment. As one has to say where the gambling venues one used to go to bet are located, it is possible to go to a place not included on the list. I think it is difficult to

improve this aspect" (patient 1). "I was the one who gave information about the gambling venues, and I was very sincere. However, maybe other people with gambling problems are not sincere. I consider it would be positive to involve other people in this moment of the therapy to contrast the information and also because they could add more gambling venues than the ones reported to the therapist. In my case, for example, it would be my brother" (patient 2).

Increasing the feedback to the therapist: This category indicates the importance of sending more specific information about the location of the patients to the therapists, such as the amount of time they spend at every site, that could be related with gambling activities. For example, patient 1 said: "Knowing how important it is that the treatment really goes well, I think it would be appropriate that the psychologist knows through the app how long the person has been at the sites. The reason is that a person may not be sincere and could say that they did not enter a gambling venue. However, if the therapist would have this information, it could be useful to contrast the information" "Although firstly the patient could consider it against their privacy, in the long term it would be positive and effective because it is another way to increase the control over patients and protect them".

Increase of the emotional impact of the messages: This category refers to changing the type of message by introducing the negative consequences that gambling can cause in different spheres: social, personal, financial, economic, or work. For example, patient 1 said that it could be appropriate to include messages such as: "you are losing money"; "you are compromising the health of your family members or your possible future relationships"; "you are jeopardizing your family's finances". The patient explained that instead of only saying "you are in a risky place for gambling and you need to go", it would be appropriate to include powerful messages like those based on anti-tobacco advertising campaigns or the National Department of Traffic (DGT). On the cigarette packets there are messages such as "you could get lung cancer". According to this idea, it would be a stronger way to influence people to stop gambling when at a gambling venue.

Therapist assistance during a risky lapse situation: This category refers to the therapist receiving information about the patients to increase support when they are in a risky situation. For example, patient 1 mentioned: "The therapists could have access, or a warning could be sent to them in some way when the person was in the same place for a while, since it could mean that the patient may have been gambling at that place. And perhaps in the next session this could be discussed in therapy"; "If at that moment the psychologist could call the person

or offer some kind of assistance, I think it would be even better of course, because that person would be treated during their moment of weakness. Maybe the patients could even explain how they felt or what was influencing them to gamble. But I think this would be more difficult because perhaps the psychologist is not available at that time and cannot call the patient at that moment".

3.3.3. Domain 3: Recommendation to Other People

This domain encompasses two categories related to recommending the app to other people suffering from gambling problems as well as to other people suffering from other psychological problems.

Extra support for other people suffering gambling problems: This category refers to the consideration that as the app provides patients additional support throughout the intervention to increase self-efficacy to cope with gambling urges and to prevent lapses, they would recommend its use to other people with similar problems. For example, they mentioned: "If I think it is useful for me, I would also recommend it to someone who is in a similar situation, because I think that those advantages it has will give them extra support that without using it they do not have" (Patient 1). "I would recommend it 100% because one feels accompanied, controlled and observed and it serves as support for increasing self-efficacy to cope with gambling urges and helps to avoid a lapse" (Patient 2).

Assistance in the treatment of other psychological problems: This category shows the perceived applicability of the tool for the treatment of other psychological problems such as substance use disorders (i.e., cocaine, marijuana, alcohol, etc.). For instance, patient 2 indicated: "It is a very positive tool, both for the treatment of gambling problems, as substance-related problems such as alcohol, cocaine or marijuana. In these cases, the app knows where one is located, and this can help a lot".

3.3.4. Domain 4: Safety

This domain includes two categories: intrusiveness and confidence. Intrusiveness is understood as the sensation of discomfort or insecurity due to aspects of threats to confidentiality using the technology; and confidence corresponds to the perception of calm and protection.

Patient 1 considered the app could be intrusive at the beginning, but after explaining the therapeutic purpose of its use, he considered it did not suppose any privacy problem and he felt confident using it for dealing with gambling problems. He mentioned: "I understand that maybe at first providing data of one's location can cause a bit of discomfort, but not beyond that initial moment"; "As the objectives are therapeutic and these messages arrive and accomplish their function of guiding, you focus on what is important and it gives one the assurance that it can help". Patient 2 indicated: "It is not intrusive, if it was intrusive I would not be following the recommendations the therapist gave me"; "In other type of apps sometimes one does not want to activate the location option, but in this case it was highly recommended and it helped me a lot"; "People who use the app do so because they need it, and they have to be willing to do what therapists recommend to deal with gambling problems, otherwise one will not get out of this problem".

3.3.5. Domain 5: Usability

This domain refers to the ease or difficulty of using the app, and includes two categories, referring to the usability at the moment of its installation and to its use throughout the intervention. Both patients considered the app to be easy to install and simple to use throughout the treatment process.

For example, regarding the installation category patients indicated: "The procedure to download the application was easy, it is similar to the one followed with other applications" (patient 1). "When installing the application, I did not have any complication, I followed the instructions and it was easy" (patient 2).

In terms of the usability throughout the intervention they mentioned: "During the treatment, the messages simply appeared if I was at the gambling-related places that I had indicated previously and that's it, that's why it seems easy to me" (patient 1). "The app is simple, once you have it installed and you have activated the location-based position it functions autonomously"; "If you want to listen to music, even though one has the Spotify app installed, one needs to access the app. However, this tool is always activated and functioning, one does not have to access it each time" (patient 2).

3.3.6. Domain 6: Opinion for Using the App after Completing the Intervention

This domain illustrated to what extent they believe that using the app after completing the intervention could be useful for coping with gambling problems and the reasons behind their opinion. Three categories are distinguished:

Support to be abstinent: This category refers to the patients perceived usefulness to continue using the app after the intervention because it can help to cope with gambling urges and to be abstinent. For example, patients mentioned: "Because it does not suppose a privacy problem and the function is effective, I would have no problem to continue using it for as long as necessary. It is a reminder to be abstinent, so I consider this tool positive" (patient 1). "It can always help, even after finishing therapy because of the sensation of being observed and not tempted to bet again" (patient 2).

Severity of gambling-related symptomatology: This category represents the convenience of using the app even after treatment for those cases where gambling urges are still high and the self-efficacy to cope with them is low. The app could be used in more severe cases to remind them when they are at risk situations. For example, patient 1 mentioned: "Whether or not it is advisable to continue using the app would depend on the severity of the problem or the ability to cope with gambling urges. In my case, gambling urges at the end of the treatment were low, so it has been easier to control these situations and decide not to bet. However, to a person who has finished the treatment and still has a desire to bet, it can be useful".

Updating: this category is related to the convenience of using the app after the intervention in order to be alert of risk situations and to be abstinent, but also updating the risky gambling-related places. Patient 2 mentioned: "It would serve to remain vigilant to risky situations, to be careful, to keep it in mind, to avoid lapses, but one would need to also update the sites because one can also change their routine".

4. Discussion

This study analyzes clients' experiences with the use of an LBT-based ICT system during SC and ERP therapeutic components. The results obtained in this qualitative study, including two participants' experiences, show that the use of LBT-based ICT systems could be relevant for innovation in the treatment of gambling disorder with different types of severity.

There seem to be several positive opinions about using the LBT-based ICT system for delivering SC and ERP therapeutic components. (1) It helps prevent being at risk situations such as gambling-related venues and achieve gambling urges habituation, respectively; it helps prevent lapses/relapses when risk situations are present, and in case one has a lapse it can help reduce the duration of gambling behavior; it is perceived as a tool that serves as accompaniment and protection, giving individuals the sensation that they are being observed and could increase the perceived confidence to be abstinent. Thus, it helped them to reassert that they were making adequate decisions for coping with their gambling problems. (2) It would be recommended for other people suffering gambling problems as extra support for coping with gambling urges and preventing lapses, as well as for the treatment of other psychological problems (e.g., substance related disorders); (3) It is recommended even after completing the intervention depending on the problem severity because it can support patients in their abstinence goals, but considering that it is necessary to update the previously configured gambling venues, which is possible because this app has this function. (4) The technology is well-accepted by the patients, showing positive expectations and high satisfaction. The app provides confidence considering the function it has for guiding during the intervention. These results are in line with those from Oakes, Rene & Lawn [75], a qualitative study which concluded that social support is considered an important aspect for preventing lapses because it provides a safety net that enables one to continue being abstinent when PG experience distress. The LBT-based ICT system could be useful for supporting patients throughout the intervention and after completing it. It could help increase adherence to treatment and reduce dropout rates. However, this information is only qualitative, and we need more research to reach conclusive findings. Patients considered it would be relevant to continue using the app after completing the treatment in higher severity cases because the app can support and help them cope with gambling urges and abstinence. According to Hodgins & el-Guebaly [76], a precipitating factor for gambling behavior could be the cessation of support on treatment follow-up. In addition, Jimenez-Murcia et al. [77] highlight the importance of incorporating interpersonal support in gambling disorder interventions to improve treatment outcomes, prevent relapses, and increase adherence. Relapse prevention strategies are relevant in dealing with high-risk situations. Gambling cravings and low confidence in one's ability to resist a craving to gamble lead to gambling lapses and spending more money [78], so it would be convenient to implement tools for supporting patients after completing treatment to better manage cravings and avoid lapses. One convenient option to continue exploring would be to incorporate LBT-based ICT systems because they could help

reduce lapses when patients find themselves in a high-risk situation or experience gambling urges during follow-ups.

The reported positive expectations and high satisfaction scores by the patients coincide with previous studies showing that ICT treatments are well-accepted [46–51], also in pathological gambling studies [31,32]. Specifically, LBT-based ICT systems have been well-assessed in a previous pilot study with another pathology, namely a case study of panic disorder, obtaining promising preliminary results [44]. These results with more advanced technology (LBT-based ICT system) are of high importance, since a positive relation between expectations and satisfaction with the ICT treatments and intervention efficacy have been found [79]. Consequently, it is important to continue improving the treatment by innovative tools that could have direct implications on effectiveness. An important aspect is to what extent the LBT-based ICT system considered for the study could be invasive. Patient 1 considered invasiveness as low, especially after the intervention, and patient 2 expected that the system would not be invasive at all. Due to the type of LBT-based ICT system considered in this work and the targeted disorder, the data on intrusiveness are especially relevant. The loss of privacy due to detailed information (location tracking) about the system's usage being sent to the therapist could have created interference with the opinion about the system. However, this was not the case in this study and the LBT-based ICT system was not considered invasive or an interference in the fulfillment of the SC and ERP components. It did not pose problems in terms of privacy or insecurity regarding confidentiality when using this technology.

Finally, preliminary usability results reported the patient's satisfactory experience with the system. According to the qualitative scale developed by Bangor, Kortum, & Miller [74], this means that the system could be within an acceptable range, with adjectives rating between "excellent" and "best imaginable". Based on the technology acceptance model, these authors have suggested that one of the factors that can be related to the intention to use a product in the future is ease of use [80,81]. Therefore, usability, as an important attribute in the use of any technology [82], is a key prerequisite in the use of technology for psychological interventions. Given the point of view of patients, the Symptoms app was easy to install and to use throughout the intervention. Technology must be completely easy and clear from the beginning, otherwise, a slow learning curve or high frustration during use would affect the therapy and negatively impact the outcome of the intervention. Consequently, the usability of new ICT system

approaches such us LBT-based ICT systems is decisive, and more sophisticated studies should try to ensure it.

Previous research has focused on the importance of using personalized feedback interventions for gambling disorders [83,84] and how it can show success as a low-cost intervention for reducing problematic behavior in addictions. The use of innovative ICT systems such as LBT-based ICT system subsets can be a first step towards a more effective treatment. Specifically, the development of particular LBT-based ICT system strategies as additional tools to guide the SC and ERP components could be useful in increasing overall functioning, enhancing the motivation and commitment of the patient with critical components of the therapy and reducing the abstinence violation, relapses and dropouts, especially important in pathological gambling [85]. However, more sophisticated studies are needed for this purpose.

From a technical point of view, and given the simplicity of the creation of the application, the adaptability of this tool is also presented as a positive feature. Changing the indicated places or the information delivered depending on the therapeutic component (SC or ERP, for example) can be done quickly and without requiring specific technical knowledge. This makes it easy to customize applications for different patients and therapeutic components. As was mentioned in previous studies [64], generating this type of in-situ intervention has always been somewhat complex, requiring time-consuming traditional methods or trusting the patient to carry out the indicated tasks. Thanks to this tool, this process has been streamlined, allowing therapists to focus their attention on the therapeutic content and delegating the monitoring and delivery of the materials to the mobile device. Future improvements of the tool have been discussed [64] and could have important utility in the context of gambling disorder. This is the case of including additional variables to improve the quality of the intervention, such as different messages arriving depending on the time (a message at the beginning of the ERP component, a message in the middle, and one at the end of this therapeutic component), or more complex content such as multimedia resources (images or videos) which can help during the exposure to the relevant target places for the gambling behavior. To extend the application of the tool beyond the intervention and include feedback in the form of questionnaires that are able to identify, for example, the overwhelming urge of the patient, could also be very useful. In addition, we should take into account the qualitative data obtained regarding the improvements domain. For instance, adding gambling venues to the app by contrasting the

information with a co-therapist, increasing the feedback to the therapist in case patients agree, increasing the emotional impact of the messages when people with gambling problems have a lapse to help them stop gambling, and increasing therapist assistance during a risky lapse situation to prevent a relapse.

In summary, the idea is to maximize the use of smartphone applications with a high ecological value in the field of psychological treatments. Despite the rapid increase over recent years in the number of psychological interventions for various mental disorders using smartphone-based apps, a more innovative use of smartphones' capabilities, such as sensing, alternative delivery paradigms, and advanced analytics, has not been explored in psychological treatments and, concretely, for gambling disorder [86].

This study has some shortcomings. The main one is that it is a qualitative study, so we cannot generate conclusive findings regarding acceptability and usability. However, our findings are related to client opinion and experiences using an LBT-based ICT system during the SC and ERP therapeutic components, and we show indicators regarding acceptability and ease of use by the patients in this study. We consider it to be relevant to start using LBT-based ICT systems during SC and ERP with people suffering from gambling problems in qualitative designs to understand preliminary satisfaction, usability, and acceptance. In other research fields, systems such as augmented reality (AR) were first used in case designs [87,88] followed by multiple baseline designs across-individuals [89], and randomized controlled trials [90]. The use of LBT-based ICT systems was also used for the treatment of other psychological disorders in studies with case designs [63,64]. Nevertheless, in order to increase confidence in the described SC/ERP + LBT-based ICT system, it would be necessary to apply this technology to larger samples in future robust studies with an experimental design that includes a control group. Thus, results should be considered with caution given that it is a qualitative study with all of the threats regarding internal and external validity that this implies [91,92]. In addition, the application at the moment only allows for a basic configuration (information in text format and places) as was mentioned before. However, despite these limitations, we believe that this study offers a starting point that opens up new paths for improving psychological interventions through the use of smartphone devices which could offer promising possibilities regarding the increase of treatment adherence.

5. Conclusions

Although SC and ERP are the two core components for the treatment of gambling disorder, and are evidenced-based, it is hard for patients to apply them, and high attrition rates and relapses are generally present. The Symptoms app uses location-based technology and sends personalized messages for enhancing these therapeutic components. Expectations, satisfaction, and usability regarding the Symptoms app reported by both patients were high. LBT-based ICT systems could be an important tool for increasing treatment adherence and commitment while delivering SC and ERP, and could improve the quality of interventions for GD and its efficacy. In this qualitative study, gambling urges decreased during the intervention, were maintained at low levels, and no relapse was produced during the 12 months' follow-up period. Further studies with larger samples need to explore the effect of an LBT-based ICT system on the efficacy of psychological interventions for GD as well as the impact on adherence and commitment.

Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Ethics Committee of Universitat Jaume I (protocol code CD/18/202).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: For security reasons, the code of the developed platform is not publicly exposed. An updated version of the platform is available in https://symptoms.uji.es (1 March 2022).

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Supplementary Text S1: Geolocation System Opinion Interview

The questions that we are going to ask you below are intended to help us understand your opinion and experience regarding the geolocation system during treatment. The objective is to get a better overview of your opinion.

We would like you to answer these questions as extensively as possible. The information we extract from this interview will be used anonymously and for research purposes only.

1. After your experience, could you tell us what advantages this application has during treatment and/or what aspects could be improved?

2. After your experience, what reasons would you give when recommending or not the use of this tool to others with the same problem?

3. After your experience, why do you consider this tool to be useful or not throughout treatment?

4. After your experience, why do you consider the use of this technology to be intrusive/non-intrusive (due to aspects of threats to confidentiality)?

5. After your experience, what aspects of the tool do you think make it easier and/or more difficult to use?

6. After your experience, to what extent do you think continuing to use the tool after treatment completion could be helpful for your problem?

0	1	2	3	4	5	6	7	8	9	10
Not at all										Very much

Could you give a more extended explanation of the reasons why its use might or might not be helpful beyond treatment completion?

Supplementary Text S2: Entrevista de opinión con el sistema de geolocalización

Las preguntas que vamos a hacerte a continuación pretenden ser de ayuda para conocer tu opinión y experiencia con el sistema de geolocalización durante el tratamiento. El objetivo es conocer de forma más amplia tu opinión sobre el sistema de geolocalización.

Nos gustaría que en todas las preguntas que te vamos a realizar, nos contestaras de la manera más amplia que te sea posible. La información que extraigamos de esta entrevista se empleará de manera anónima y únicamente con fines de investigación.

1. Tras tu experiencia ¿Podrías comentarnos qué ventajas habría de utilizar esta aplicación durante el tratamiento y/o qué aspectos se podrían mejorar?

2. Tras tu experiencia ¿Por qué razones recomendarías o no el uso de esta herramienta a otros con tu mismo problema?

3. Tras tu experiencia ¿Por qué razones consideras útil o no el uso de esta herramienta a lo largo del tratamiento?

4. Tras tu experiencia ¿Por qué razones consideras intrusivo/no intrusivo (por aspectos de amenazas a la confidencialidad) el uso de esta tecnología?

5. Tras tu experiencia ¿Qué aspectos de la herramienta crees que hacen que sea más fácil y/o más difícil de utilizar?

6. Tras tu experiencia ¿En qué medida crees que podría haber sido de ayuda para tu problema seguir utilizando la herramienta más allá de la finalización del tratamiento?

0	1	2	3	4	5	6	7	8	9	10
Nada										Muchísimo

¿Podrías dar una explicación más extendida de cuáles serían las razones por las que podría ser de ayuda o no su uso más allá de la finalización del tratamiento?

CHAPTER 4

Efficacy of an internet-based psychological intervention for problem gambling and gambling disorder: Study protocol for a randomized controlled trial.

Efficacy of an internet-based psychological intervention for problem gambling and gambling disorder: Study protocol for a randomized controlled trial

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ABSTRACT

Gambling Disorder is a prevalent non-substance use disorder, which contrasts with the low number of people requesting treatment. Information and Communication Technologies (ICT) could help to enhance the dissemination of evidence-based treatments and considerably reduce the costs. The current study seeks to assess the efficacy of an online psychological intervention for people suffering from gambling problems in Spain. The proposed study will be a two-arm, parallel-group, randomized controlled trial. A total of 134 participants (problem and pathological gamblers) will be randomly allocated to a waiting list control group ($N = 67$) or an intervention group ($N = 67$). The intervention program includes 8 modules, and it is based on motivational interviewing, cognitive-behavioral therapy (CBT), and extensions and innovations of CBT. It includes several complementary tools that are present throughout the entire intervention. Therapeutic support will be provided once a week through a phone call with a maximum length of 10 min. The primary outcome measure will be gambling severity and gambling-related cognitions, and secondary outcome measures will be readiness to change, and gambling self-efficacy. Other variables that will be considered are depression and anxiety symptoms, positive and negative affect, difficulties in emotion regulation strategies, impulsivity, and quality of life. Individuals will be assessed at baseline, post-treatment, and 3-, 6-, and 12-month follow-ups. During the treatment, participants will also respond to a daily Ecological Momentary Intervention (EMI) in order to evaluate urges to gamble, self-efficacy to cope with gambling urges, gambling urge frequency, and whether gambling behaviour

occurs. The EMI includes immediate automatic feedback depending on the participant's responses. Treatment acceptance and satisfaction will also be assessed. The data will be analysed both per protocol and by Intention-to treat. As far as we know, this is the first randomized controlled trial of an online psychological intervention for gambling disorder in Spain. It will expand our knowledge about treatments delivered via the Internet and contribute to improving treatment dissemination, reaching people suffering from this problem who otherwise would not receive help.

Keywords: Gambling, CBT, Emotion regulation, Internet, Efficacy.
Trial registration: Clinicaltrials.gov as NCT04074681. Registered 22 July 2019.

Abbreviations: A, Action; CBT, Cognitive Behavioral Therapy; CONSORT-EHEALTH, Consolidated Standards of Reporting Trials of Electronic and Mobile Health Applications and Online Telehealth; C, Contemplation; CIDI, Composite International Diagnostic Interview; DERS, Difficulties in Emotion Regulation Scale; DGOJ, Directorate General for the Regulation of Gambling; DSM-III-R, Diagnostic and Statistical Manual of Mental Disorders, 3rd Edition Revised; DSM-IV, Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition; DSM-5, Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition; EDBs, Emotion Driven Behaviours; EMA, Ecological Momentary Assessment; EMI, Ecological Momentary Intervention; GD, Gambling Disorder; GE, Gambling Expectancies; GI, Gambling history interview and current gambling situation and related variables assessment; GRCS-S, Gambling-Related Cognitions Scale; G-SAS, The Gambling Symptom Assessment Scale; GSEQ, Gambling Self-Efficacy Questionnaire; HADS, Hospital Anxiety Depression Scale; IB, Interpretative Bias; IC, Illusion of Control; ICD-10, International Statistical Classification of Diseases and Related Health Problems 10th Revision; ISG, Perceived Inability to Stop Gambling; M, Maintenance; MI, Motivational Interviewing; MFS, Monitoring, Feedback and Support; MINI, Mini International Neuropsychiatric Interview; NA, Negative Affect; NODS, NORC DSMIV Screen for Gambling Problems; OASIS, The Overall Anxiety Severity and Impairment Scale; ODSIS, The Overall Depression Severity and Impairment Scale; PA, Positive Affect; PANAS, The Positive and Negative Affect Schedule; P, Precontemplation; PC, Predictive Control; PFIs, Personal Feedback Interventions; QLI, Quality Life Index; RCT, Randomized Controlled Trial; SCID-P, The Structured Clinical Interview; SPIRIT, Standard Protocol Items Recommendations for Interventional Trials; SUS, System Usability Scale;

UPPS-P, The Short UPPS-P Impulsivity Scale; URICA, The University of Rhode Island Change Assessment Scale; WL, Waiting List.

1. Introduction

Gambling behaviour is a common and acceptable social leisure activity for adults, and it is readily available and promoted (O'Loughlin and Blaszczynski, 2018; Russell et al., 2018a). Gambling behaviour occurs on a continuum, ranging from non-gambling or recreational gambling to gambling disorder (Volberg, 2015). Gambling Disorder (GD) is a non-substance-related disorder defined as persistent and recurrent problematic gambling behaviour leading to clinically significant impairment or distress (American Psychiatric Association [APA], 2013). Individuals with GD usually need to bet increasing amounts of money in order to achieve the desired excitement, and they show an irritable emotional state when they try to cut down or stop gambling. Although they have repeatedly attempted to control, cut back, or stop gambling, they have been unsuccessful. Feelings of distress are common triggers of gambling behaviour, and when gamblers have lost money, they usually gamble again for "chasing" purposes. Individuals with GD are often worried about gambling (e.g., thinking about past experiences, planning their next wagers, or thinking about different ways to get money for betting) and lie about the extent of their involvement. For this reason, different important life areas, such as the occupation, educational opportunities, and significant relationships, can be affected. The complexity of GD characteristics is associated with high comorbidity with other psychological disorders. The most frequent are substance use disorders (nicotine dependence; alcohol abuse and dependence), major depressive disorder, and anxiety disorders (Lorains et al., 2011; Håkansson et al., 2018).

The most prevalent way to gamble is offline (Dirección General de Ordenación del Juego [DGOJ], 2015), but since online gambling was legalized in Spain in 2012, the number of active gamblers and the amount of money spent on gambling activities have increased in our country. The Gross Gaming Revenue (GGR) in the third quarter of 2020 was 197.17 million €, which represents a 2.83% increase compared to the same quarter in 2019. Moreover, there are 881,755 active gamblers and 330,262 other gamblers, representing a growth of 1.40% and 29.88%, respectively (DGOJ, 2020). Currently, casinos and other gambling venues are closed because of the COVID-19 pandemic, and customers' sports betting activity has stopped. According to Lindner (2020), total gambling activity decreased by 13.29% during the first

phase of the pandemic. Although total betting decreased, there was a slight increase in online casino gambling (Columb et al., 2020; Lindner, 2020; Marsden et al., 2020). This slight increase in total online gambling is not indicative of an increase in problematic gambling, but due to the high accessibility and anonymity of this gambling format, it could pose a risk of a rise in problem gambling that requires further research. GD is a public health problem with a prevalence rate ranging from 2% to 5% in North America, 0.5% to 5.8% in Asia, 0.4% to 0.7% in Oceania, and 0.1% to 3.4% in Europe (Calado and Griffiths, 2016).

A recent review shows that Cognitive Behavioral Therapy (CBT) is the most frequent type of therapy for the treatment of GD, but other therapies used are Motivational Interviews (MI), monitoring feedback and support, and exposure therapy (van der Maas, 2019). Goslar et al. (2017) indicate that the efficacy of face-to-face and high intensity structured Internet-based programs with MI and CBT components is equivalent, but these results have to be interpreted with caution because of the low number of studies. Another meta-analysis reports that online multi-session treatments have larger effect sizes than brief interventions (e.g., single-session Personal Feedback Interventions, PFIs) on reducing the amount of time and money spent on gambling. Nevertheless, PFIs are more efficacious when combined with psychoeducation and MI, and they can be used as a harm-reduction strategy (Peter et al., 2019). Several RCTs support the efficacy of Internet-based interventions for GD. Furthermore, a two-arm RCT was conducted in Germany (Online intervention "Deprexis"; and no intervention control group). Deprexis consists of 10 modules based on CBT principles and third-wave therapy for treating GD and comorbid depressive symptoms. The intervention lasted eight weeks, and the main therapeutic components included were behavioral activation, cognitive restructuring, interpersonal and problem-solving skills, relaxation, acceptance, mindfulness, and positive psychology. Significant reductions were found in depressive and gambling symptoms, with moderate to large effects (Bücker et al., 2018). In Canada, Cunningham et al. (2019) conducted a two-arm RCT (online CBT gambling intervention; online CBT gambling intervention and online mental health distress program) that also supported the efficacy of CBT for the treatment of GD. Therefore, CBT is considered the treatment of choice for GD, and the efficacy of CBT Internet-based psychological interventions has been shown in many countries. Interventions delivered through the Internet are appropriate for targeting populations with gambling problems that might not have access to treatment in other ways. Currently, they could be an adequate option for addressing difficulties in receiving face-to-face treatment due to the COVID-19 pandemic (De Witte et al., 2021).

However, it is important to consider the problematic attrition rates in RCTs of online interventions for gambling disorders, which vary from 6% to 65% in the first follow-up assessment (between 6 and 12 weeks) (Bücker et al., 2018; Carlbring and Smith, 2008; Casey et al., 2017; Cunningham et al., 2009; Hodgins et al., 2019; Magnusson et al., 2019). In this regard, it is relevant to introduce new tools to increase engagement and retention in these types of interventions. Ecological Momentary Assessment/Intervention (EMA/EMI) could be an option for dealing with the dropout rate problem. EMA/EMI have shown good results in other psychological disorders, such as substance use disorders (e.g., smoking cessation), anxiety disorders (e.g., social anxiety disorder, generalized anxiety disorder), and major depressive disorders (LaFreniere and Newman, 2016; Colombo et al., 2019; Linardon et al., 2019; Miralles et al., 2020). Literature related to EMA for GD is scarce and focuses on studying the influence of some contextual factors (e.g., gambling advertisement exposure) on the intention to gamble and gambling behaviour (Browne et al., 2019; Russell et al., 2018b). To the authors' knowledge, only one study, conducted by Hawker et al. (2021a), recently developed an EMI (GamblingLess: Curb Your Urge) that demonstrated its acceptability, feasibility, and preliminary effectiveness in preventing gambling episodes by reducing craving intensity in people with gambling problems. They measure gambling episodes, gambling cravings, and gambling self-efficacy, and they include automatic recommendations to use strategies for managing gambling urges (e.g., psychoeducation, mindfulness, and relaxation-based activities). They report 71% and 72% reductions in the average number of gambling episodes and craving occurrences, respectively. Thus, EMI features can be useful for managing craving occurrences and avoiding relapses, what could increase patients' treatment adherence.

As far as we know, this study is the first Internet-based program combined with an EMI that also includes several complementary tools for improving adherence and treatment quality for GD in Spain or other Spanish-speaking countries.

For this reason, the main aim of the study proposed is to assess the efficacy of an online psychological intervention combined with an EMI for the treatment of GD in Spain, by comparing the improvement between the baseline and post-intervention assessments in the CBT and waiting list control groups. Secondary objectives are:

a) to explore whether the pretest-posttest changes in the CBT group are maintained at the 3-, 6-, and 12-month follow-ups.

b) to identify variables statistically associated with the pretest-posttest change in the CBT group, taking into account the level of GD severity.

c) to investigate the progression of gambling behaviour (money wagered and amount of time) in the intervention group for 90 days.

d) to explore relationships between gambling urges (frequency and intensity) and self-efficacy to cope with gambling urges in t0 with gambling behaviour (money wagered and amount of time) in t0 and t1.

The study hypotheses are: 1) Participants in the experimental condition will display significantly higher improvements in gambling outcomes at post-intervention; 2) Anxiety and depressive symptoms, negative affect, and impulsivity will be significantly reduced after the intervention in the experimental group; 3) A significant increase in positive affect, emotion regulation, and quality of life will be found after the treatment; 4) A significant reduction in gambling urges and gambling behaviour and a significant increase in self-efficacy to cope with gambling urges; 5) Gambling urges (frequency and intensity) and self-efficacy to cope with gambling urges will be positively and negatively associated with gambling behaviour, respectively. Gambling severity, readiness to change, anxiety and depressive symptoms, and comorbidity with mild alcohol and/or substance use disorders could exacerbate these relationships.

The study will contribute to the gambling field by providing more flexible and cost-effective alternatives and overcoming barriers to treatment seeking. Furthermore, we will explore innovative ways to develop more personalized interventions, such as the use of the EMI and complementary tools that could improve the quality of current psychological programs and adherence to them.

2. Methods

2.1. Study design

The proposed study is a randomized, parallel-group, two-arm, superiority trial. Online informed consent will be obtained before the screening assessment on Qualtrics, and eligible participants will be randomly allocated to an online CBT-based intervention group or a waiting list control group. There will be five measurement points in the experimental condition (e.g., baseline, post-

treatment, and 3-, 6-, and 12-month follow-ups). As in previous studies (Díaz-García et al., 2021; Quiñonez-Freire et al., 2021; Mira et al., 2019a), the post-treatment assessment of the intervention group will be performed individually depending on the completion speed, but the WL control group will be assessed at week twelve because it is the maximum time the experimental group has to finish the intervention. For ethical reasons, the individuals in the control group will be able to receive full access to the Internet-based psychological intervention after being on the waiting list for 12 weeks and filling out the post-treatment assessment. Nevertheless, an undesired event would not only imply the participant's departure from the trial, but s/he would also be offered the possibility of receiving psychological care at the Emotional Disorder Clinic at Universitat Jaume I, or of being referred if his/her medical condition required it. This trial was registered on the ClinicalTrials.gov database (NCT04074681) and will be carried out taking into account the CONSORT 2010 (Consolidated Standards for Reporting Trials; www.consort-statement.org) (Moher et al., 2010) and the CONSORT-EHEALTH guidelines (Consolidated Standards for Reporting Trials of Electronic and Mobile Health Applications and Online TeleHealth) (Eysenbach and CONSORTEHEALTH Group, 2011). Furthermore, the protocol manuscript is written in accordance with the SPIRIT 2013 statement (Standard Protocol Items: Recommendations for Interventional Trials) (Chan et al., 2013). Fig. 1 shows the flow diagram of the study design.
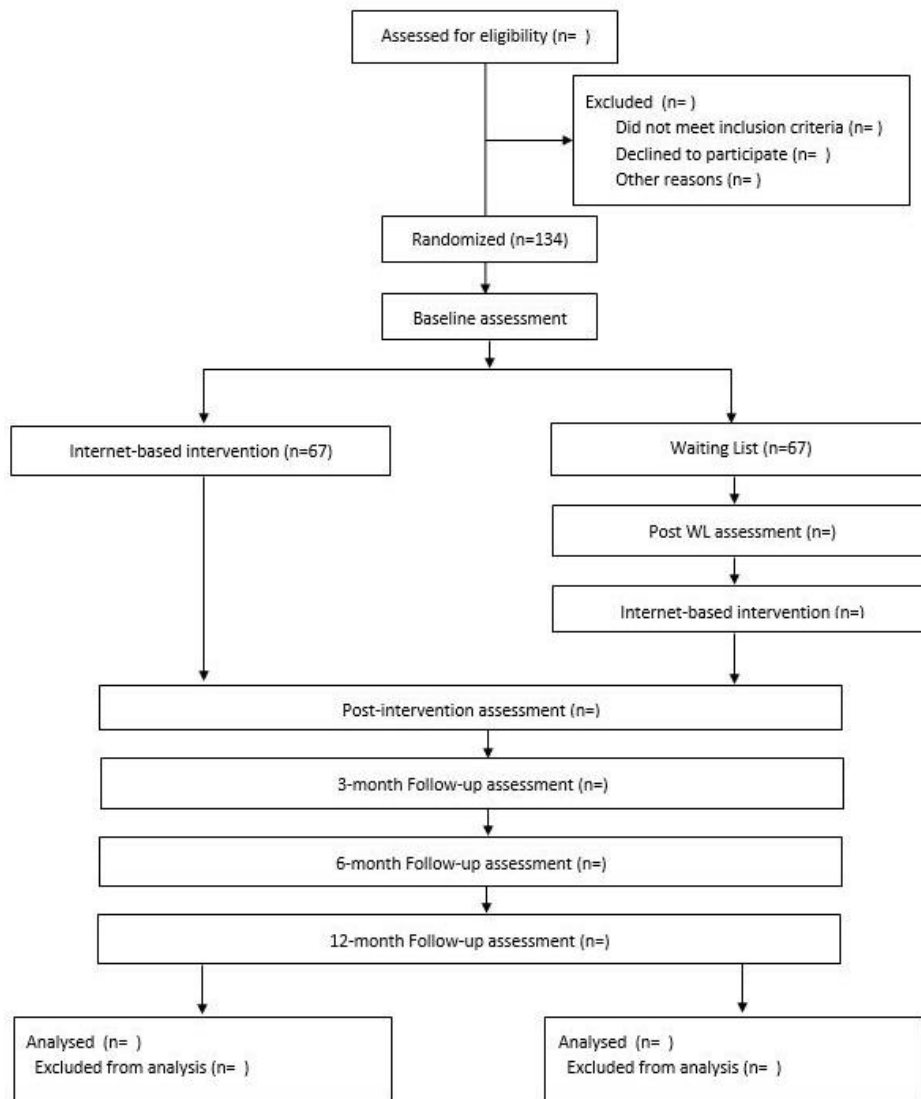
Fig. 1. Flow diagram.

2.2. Sample size and power calculations

The a priori determination of the sample size in this investigation was carried out focusing on the differential pre-treatment-posttreatment change in the treatment and control groups as the main question. This question was assessed with the F statistic for the interaction between the group (treatment vs. control) and the measurement time (pre-treatment vs. post-treatment). Assuming an effect size of moderate magnitude (f = 0.25), (Cohen, 1988) a significance level of 5%, a statistical power of 95%, and a correlation between pre-treatment and post-treatment measures of 0.5, a total of 54 participants are needed. The reason for assuming an effect size of moderate magnitude was that there is no clear evidence about the expected effect of online CBT when compared with an inactive control group. Therefore,

following Cohen's (1988) guidelines, a moderate effect was assumed. A correlation coefficient of 0.5 between the pretest-posttest change scores was assumed, based on Rosenthal (1991). Taking into account that a large amount of attrition was expected, and based on Merkouris et al. (2017) recommendation to adopt a conservative dropout rate of 50%, we increased it to 60%. Thus, the total sample size was set at 134 participants, 67 in each group. These calculations were carried out with the program G*Power 3.1.9.2 (Buchner et al., 2014).

2.3. Ethic

The study procedures were approved by the Innovation Office and TI audit and the Ethics Committee of Universitat Jaume I (Castellón, Spain) on May 2, 2019 (CD/026/2019). The study will be conducted following The Declaration of Helsinki and good clinical practice. Participation will be completely voluntary, and individuals will not receive any incentives. The study will be explained to them, and they will have to provide written informed consent through Qualtrics. They must declare that they freely and voluntarily agree to participate in this study and fill out the questionnaires required. Nevertheless, participants will be informed that they can leave the study at any time. Current EU and Spanish legislation on privacy and data protection will be followed in carrying out the proposed study. Data will be encrypted and stored securely in accordance with the Advanced Encryption Standard. In order to protect participants' privacy, personal details will be saved separately from clinical information through an Active Directory and codified numerically for use in subsequent analyses. Access to the participants' personal data will be restricted to the therapist responsible for carrying out the study, who will use a specific password stored in an encrypted manner that meets all the requirements of the Organic Law of Personal Data Protection. The personal data will be preserved for 5 years, and after this time, considering the psychologists' clinical criteria, they will proceed with their destruction. Nevertheless, participants will be able to request their deletion before the period mentioned above. Relevant parties (e.g., investigators, trial participants, trail registries, journals, and the ethical committee) will be informed of any significant modifications in the protocol presented.

2.4. Eligibility criteria

Inclusion criteria include: being 18 years or older; willingness to participate in the study and sign the informed consent; having and handling a computer, Internet, and an email address; ability to understand, read, and write Spanish; being a problem gambler (3-4 items) or a

pathological gambler (5 or more items), according to the cut-off points established by the Norc diagnostic screening for gambling disorders (NODS) (Becoña, 2004); and willingness to provide follow-up data on gambling. Individuals will be excluded if they have any serious mental disorders (e.g., bipolar and related disorders and schizophrenia spectrum and other psychotic disorders), moderate or severe alcohol and/or substance use disorder (assessed by the Mini International Neuropsychiatric Interview, MINI) (Sheehan et al., 1997, 1998), or any medical illness that keeps them from carrying out the program. In addition, participants will not be included if their gambling behaviour occurs in the context of a manic episode or due to the intake of dopaminergic medication (e.g., Parkinson's disease), if high suicidal risk is present (assessed by the MINI), and/or if they are receiving another psychological treatment while the study is still ongoing. Receiving pharmacological treatment is not an exclusion criterion during the study period, but participants with an increase and/or change in the medication two months prior to enrolment will not be considered for the trial. An increase and/or change in the medication during the study period in the experimental group will imply the participants' exclusion from subsequent analyses, but a decrease in pharmacological treatment is accepted.

2.5. Recruitment, randomization, and blinding

The sample will be obtained from the community and recruited through advertisements in the written and online press, as well as through dissemination in professional (LinkedIn) and non-professional (e.g., Facebook, Twitter, and Instagram) social networks. Moreover, people who come to the Psychological Assistance Service of Universitat Jaume I will be offered the chance to participate in the study. Informative pamphlets about the study will also be posted with a contact telephone number in foundations and associations related to this problem, as well as in health services and universities. In addition, there will be an email prepared where interested individuals can leave their contact data to participate in the project. Although there are different recruitment sources, the sample will be homogeneous because the NODS will be used to confirm that they meet problem gambling or GD criteria. After providing informed consent, they will complete the NORC DSM-IV Screen for Gambling Problems (NODS) (Becõna, 2004) by Qualtrics. If they meet the criteria for problem gambling or GD, the screening interview will be conducted by telephone, and it will consist of the Mini International Neuropsychiatric Interview (MINI) (Sheehan et al., 1997, 1998) and the Gambling history interview and current gambling situation and related variables assessment (GI). Participants who meet the inclusion criteria will be selected and allocated to either the control or the

experimental condition, with a 1:1 allocation ratio, and stratified by problem gambling severity (problem/gambling disorder) to ensure proportion equivalence between the two groups. Allocation will be performed according to a random number sequence generated by Randomizer software (https://www.randomizer.org/). To prevent selection bias, the allocation sequence will be concealed from the researchers and clinicians involved in assigning the participants to the intervention groups until the moment of assignment. On both the pre-test and the post-test, the raters will be masked to whether the participant is in the treatment or control group. Due to the nature of the intervention, it will not be possible to mask the participants or the clinicians who will apply the intervention. Participants who meet the inclusion criteria will be asked to provide the name and contact information of a co-therapist, so that we can explain his/her function throughout the treatment and receive qualitative information about the participant's situation or stability.

2.6. Intervention

2.6.1. Online intervention description

This intervention consists of an online self-applied interactive program (www.psicologiaytecnologia.es) for problem and pathological gamblers, designed to teach adaptive ways to cope with this problem via the Internet. It is based on CBT and extensions and innovations of CBT (e.g., psychoeducation about emotions, emotional avoidance and emotion driven behaviours, mindfulness, emotion regulation strategies). It contains eight sequential therapeutic modules: 1) motivation for change, 2) psychoeducation, 3) stimulus control (e.g., self-prohibition and blocking of usual gambling websites with therapist confirmation) and responsible debt payment, 4) cognitive restructuring, 5) urge surfing and emotion regulation, 6) planning of significant activities, 7) coping skills and exposure with response prevention, and 8) relapse prevention (for details see Table 1). The modules are presented in this order because at the beginning the therapeutic aim is to: increase their awareness of the problem and motivation to change their gambling behaviour; protect them from gambling-related stimuli; and help them to begin to tolerate the abstinence syndrome. After that, we explain different strategies to better prepare participants for the exposure with response prevention, established in functional concepts that can be better understood by considering the terms included in the different psychological strategies mentioned. Regarding the program's length, it should be carried out in eight weeks, one module per week, but participants will be able to advance at their own pace for a maximum period of 12 weeks. All of these modules have a similar

structure: a section with questions about the previous module; the therapeutic content presented through text, images, vignettes, and videos; exercises and activities; a self-assessment questionnaire to determine whether participants have understood the concepts adequately; tasks to perform before going on to the next modules; and a brief summary of the module. All the modules can be reviewed by participants online at any time, but PDF files can also be downloaded and examined offline. The intervention includes a weekly 10-minute phone call to clarify doubts about the program's functioning and encourage participants to continue with the treatment, but additional clinical content will not be provided. This support phone call will be made by trained PhD students. Participants will be assessed after Module 6, "What alternative activities can I plan?", during the pertinent weekly phone call in order to decide whether they are prepared to proceed to Module 7, "How can I cope with gambling urges in my daily life?", which refers to the exposure with response prevention therapeutic component. If they are not prepared to go on to the following module, we will recommend that they continue to apply stimulus control and the strategies they have learnt so far. Due to the relevance of the stimulus control and exposure with response prevention components and the essential role of a co-therapist during their application, these modules include two documents that explain the most important aspects the co-therapist should take into account. In addition, the therapist will telephone the co-therapists at both points in time to resolve possible doubts after reading these files. Phone calls to the co-therapists will last a maximum of 10 min. Moreover, the online intervention is combined with an EMI, and several complementary tools will be presented throughout the intervention process (for details see Table 2). If high suicide risk is detected, an alert will automatically be sent to the clinical group. The therapist will contact the patients and offer alternative options to protect them.

Table 1 Program contents.

Module	Objectives	Contents
M0. Welcome module.	Providing information about the program's functioning.	-Program functioning and structure description. -Recommendations to optimize skills training and learning. -Therapist support explanation and ways of contacting. -Explanation of the assessment times, delivery modes, and emphasis on the importance of records, exercises, and activities. -Check list of the necessary conditions to carry out the program.
M1. Motivation for change.	Giving information about the specific program and increasing motivation for change.	-Brief description of the content of each module. -Change stages in addictions. -Decisional balance. -Resources currently dedicated to the different areas of life (e.g. gambling activities, job, studies, family, interpersonal relationships, leisure) vs. what patients would like areas of life to be according to their values. Reflection on discrepancies/similitudes between the current situation pie chart and what patients would like it to be, and whether this distribution is currently in accordance with their objectives and values. -Differentiation between lapse and relapse. -Establishment of general and specific objectives, and steps required to achieve these aims based on personal values.
M2. Psychoeducation.	Understanding gambling.	-Chance game characteristics. -Reasons for gambling. -Gambling stages. -Types of gamblers. -Factors influencing the onset and maintenance of GD and its features.
M3. Stimulus control and responsible return of debts.	Gambling cessation and commitment to returning debts responsibly.	-Justification for this therapeutic component, and the relevance of a co-therapist. -Limiting accessibility to money, gambling venues, and gambling friends. -Commitment to accomplishing stimulus control through a behavioural contract. -List of debts and returns planning.

M4. Cognitive restructuring	Identification and correction of thoughts that contribute to GD onset and maintenance.	-Explanation of the importance of thoughts and how they influence emotions, behaviours, and physiological responses through the ABC model.
		-Definition of dysfunctional thoughts or thinking traps related to gambling.
		-Identification and correction of one's dysfunctional thoughts.
M5. Urge surfing and emotion regulation	Identifying emotions and understanding their function and how to tolerate and change emotional responses.	-Understanding emotions.
		-Emotional avoidance and Emotion Driven Behaviours (EDBs).
		-Emotion regulation strategies (e.g., Problem-solving, opposite action technique, and emotional distancing technique).
M6. Planning significant activities	Lifestyle balance and reconnecting with significant others through these alternative activities.	-Planning different positive activities according to their values (e.g., activities that participants used to or already enjoy, and new activities they would like to be involved in).
		-Involving significant others in alternative activities.
		-Training mindfulness in these alternative significant activities.
M7. Coping skills and exposure with response prevention	Habituation to the gambling conditioned stimulus without gambling.	-Explanation of the exposure with response prevention foundations.
		-Establishment of the exposure hierarchy.
		-Gradual exposure to different gambling-related situations according to the established hierarchy.
		-Assertive communication techniques to decline invitations to wager (e.g., compliment sandwich and the broken record technique).
M8. Relapse prevention	Avoid relapses and maintain changes gained through the intervention.	-Evaluation of the patient's progress and achievements.
		- Identification of high-risk situations and anticipation of possible breakdowns.
		-Review of the techniques learned to deal with these situations.
		-Recommendations to prevent and/or manage a lapse/relapse.

Table 2 Complementary tools on the web platform.

"Home"	It is located on the main menu of the website and corresponds to the starting point of the intervention. Through this tool, participants can access the other sections of the treatment platform.
"Calendar"	This element shows where individuals are in the program, the days they entered, and pending and completed activities.
"Plan for Returning debts"	Participants report the percentage of money they have been able to return at baseline, post-treatment, and 3-, 6-, and 12-month follow-ups (0% "No returns"; 1-25%; 26-50%; 51-75%; 76-99%; 100% "There are no debts/Returning debts completed"). They will receive a personalized feedback message by email depending on the value they indicate. If they have not begun yet, the message will remind them of the importance of this component. If they have started the process, the message will reward them for their progress and encourage them to continue with their plans to return debts, emphasizing that they are getting closer to achieving their objective.
"My progress"	This section makes it possible to monitor the individual's progress. It includes graphics of the progress on different variables, such as gambling urges, perceived self-efficacy to control gambling in high-risk situations, percentage of debts returned, and percentage of time thinking about or being involved in gambling related activities (e.g., searching for videos or information about gambling activities; thinking about how to get money for betting; thinking about past gambling events or planning future possible bets; betting).
"What have I learned?"	In this part, participants can access the full completed modules to review them as often as they like.

2.6.2. EMI description

During the treatment (12 weeks), participants should respond daily to four questions through Qualtrics in order to assess urges to gamble (on a scale from 0 "Not at all" to 10 "maximum"), gambling urge frequency (on a 5-point Likert scale from "Never" to "Almost always"), self-efficacy to cope with gambling urges (on a scale from 0 "Not at all" to 10 "Completely"), and whether they have wagered that day or not (see Fig. 2). They will receive one notification per day to respond to the EMI questions at 8 PM. These questions are relevant because if participants perceive that they have low self-efficacy to cope with gambling urges, the EMI sends feedback to motivate them to remain abstinent and recommend strategies that they have already learned. If they indicate that they have wagered, the EMI also sends feedback to encourage them to fill in a gambling self-register (date; type of game; time spent, money

spent) (Echeburúa and Báez, 1994) and carry out a functional analysis of the relapse ("Why did I gamble?"). The main objective is to make them aware of the circumstances that facilitate the gambling behaviour and the short- and long-term consequences, as well as to plan strategies they can use in the future in similar circumstances, in order to avoid a lapse/ relapse. Participants can download the PDF with this feedback and the functional analysis they filled out in Qualtrics. In addition, if they report high self-efficacy to cope with gambling urges, the EMI sends feedback that consists of reinforcing their continued abstinence and reminding them to pay attention to future gambling risk situations where they can apply the appropriate strategies they have learned (see Appendix A). Some of these complementary tools have been used in previous studies, such as feedback about their gambling behaviour and a section for carrying out a functional analysis if they gamble (Casey et al., 2017; Magnusson et al., 2019). However, our proposal also includes specific feedback based on the responses (e.g., if they gamble or if they report low or high self-efficacy to cope with gambling urges), as well as reminders and a calendar. In addition, there is another section for monitoring their progress on several clinical variables, as well as a debt payment plan progress section and feedback by email. These complementary tools and the EMI will provide a more personalized intervention, and they could help to reduce dropouts and increase treatment adherence.
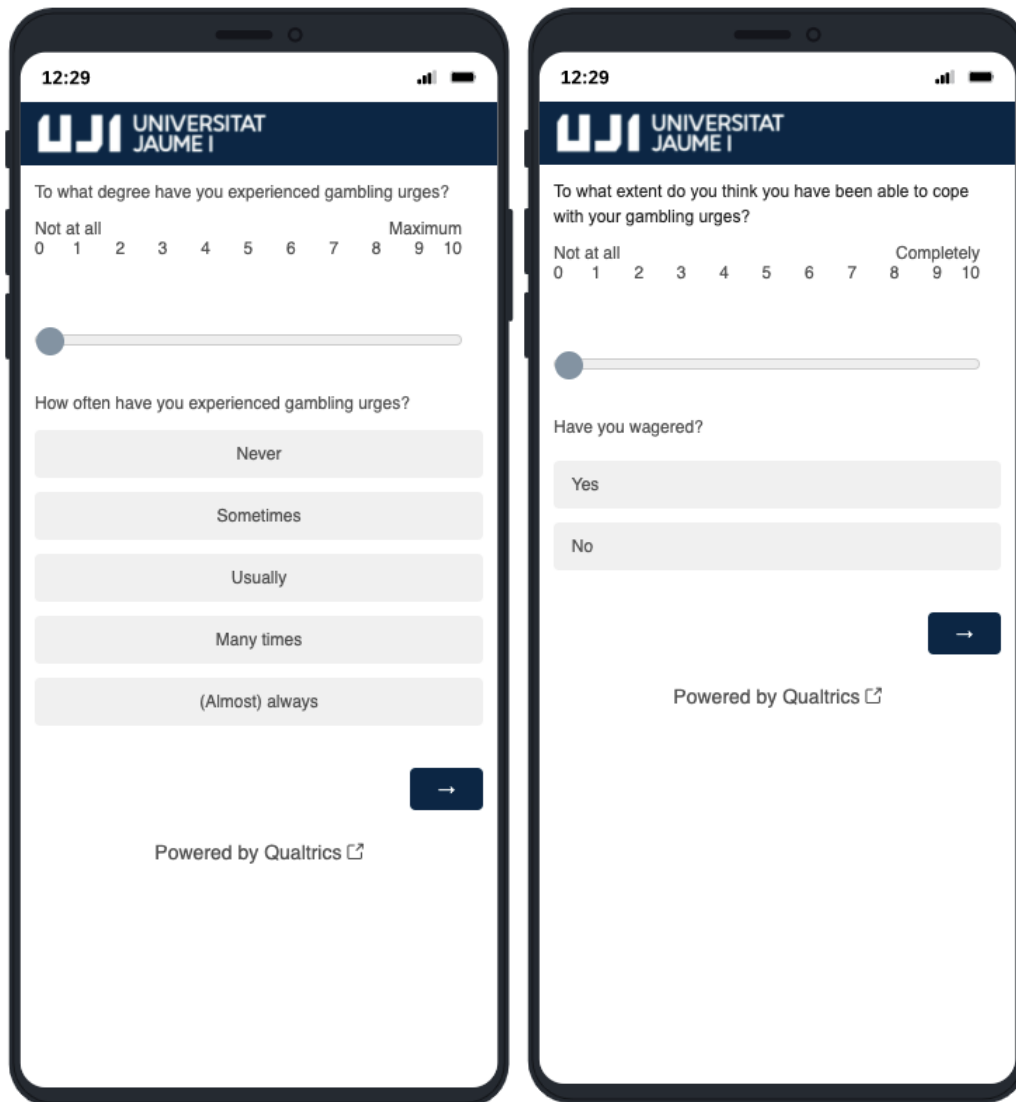
Fig. 2. EMI features.

2.7. Assessment measures

The primary outcome is the change in gambling severity and gambling-related cognitions from baseline to post-treatment in both the CBT and control groups, and post-module outcomes are gambling urges, self-efficacy to control gambling, and anxiety and depressive symptoms. In addition, follow-ups at 3, 6, and 12 months are also assessed. Assessment points and instruments are shown in Table 3.

Table 3 Overview of measures and time-points.

Measures	Screening	Baseline	DM	Post-M	Post-T	3 MFU	6 MFU	12 MFU
Diagnostic interview								
MINI	X							
NODS (12-month version)	X							
NODS (3-month version)					X	X	X	X
GI	X							
Primary outcome measures								
G-SAS		X		X	X	X	X	X
GRCS-S		X			X	X	X	X
Secondary outcome measures								
URICA		X			X	X	X	X
GSEQ		X		X	X	X	X	X
[a]EMI outcome measures			X					
Gambling urges								
Frequency								
Intensity								
Self-efficacy								
Gambling behaviour								
Money wagered								
Amount of time								
Additional measures								
Socio-demographics		X						
HADS		X			X	X	X	X
ODSIS				X				
OASIS				X				
DERS		X			X	X	X	X
PANAS		X			X	X	X	X
UPPS-P		X			X	X	X	X
QLI		X			X	X	X	X
SUS				X[b]	X			
Treatment expectations questionnaire		X						
Opinion/ Satisfaction questionnaire					X			
[a]Negative Effects Questionnaire					X			

DERS: Difficulties in Emotion Regulation Scale; DM: Daily Measure: GI: Gambling history interview and current gambling situation and related variables assessment; GRCS-S: Gambling-Related Cognitions Scale; G-SAS: The Gambling Symptom Assessment Scale; GSEQ: Gambling Self-Efficacy Questionnaire; HADS: Hospital Anxiety and Depression Scale; MFU: Months Follow-up; MINI: Mini International Neuropsychiatric Interview; NODS: NORC DSM-IV Screen for Gambling Problems; OASIS: The Overall Anxiety Severity and Impairment Scale; ODSIS: The Overall Depression Severity and Impairment Scale; PANAS: The Positive and Negative Affect Schedule; Post-M: Post-Module; Post-T: Post-Treatment; QLI: Quality of Life Index; SUS: System Usability Scale; UPPS-P: The Short UPPS-P Impulsivity Scale; URICA: The University of Rhode Island Change Assessment Scale.

2.7.1. Diagnostic interview

2.7.1.1. Mini international neuropsychiatric interview (the M.I.N.I. 7.0.2, 8/8/16 version) (Sheehan et al., 1997, 1998). The MINI is a brief, structured diagnostic interview designed to assess the most common psychiatric disorders in the ICD-10 and DSM-5 (major depressive episode; obsessive-compulsive disorder; posttraumatic stress disorder; alcohol use disorder; substance use disorder; any psychotic disorder; anorexia nervosa; bulimia nervosa; generalized anxiety disorder; medical, organic, drug cause ruled out; and antisocial personality disorder). Questions are rated dichotomously (yes/no), and clinical judgment should be used in coding the responses, asking for examples if necessary. Validity and reliability are supported, and similar properties to the SCID-P for the DSM-III-R and the CIDI are shown, but it can be administered in a much shorter time. A copyright licence for use of the standard M.I.N.I. 7.0.2 in Spanish, based on DSM-5 criteria, will be requested from the authors.

2.7.1.2. NORC DSM-IV screen for gambling problems (NODS) (Gerstein et al., 1999; Becoña, 2004). The NODS is a hierarchically structured, 17- item screening tool designed to assess at-risk, problem, and pathological gambling. It refers to the experience with gambling throughout their lives and in the past year, and the response options are dichotomous (Yes/No). The total score ranges from 0 to 10 (1-2 affirmative items correspond to at-risk gambling; 3-4 items correspond to problem gambling; and 6 or more items correspond to pathological gambling). The data obtained for specificity and sensitivity are good. Test-retest reliability is 0.98, and validity is excellent, considering that it corresponds strictly to the DSM-IV criteria. We will use the 12-month version at pre-test to establish the diagnosis based on the DSM-IV-TR, and the 3- month version of the NODS to assess the progress made in gambling severity throughout the intervention and in follow-up assessments.

2.7.1.3. Gambling history interview and current gambling situation and related variables assessment (GI). This interview is based on the Structured Interview of the Gambling History and on the Gambling dependent variables questionnaire (Echeburúa and Báez, 1994). In addition to selecting five items from the first interview to assess the patient's gambling habits and the onset and aggravation of the patient's gambling behaviour (including ups and downs and periods of abstinence), five other interesting items related to the current gambling situation

are added. They refer to economic debts, the people or entities they owe money to and the specific amount, whether they have access to money and the ways they can get it, what they have done so far to solve the problem, how long it has been since their last bet, and the specific risky places. It was developed ad hoc due to the relevance of considering this information.

2.7.2. Primary outcome measures

2.7.2.1. The gambling symptom assessment scale (G-SAS) (Kim et al., 2009). The G-SAS is a 12-item self-report instrument that assesses gambling symptom severity, but it is not a screening or diagnostic instrument. It can detect changes in gambling symptom severity during treatment, and it provides data about the pattern of change in each subgroup of symptoms in order to analyse the variation in the response pattern to each treatment. All the items refer to an average number of symptoms in the past seven days. The statements included correspond to gambling urges; average frequency, duration, and control of thoughts associated with gambling; time spent on gambling or gambling-related behaviour; anticipatory tension and/or excitement caused by an imminent gambling act; excitement and pleasure associated with winning; emotional distress; and personal trouble. All items are rated on a 4-point scale, and the total score ranges from 0 to 48. The higher the score, the higher the gambling symptom severity (mild = 8-20; moderate = 21-30; severe = 31-40; extreme = 41-48). This scale shows high internal consistency ($\alpha = 0.87$) and good convergent validity with other measures associated with gambling symptom severity in a sample of pathological gamblers. Because this instrument does not have a Spanish version, standardized procedures (translation/back-translation) were followed to adapt the G-SAS to the Spanish language. The validation process is currently taking place, and Cronbach's alpha will be calculated with the data at hand.

2.7.2.2. Gambling-related cognitions scale (GRCS-S) (Raylu and Oei, 2004; Del Prete et al., 2017). The GRCS-S is a self-report instrument designed to assess five domains of gambling-related cognitions (interpretative bias, IB; the illusion of control, IC; predictive control, PC; gambling expectancies, GE; and perceived inability to stop gambling, ISG). It contains 23 items that are rated on a 7-point Likert-type scale (1 = I strongly disagree; 7 = I strongly agree). The total score consists of adding the scores on all the items. The score for each subscale is obtained by adding the scores on the set of items in each subscale. The higher the total score, the higher the number of gambling-related cognitions presented. The GRCS-S shows adequate psychometric properties in a sample composed of treatment-seeking gamblers and non-treatment-seeking gamblers: concurrent and criterion-related validity are verified, the

full-scale reliability is 0.95, and reliability for the subscales ranges from 0.68 to 0.91 (GE = 0.77; IC = 0.68; PC = 0.84; ISG = 0.91; IB = 0.89).

2.7.3. Secondary outcome measures

2.7.3.1. The University of Rhode Island Change Assessment Scale (URICA) (McConnaughy et al., 1983; Gómez-Peña et al., 2011). The URICA is a 28- item self-report instrument that includes four subscales and assesses four of the five stages of change proposed by Prochaska & DiClemente (precontemplation, P; contemplation, C; action, A; and maintenance, M) on a 5-point Likert-type scale (1 = strongly disagree; 5 = strongly agree). Scores for each subscale range from 8 to 40, and they are obtained by adding the scores on the five items included in each subscale. A second-order score is obtained for the degree of 'Readiness to change' (C + A + M-P). The URICA shows good psychometric proprieties in a sample of pathological gamblers. The internal consistency values are adequate for the stages of change assessed, as well as for the total score corresponding to 'Readiness to change'. Specifically, the Cronbach's alpha coefficients range from 0.74 to 0.84, taking into account the different stages (Precontemplation = 0.74; Contemplation = 0.80; Action = 0.84; and Maintenance = 0.74), and Cronbach's alpha for the total score is 0.84.

2.7.3.2. Gambling self-efficacy questionnaire (GSEQ) (May et al., 2003; Winfree et al., 2013). The GSEQ is a self-report instrument that assesses perceived self-efficacy to control gambling in high-risk situations through 16 six-point Likert scale items. Participants are asked to indicate how confident they feel on a scale that ranges from 0% (Not at all confident) to 100% (Very confident) in increments of 20%. Specifically, it includes intrapersonal (e.g., unpleasant emotions, physical discomfort, pleasant emotions, testing personal control, and urges and temptations) and interpersonal (conflict with others, social pressure, and pleasant times with others) factors, based on Marlatt's (1985) model of relapse situations for addictive behaviours. The overall score is calculated considering the mean response on all the items, and it can range from 0 to 100. The higher the overall scores, the higher the overall confidence about controlling their gambling behaviour. There is evidence of convergent and discriminant validity, and the internal consistency is high ($\alpha = 0.99$) in a community sample.

2.7.3.3. EMI measures. Gambling urge intensity and frequency, self-efficacy to cope with gambling urges, gambling behaviour (yes/no), money wagered (euros), and amount of time gambling (minutes) are also assessed for 90 days in the experimental group.

2.7.4. Additional measures

2.7.4.1. Sociodemographic information. In order to explore the characteristics of the sample, information is collected, such as age, gender, sex, marital status, type of coexistence, educational level, profession, occupational situation, income, native and residence country, spiritual beliefs, and whether they have previously received psychological treatment for gambling problems or for other reasons.

2.7.4.2. Hospital anxiety depression scale (HADS) (Zigmond and Snaith, 1983; Castresana et al., 1995). The HADS is a self-report instrument that consists of 14 items and has two subscales: seven items measure depressive symptoms and the other seven items measure anxiety symptoms. Respondents are asked to indicate which option fits them the most, taking the past week into account. Each item is rated on a four-point scale ranging from 0 to 3. The scores for both subscales are obtained by adding the scores on all the items, and both subscales range from 0 to 21. Scores up to 8 indicate an absence of significant morbidity, scores from 8 to 10 correspond to a borderline case, and scores higher than 10 indicate morbidity. The internal consistency ranges from 0.42 to 0.71 ($p < 0.01$) for the depression subscale, and from 0.36 to 0.64 for the anxiety subscale.

2.7.4.3. The overall depression severity and impairment scale (ODSIS) (Bentley et al., 2014; Mira et al., 2019b). The ODSIS is a 5-item self-report instrument that evaluates a unidimensional factor referring to the severity and functional impairment associated with depression during the past week. There are five response options for each item, and they are coded from 0 to 4. The total score is obtained by adding the scores on all the items, and it ranges from 0 to 20. Scores of 5 or more indicate depressive symptoms. This scale is validated online considering a sample of patients with depressive or anxiety disorders. It shows excellent internal consistency ($\alpha = 0.92$), and construct, convergent, and discriminant validity are supported.

2.7.4.4. The overall anxiety severity and impairment scale (OASIS) (Campbell-Sills et al., 2009; González-Robles et al., 2018). The OASIS is a 5-item self-report instrument that assesses a unidimensional factor referring to the severity and frequency of anxiety symptoms, as well as the behavioral avoidance and functional impairment related to these symptoms in the previous week. There are five response options for each item, and they are coded from 0 to 4. The total score is obtained by adding the scores on all the items, and it ranges from 0 to 20.

Scores above 8 show the presence of anxiety symptoms. This scale is validated online in a sample of patients with depression and anxiety. It shows good internal consistency (α = 0.86) and adequate convergent and discriminant validity, as well as sensitivity to change.

2.7.4.5. Difficulties in emotion regulation scale (DERS) (Gratz and Roemer, 2004; Hervás and Jódar, 2008). The DERS is a self-report measure that includes 28 items and assesses five factors related to difficulties in emotion regulation processes: emotional lack of control, life interference, lack of emotional attention, emotional confusion, and emotional rejection. Participants have to report how often the items apply to them on a 5-point Likert-type scale ranging from 1 (almost never; 0-10%) to 5 (almost always; 91-100%). A score for each subscale is obtained by adding the scores on the items on each subscale and taking reversed items into account. A final score is obtained by adding the scores on all the items. The higher the scores, the greater the difficulties in emotion regulation processes. DERS has good psychometric properties in the general population. Internal consistency is 0.93, test-retest reliability is adequate, and convergent and incremental validity are shown.

2.7.4.6. The positive and negative affect schedule (PANAS) (Watson et al., 1988; Díaz-García et al., 2020). The PANAS consists of 20 items that assess two independent dimensions, positive affect (PA) and negative affect (NA). PANAS is used to measure trait and state affectivity. Each dimension consists of 10 items rated on a 5-point Likert-type scale (1 = very slightly or not at all; 2 = a little; 3 = moderately; 4; quite a bit; 5 = very much). Participants have to indicate to what extent they have experienced each emotion generally and during the past week. Total scores are calculated by adding the scores on the items in each dimension, and it ranges from 10 to 50. The scale has adequate convergent and discriminant validity, good internal consistency, and sensitivity to change. Cronbach's alpha is 0.91 for the PANAS-PA and 0.87 for the PANAS-NA.

2.7.4.7. The short UPPS-P impulsivity scale (UPPS-P) (Lynam et al., 2006; Cándido et al., 2012). The UPPS-P assesses five impulsivity traits (negative urgency, lack of premeditation, lack of perseverance, sensation seeking, and positive urgency) through 20 items rated on a four-point Likert scale (1 = strongly agree; 4 = strongly disagree). Scores for each of the five factors and a global score for the UPPS-P are obtained considering direct and inverse items. It is calculated by adding the scores on the four items in each factor. The higher the score, the higher the impulsivity. The UPPS-P presents good psychometric properties in a sample of

university students. Internal consistency is acceptable (α ranges from 0.61 to 0.81), and external validity is supported.

2.7.4.8. Quality of life index (QLI) (Mezzich et al., 1999; Mezzich et al., 2000). The QLI is a 10-item self-report instrument that assesses the concept of quality of life, taking into account 10 dimensions rated on a 10-point Likert-type scale (1 =poor; 10 =excellent): physical well-being, psychological/emotional well-being, self-care and independent functioning, occupational functioning, interpersonal functioning, social-emotional support, community and services support, personal fulfilment, spiritual fulfilment, and overall perception of quality of life. The total score corresponds to the average score of the set of items and ranges from 1 to 10 (1-4,5 =perception of the quality of life below the average; 4,6-8,1 =perception of the quality of life on the average; 8,2- 10 =perception of the quality of life above the average). Internal consistency (α =0.89) and test-retest reliability (0.89) are high, and discriminant validity is shown in a sample of psychiatric patients.

2.7.4.9. System usability scale (SUS) (Brooke, 1996). The SUS is one of the most widely used tools for evaluating the usability of ICT applications. Usability is a construct that refers to the ease with which users can use a technology to achieve a particular goal in a given context. This questionnaire consists of 10 items with which the user must show his/ her degree of agreement on a 5-point Likert scale (1 =Strongly disagree, 5 =Strongly agree). The correction formula allows a total score to be calculated, expressed as a percentage (0-100), where a higher score indicates greater perceived ease and product quality (Bangor et al., 2008). The validation process for the Spanish version is being carried out, and our group has used this questionnaire in several research studies (Botella et al., 2016b; Campos et al., 2018).

2.7.4.10. Treatment acceptance measures. Treatment Expectations and The Opinion and Satisfaction questionnaires (Borkovec and Nau, 1972) assess the participants' expectations before the intervention and the satisfaction after receiving the program, respectively. Each of these instruments include 6 items that address the extent to which the treatment is logical, participants' degree of satisfaction, whether they would recommend it to others, its usefulness for their problem and for dealing with other problems, and to what extent it could be or was aversive, on a Likert scale ranging from 0 ("not at all") to 10 ("very much"). Psychometric properties are not available, but Cronbach's alpha will be calculated with the data at hand. This adaptation has been used in previous studies (Botella et al., 2009; Botella et al., 2016a; Botella et al., 2016b; Mira et al., 2019c; Tortella-Feliu et al., 2011).

2.7.4.11. Negative effects questionnaire (Rozental et al., 2018; Rozental et al., 2019). The NEQ is a 20-item self-report instrument that assesses the occurrence and characteristics of negative effects in psychological treatments and distinguishes five different factors: symptoms, quality, dependency, stigma, and hopelessness. It consists of three parts: respondents endorse specific items according to whether they occurred or not during treatment; they rate how negative the effect was on a four-point Likert-scale ranging from "Not at all" to "Extremely"; and they attribute the negative effect to the treatment they received or to other circumstances. The 20-item NEQ shows comparable validity to the original 32-item version. For the original version, the person-separation index was 0.89, and the item-separation index was 2.01, which increased to 1.08 and 2.61, respectively, in the present brief version. The instrument also contains one open-ended question in order to capture other negative effects that are not included in the items.

2.8. Statistical analysis

To confirm that there are no differences between the two groups in their sociodemographic and clinical variables at baseline, independent-sample *t*-tests for comparing two means will be carried out for continuous variables, and Chi-square tests for categorical variables. Past research has shown that outcome variables that contain zeros (e.g., number of money spent on gambling) might show a non-normal distribution after a successful treatment due to a high skewedness as a result of the increase in the frequency of zeros. If this happens, mixed linear models can become biased. In our study, we will investigate whether scores are normally distributed both prior and after the intervention throughout Kolmogorov-Smirnov test. If normally distributed, we will implement a linear mixed model. On the contrary, if the treatment leads to a skewed distribution, we will implement the recommended analysis in past research called marginalized longitudinal two-part model, that offers a flexible and powerful way to model gambling outcomes (Magnusson et al., 2019).

If scores are normally distributed, to assess the main question, if there are no differences between the control and CBT groups on the pretest, a two-way ANOVA *F*-test of the interaction will be performed, with a between-groups factor (CBT vs. Control groups) and a within-group factor (pre-treatment vs. post-treatment assessments). However, if the groups are not equivalent in their sociodemographic variables, a two-way ANCOVA *F*-test of the interaction will be conducted, taking the non-equivalent variable/s as covariate/s. If these groups are not equal on the outcome variables at pre-treatment, a one-way ANCOVA *F*-test (between-groups factor)

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will be carried out, taking the pre-treatment scores on the outcome variable as a covariate. Regarding secondary objectives, different statistical tests will be used:

(i) To assess whether the changes are maintained at 3-, 6-, and 12- month follow-ups, a one-way repeated-measures ANOVA F-test with five levels will be conducted on the CBT group alone. If there are significant differences among the repeated measures, post hoc tests will be carried out using the Dunn–Sidak method.

(ii) To investigate potential differences in the pretest-posttest changes as a function of the level of the GD severity, only the CBT group will be considered in the analyses. A two-way ANOVA F-test of the interaction will be performed, with a between-group factor with two levels (problem gambling/GD) and a within-group factor that corresponds to the repeated-measures pre-treatment-posttreatment.

(iii) In order to evaluate signs of the differential efficacy of the intervention at the follow-ups, only the CBT group will be considered in the analysis. A one-way repeated-measures ANOVA F-test with five levels and post hoc tests using the Dunn–Sidak method will be conducted for each severity level.

(iv) In order to explore whether some factors could be statistically associated with the intervention's efficacy, only the group that receives the intervention will be considered, and a mediation/ moderation analysis will be performed. The maximum number of variables to be included in the mediation/moderation model will be determined based on the sample size obtained in order to avoid capitalizing on chance. These analyses will be exploratory due to the small sample size. Based on these analyses, we will consider different sociodemographic and clinical outcomes (Mora-Salgueiro et al., 2021).

(v) In addition to the statistical significance tests mentioned above, pertinent effect sizes will be calculated and reported. Statistical analyses will be carried out using IBM SPSS Statistics for Windows.

Efficacy analysis will be performed based on intention-to-treat (ITT). Drop-out rates will be calculated by reporting percentages and patterns of missing data. Sensitivity analyses will be performed to assess whether completers and dropouts exhibited relevant differences in sociodemographic and clinical variables, as well as in the dependent variables on the pretest. Missing data in the relevant variables will be imputed by applying multiple imputation (MI)

methods (Graham, 2009). After imputing missing data, ANOVAs will be performed on the ITT data.

(vi) In order to examine gambling behaviour (amount of time and money wagered) progress throughout the intervention and the effect of gambling urges (frequency and intensity) and self-efficacy to cope with gambling urges on gambling behaviour, we will conduct marginalized longitudinal two-part model. If there are differences in the patterns, we will consider four pre-test outcomes to explore whether they could moderate the gambling behaviour results: 1) gambling severity (assessed by the NODS); 2) anxiety and depression symptoms (assessed by the HADS); 3) readiness to change (assessed by the URICA); and 4) comorbidity with mild alcohol and/or substance use disorder (assessed by the MINI). We consider no more than four outcome measures to avoid capitalizing on chance.

3. Discussion

The aim of this study is to describe the protocol for an RCT that will examine the efficacy of an online self-applied intervention for individuals with problem gambling and GD. A marked strength of this study is the innovative way of delivering psychological interventions in order to increase accessibility, especially considering the current difficulties in receiving treatment in other ways due to the COVID-19 pandemic. Internet-based interventions make it possible to overcome important treatment-seeking barriers, such as stigma, embarrassment, and accessibility (Cunningham, 2007; Gainsbury et al., 2013; Suurvali et al., 2008). They offer an anonymous way to receive the treatment, with greater flexibility and time and cost reductions (Gainsbury and Blaszczynski, 2011). Previous studies have supported the efficacy of online interventions based on CBT (DiNicola et al., 2020; Jonas et al., 2020), as well as the relevance of involving significant others in the treatment to enhance adherence (Nilsson et al., 2019).

With regard to evaluation, previous studies have used ecological momentary assessment to investigate experiences and behaviour in real-world settings, specifically in alcohol-dependent outpatients and young adults with heavy drinking episodes (Fridberg et al., 2019; Waters et al., 2020). In addition to random assessments, temptation assessments when there is a rise in the urge to use drugs provide relevant information to better understand the time course of these episodes. In the case of gambling disorder very few studies have been conducted for this purpose (Hawker et al., 2021b). Thus, daily assessment through an EMA app will provide immediate information that is not biased by retrospective completion and makes it possible to

observe the progress of relevant variables over time, such as urges to gamble, self-efficacy to cope with gambling urges, and whether gambling behaviour occurs. Combining an EMI that incorporates this type of evaluation with the online intervention proposed in this study, which includes feedback, reminders, and alerts, will help to achieve more precise and personalized interventions.

The influence of therapist support on intervention efficacy is an issue that has not been sufficiently explored in GD. There are indicators of the advantages of therapist support for GD (Goslar et al., 2017), but due to the low number of studies that involve contact, the results should be interpreted with caution. The current study will extend the knowledge about the efficacy of psychological interventions for GD with automatic support applied by the EMI and email and human support provided by telephone. To our knowledge, this is the first Internet-based program combined with an EMI and this automatic and human support for GD in Spain, and it could also help to increase adherence to treatment and decrease the percentage of dropouts.

Because different psychiatric disorders are highly comorbid with GD, a relevant question that remains unanswered is how to better help these patients. Some studies have proposed adding an intervention to gambling treatment to address anxiety and depression (Cunningham et al., 2019) and co-occurring problem drinking (Cunningham et al., 2018). Cunningham et al. (2019) report similar reductions in gambling and depressive and anxiety symptomatology in the group with gambling treatment alone and the group that receives an additional distress mental health treatment. However, there is no significant benefit of this additional intervention. Instead of focusing on treating specific disorders, another alternative would be to consider transdiagnostic components. Including transdiagnostic strategies in the treatment protocol could better target the broad heterogeneity of individuals suffering from gambling symptomatology and other associated psychopathologies (e. g., anxiety disorders and mood disorders). Emotional regulation difficulties have been shown to play an important role in the relationship between these pathologies (Jauregui et al., 2016; Rogier and Velotti, 2018; Marchica et al., 2019). Bücker et al. (2018) designed an intervention based on CBT, acceptance, mindfulness, and positive psychology techniques, and they found significant reductions in depressive and gambling-related symptoms, with moderate to strong effect sizes. In addition, a recent systematic review supports the effectiveness of Mindfulness-Based interventions for substance and behavioral addictions (Toneatto et al., 2014; McIntosh et al., 2016; Sancho et al., 2018). For this reason, along the same lines as Bücker et al. (2018), in addition to using CBT,

elements from CBT extensions and innovations will be included (e.g., mindfulness and emotion regulation). They will contribute to acquiring adaptive strategies for coping with emotions, in order to tolerate intense emotions and physical sensations associated with withdrawal and cravings (Barlow et al., 2017).

Nevertheless, this study also has some limitations. One limitation is the small sample size for some of the study objectives. Although the treatment program is designed to target people suffering from problem gambling or GD, secondary results on the differential efficacy depending on the severity level across several time points should be interpreted with caution. They are exploratory results, and future research could address this research question with a larger sample. Second, the assessment instruments are self-reported measures, and so a response bias can influence data variability.

Third, it is possible to know whether the effects are maintained in the short to medium term, but not in the long term. Nonetheless, if sustained effects are observed at the 3-, 6, and 12-month follow-ups, future research could include assessments at 24 and 36 months, as in previous studies (Carlbring and Smith, 2008; Carlbring et al., 2012). Finally, WL control designs have been used in previous studies (Boudreault et al., 2018; Carlbring and Smith, 2008; Magnusson et al., 2019; Oei et al., 2018), and they are appropriate for estimating treatment effects compared to no-treatment. However, WL also has some limitations, such as the fact that we cannot control the unspecific effects of the intervention, as described by Cuijpers and Cristea (2016). Despite these deficiencies, the study has several strengths and could be beneficial for people suffering from mild to severe gambling symptomatology.

In sum, the results will contribute to extending the knowledge about Internet-based interventions for gambling problems, overcoming specific barriers that are present, especially in GD, and offering more cost-effective evidence-based psychological treatments to people who need them. In addition, they will point to future research that can clarify for which severity levels these treatments are more efficacious.

4. Conclusions

We expect the findings of the study to contribute to advancing the knowledge about Internet-based programs for the treatment of gambling problems. Moreover, they will contribute to improving the quality of Internet-based psychological programs and adherence to them by considering EMI and other complementary tools.

Ethics approval and consent to participate

The study was approved by the Innovation Office and TI audit, and the Ethics Committee of Universitat Jaume I (Castell´on, Spain) on May 2, 2019 (CD/026/2019), and it will be conducted in accordance with The Declaration of Helsinki and good clinical practice. All participants will sign an informed consent form.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Daily assessment – EMI

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Appendix A. Daily assessment – EMI

Spanish Version

EVALUACIÓN DIARIA

A continuación, debes responder a estas preguntas atendiendo a lo que ha sucedido en las últimas 24h, es decir, desde ayer entre las 20:00h y las 22:00h hasta este momento. Recuerda que puedes responder hoy entre las 20:00 y las 22:00h.

¿Cuál es el GRADO DE DESEO/IMPULSO por jugar que has experimentado?

0	1	2	3	4	5	6	7	8	9	10
Ningún deseo										Máximo deseo

¿Con que frecuencia has experimentado DESEO/IMPULSO por jugar?

Ninguna vez	A veces	Normalmente	Muchas veces	Muchísimas veces

¿En qué medida crees que has tenido CAPACIDAD PARA RESISTIR EL DESEO/IMPULSO por jugar?

0	1	2	3	4	5	6	7	8	9	10
Ninguna capacidad										Capacidad máxima

¿Has JUGADO/APOSTADO a juegos de azar?

☐ Sí
☐ No

En caso de indicar baja autoeficacia para resistir el impulso por jugar y que no han jugado les aparece la siguiente retroalimentación:

Hemos visto que has indicado que tu capacidad para resistir el impulso por jugar es baja. Que se produzca esto es totalmente normal. Tu capacidad percibida para controlar la conducta de juego probablemente irá aumentando conforme vayas superando estas situaciones de alto riesgo de forma eficaz, poniendo en marcha las habilidades de afrontamiento adecuadas. ¡Enhorabuena porque a pesar de que tu capacidad para resistir este deseo de jugar haya sido baja, has conseguido mantenerte en abstinencia!

Además, te felicitamos porque has dado un paso muy importante, evaluar y tomar conciencia del impulso por jugar y la capacidad percibida para resistirlo. Es el primer paso para poder prevenir una posible caída/recaída. Sigue aplicando estas estrategias que te han ayudado e incorpora las que vayas aprendiendo a lo largo del programa.

Si tu deseo de jugar es muy alto y no te sientes capaz de mantenerte en abstinencia, te recomendamos que se lo comuniques de forma inmediata a tu coterapeuta, ya que esto te va a ayudar a afrontar esas situaciones difíciles sin jugar.

En caso de indicar alta autoeficacia para resistir el impulso por jugar y que no han jugado les aparece la siguiente retroalimentación:

¡Enhorabuena! Probablemente tu impulso por jugar ha ido disminuyendo, no obstante, independientemente de que el grado de impulso por jugar sea mayor o menor, tu capacidad para resistirlo está aumentando, y cada vez estás adquiriendo mayor control sobre la conducta de juego. No te confíes y sigue atento/a a las posibles situaciones de riesgo que se puedan presentar, aplicando las estrategias de afrontamiento necesarias.

Retroalimentación cuando se ha producido una caída:

Has indicado que has jugado/apostado en las últimas 24h. Aunque se haya producido una caída, esto no significa que vuelvas a estar en el punto inicial o de partida, y que retrocedas todo el camino que habías avanzado. Recuerda que cuando se produzca una caída es importante comunicárselo a tu coterapeuta de forma inmediata, y volver a aplicar las estrategias adecuadas para mantenerse en abstinencia. Aunque estas caídas pueden ocurrir, es importante

que analicemos lo que ha podido fallar para fortalecerte y poder afrontar con eficacia las situaciones de riesgo que se presenten en un futuro.

Esto te ayudará a entender qué aspectos del entorno, emociones y pensamientos han sucedido antes de tener esta caída y que han podido influir en que hayas acabado jugando, convirtiéndose en situaciones de riesgo para caer/recaer. Además, podrás plantear qué estrategias puedes poner en marcha en un futuro ante situaciones de riesgo similares con el objetivo de evitar que sucedan futuras caídas/recaídas.

ANÁLISIS FUNCIONAL DE UNA CAÍDA

¿Cuánto tiempo has empleado en la conducta de juego? (en minutos)

<div style="border:1px solid #000; height:40px;"></div>

¿Cuánto dinero has apostado? (en euros)

<div style="border:1px solid #000; height:40px;"></div>

Escribe a qué tipo de juego (p.ej., apuestas deportivas, máquinas tragaperras, póquer, bingo...):

<div style="border:1px solid #000; height:40px;"></div>

¿Has jugado de forma presencial, online o ambas?

☐ Presencial
☐ Online
☐ Ambas

¿Dónde estabas?

<div style="border:1px solid #000; height:40px;"></div>

¿Qué estaba sucediendo?

<div style="border:1px solid #000; height:40px;"></div>

¿En qué momento del día? (puedes seleccionar varias opciones a la vez)

☐ Mañana (06:00 a 12:00)

☐ Tarde (12:00 a 19:00)

☐ Noche (19:00 a 00:00)

☐ Madrugada (00:00 a 06:00)

¿Quién estaba contigo? (p.ej., si estabas solo/a, acompañado/a, etc.)

¿Cuál era tu estado de ánimo? (p.ej., te sentías aburrido/a, triste, alegre, etc.)

Antes de jugar ¿qué estabas haciendo cuando el impulso por jugar se intensificó?

Antes de jugar ¿qué pensamientos aparecieron y aumentaron el impulso por jugar?

¿Intestaste hacer algo antes de tener la caída?

☐ Sí

☐ No

En caso de haber indicado que sí:

¿Qué hiciste para poder afrontar esa situación sin jugar?

¿Por qué no funcionó esa estrategia?

En caso de haber indicado que no:

¿Por qué no intentaste hacer algo para resistir tu impulso por jugar?

[ ]

¿Ha disminuido tu motivación para afrontar tu problema?

[ ]

Después de realizar todas estas preguntas, me he dado cuenta que: (puedes seleccionar varias opciones a la vez)

☐ No identifiqué en el momento adecuado que estaba en una situación de peligro que me podía llevar a jugar.
☐ No supe identificar qué estrategia de afrontamiento debía aplicar.
☐ No puse en práctica la estrategia de afrontamiento de forma adecuada.
☐ Subestimé las consecuencias negativas del juego y me centré mayoritariamente sobre los aspectos positivos de jugar

Imagina que en un futuro suceden las mismas circunstancias que han ocurrido en esta caída. ¿Qué podrías hacer la próxima vez para actuar más eficazmente y poder así evitar otra caída?

[ ]

DAILY ASSESSMENT

Please answer these questions based on what has happened in the last 24 hours, that is, from yesterday between 8:00 p.m. and 10:00 p.m. until now. Remember that you can answer today between 8:00 p.m. and 10:00 p.m.

To what degree have you experienced gambling urges?

0	1	2	3	4	5	6	7	8	9	10
Not at all										Maximum

How often have you experienced gambling urges?

Never	Sometimes	Usually	Many times	(Almost) always

To what extent do you think you have been able to cope with your gambling urges?

0	1	2	3	4	5	6	7	8	9	10
Not at all										Completely

Have you wagered?

☐ Yes
☐ No

If they indicate low self-efficacy to resist gambling urges and have not wagered, the following feedback appears:

You have indicated that your ability to cope with gambling urges is low, and that is quite normal. Your perceived ability to control your gambling behaviour will probably increase as you overcome these high-risk situations effectively, putting into practice the appropriate coping skills. Congratulations, because even though your ability to cope with gambling urges

has been low, you have managed to remain abstinent! In addition, we congratulate you because you have taken a very important step, evaluating and becoming aware of gambling urges and the perceived ability to cope with them. This is the first step in preventing a possible lapse/relapse. Keep applying these strategies that have helped you and incorporate the ones you learn throughout the program.

If your gambling urges are very high and you do not feel able to continue your abstinence, we recommend that you immediately communicate this to your co-therapist because this will help you deal with these difficult situations without gambling.

If they indicate high self-efficacy to cope with gambling urges and have not wagered, the following feedback appears:

Congratulations! Your gambling urge has probably been decreasing. However, regardless of whether your gambling urge is higher or lower, your ability to resist it is increasing, and you are gaining more and more control over your gambling behaviour.

Do not trust yourself and remain alert to possible risk situations that may arise, applying the necessary coping strategies.

Feedback when a lapse has occurred:

You indicated that you have wagered in the last 24 hours. Even if a lapse occurred, this does not mean that you are back at the starting point and lose all the ground you have gained. Remember that when a lapse occurs it is important to notify your co-therapist immediately and reapply the appropriate strategies to stay abstinent. Although these lapses can occur, it is important that we analyze what might have gone wrong in order to make you stronger and able to deal effectively with risk situations that may arise in the future. This will help you to understand what aspects of the environment, emotions, and thoughts occurred before having this lapse that might have led you to gamble. In addition, you will be able to plan what strategies to use in the future in high-risk situations in order to avoid future lapses/relapses.

FUNCTIONAL ANALYSIS OF A LAPSE

How long have you been gambling? (minutes)

[   ]

How much money have you wagered? (Euros)

[   ]

Write what type of game (i.e. sports betting, slot machines, poker, bingo ...):

[   ]

Have you bet in person, online, or both?

☐ In person
☐ Online
☐ Both

Where were you?

[   ]

What was happening?

[   ]

At what time of day? (you can select several options at the same time)

☐ Morning (06:00 a 12:00)
☐ Afternoon (12:00 a 19:00)
☐ Evening (19:00 a 00:00)
☐ At night (00:00 a 06:00)

Who was with you? (i.e. if you were alone, accompanied, etc.)

[   ]

What was your mood like? (i.e. if you felt bored, sad, happy, etc.)

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┌─────────────────────────────────────────────────────────────┐
│                                                               │
│                                                               │
└─────────────────────────────────────────────────────────────┘
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Before gambling, what were you doing when the gambling urge became stronger?

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┌─────────────────────────────────────────────────────────────┐
│                                                               │
│                                                               │
└─────────────────────────────────────────────────────────────┘
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Before gambling, what thoughts appeared and increased the gambling urges?

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┌─────────────────────────────────────────────────────────────┐
│                                                               │
│                                                               │
└─────────────────────────────────────────────────────────────┘
```

Did you try to do something before you had the lapse?

☐ Yes

☐ No

If you have indicated yes:

What did you do to deal with this situation without gambling?

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┌─────────────────────────────────────────────────────────┐
│                                                           │
│                                                           │
└─────────────────────────────────────────────────────────┘
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Why didn't that strategy work?

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┌─────────────────────────────────────────────────────────┐
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│                                                           │
└─────────────────────────────────────────────────────────┘
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If you have indicated no:

Why didn't you try to do something to cope with your gambling urges?

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┌─────────────────────────────────────────────────────────┐
│                                                           │
│                                                           │
└─────────────────────────────────────────────────────────┘
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Has your motivation to deal with your gambling problems decreased?

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┌─────────────────────────────────────────────────────────┐
│                                                           │
│                                                           │
└─────────────────────────────────────────────────────────┘
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After asking all these questions, I realize that: (you can select several options at the same time)

- ☐ I did not realize at the right time that I was in a risk situation that could lead me to gamble.
- ☐ I did not know how to identify which coping strategy I should apply.
- ☐ I did not put the coping strategy into practice adequately.
- ☐ I underestimated the negative consequences of gambling and focused mostly on the positive aspects of gambling.

Imagine that in the future the same circumstances arise that occurred in this lapse. What could you do next time to behave more effectively to avoid another lapse?

Appendix B. "SIN JUGAR, GANAS" program registry.

This program is available in pure htlm format, which is the most simplified web page language that can be transferred online.

Currently, it is in "www.psicologiaytecnologia.es. In future studies, the knowledge can be transferred to be integrated into online healthcare platforms.

ISMAEL RODRIGO MARTÍNEZ, director de la Oficina de Cooperación en Investigación y Desarrollo Tecnológico de la Universitat Jaume I de Castelló, atendiendo a la documentación que obra en nuestro archivo,

HAGO CONSTAR QUE:

Las siguientes investigadoras son inventoras, en los porcentajes indicados, del siguiente software:

Título: SIN JUGAR, GANAS (Software)

- Número de registro OCIT: 2483
- Fecha de comunicación: 21 de julio de 2022

Inventoras:

- Juana María Bretón López, con D.N.I. 80149355J – Porcentaje de participación: 50%
- Laura Díaz Sanahuja, con D.N.I. 20490979 – Porcentaje de participación: 20%
- Dra. Azucena García Palacios, con D.N.I. 18974488V – Porcentaje de participación: 20%
- Diana Virginia Castilla López, con D.N.I. 34833268K – Porcentaje de participación: 10%

Y para que conste, a petición de la persona interesada, expido este documento.

CHAPTER 5

A self-applied psychological treatment for problem and pathological gambling via the Internet: A pilot feasibility study.

A self-applied psychological treatment for problem and pathological gambling via the Internet: A pilot, feasibility study.

Diaz-Sanahuja, L.[1], Suso-Ribera, C. [1], Lucas, I.[2], Tur, C. [1], Gual-Montolio, P. [1], Paredes-Mealla, M. [1], García-Palacios, A. [1,2], & Bretón-López, J. [1,2]

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ABSTRACT

Objective: The main purpose of this study was to evaluate the feasibility of SIN JUGAR, GANAS [YOU WIN BY NOT BETTING], an online psychological intervention for persons with gambling problems enhanced with ecological momentary assessments and interventions (EMAs and EMIs) before conducting a randomized controlled trial. **Method:** We asked the participants to complete 3 of the 8 modules of the SIN JUGAR, GANAS program, an online psychological treatment based on cognitive-behavioural therapy and third-wave therapies. EMIs were based on daily EMAs of gambling-related variables (i.e., intensity and frequency of gambling urges, gambling self-efficacy, and gambling episodes). Weekly phone-calls were programmed to solve technical problems and to motivate the participants to continue with the program. The study was disseminated mainly using social media, but also printed posters, personal contacts, and patient associations. Study measures included key outcomes of feasibility (i.e., reach, appropriateness, technology literacy and technology usability, fidelity, and adherence). Secondary outcomes of preliminary effectiveness included the assessment of patient evolution in gambling urges, gambling self-efficacy, and anxiety and depressive symptoms over the first three modules (psychoeducation, motivation for change, and stimulus control) and the utility of the EMAs/EMIs to detect and solve clinical problems. **Results:** In terms of reach, 56 people contacted us to receive information about the program. Of these, half of them were finally assessed for eligibility after an initial screening. Finally, 19.8% (n=11) of the initial population met the inclusion criteria (e.g., problem gambling or gambling disorder gambling) and completed the three modules. The participants had a mean age of 41 years (SD=13), were mostly men (90.9%), and 45.5% had a problem with online gambling (e.g., sports-betting and online slot-machines). In

addition to reach, the results with the remaining feasibility outcomes were generally encouraging. The treatment expectations (i.e., perceived appropriateness) and the technology usability after the first use were both excellent. The treatment could be administered without changes to the initial program (i.e., fidelity). Finally, adherence to the online treatment was adequate, as 73.3% of the participants who were included in the study completed the three modules. Adherence to the EMAs and the weekly phone calls, however, were more modest (average response rates of 54.51% and 66.67%, respectively). The calls had a mean duration of 11.23 minutes. Regarding preliminary effectiveness, we observed significant reductions in gambling urges, gambling self-efficacy, but not significant changes in anxiety and depressive symptoms after the three modules. Preliminary data on the utility of the EMAs and EMIs showed that 45.5% of the sample reported alarms. There were a total of 10 alarms associated with a gambling episodes, which led to subsequent EMIs. **Conclusions:** The present study results show that an online treatment for gambling problems enhanced by EMA and EMI might be feasible in terms of treatment adherence, fidelity, perceived appropriateness, technology usability, and preliminary effectiveness and utility. However, we observed challenges in terms of reach, probably due to the requirement of technology and the characteristics of the target population, as well as in the adherence to the EMA and the phone calls. This is discussed in the context of future trials and scalability of treatments for persons with gambling disorders.

Keywords: gambling disorder; ecological momentary intervention; online treatment; reach; feasibility.

1. INTRODUCTION

Gambling disorder (GD) is a behavioral addiction included in the category of "Substance-Related and Addictive Disorders" of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5). It is characterized by frequent preoccupations with gambling, craving, tolerance, repeated unsuccessful efforts to control or stop gambling, withdrawal symptoms (e.g., irritability or restlessness), gambling to escape from a dysphoric state, "chasing" losses, lying in significant relationships about gambling, and relying on others to fund gambling (APA, 2013). It is a persistent, recurrent pattern of gambling that is associated with substantial impairment (Potenza et al., 2019). For example, the suicide risk in this population is four times higher than in community samples (Wardle et al.,

2020), which appears to be explained by some psychological factors that are characteristic of persons with GD, such as high trait of impulsivity and difficulties in regulating emotions (Mallorquí-Bagué et al., 2018).

The complexity of the symptomatology in persons with GD is accompanied in many cases by other psychological disorders, most frequently anxiety, mood disorders, and substance-use disorders (Cowlishaw, Merkouris, Chapman & Radermacher, 2014; Lorains et al., 2011). It is estimated that the 1-year prevalence of GD oscillates from 0.12% to 5.8% globally (Calado & Griffiths, 2016). In Europe in particular, the yearly prevalence of this disorder ranges from 0.1% to 3.4%. It has been argued, however, that these prevalence rates are actually higher because consultations are rare due to poor illness awareness in many patients, who often experience difficulties in identifying GD symptoms and their negative consequences, as well as difficulties in recognizing the need to seek for treatment (Shah, Quilty, Kim, Graff-Guerrero, & Gerretsen, 2020).

Encouragingly, there are evidenced-based interventions for the effective management of GD. In particular, Cognitive Behavioral Therapy (CBT) is the most frequently used and evidenced-based intervention to effectively treat GD (Menchon, Mestre-Bach, Steward, Fernández-Aranda, & Jiménez-Murcia, 2018; Pfund, Peter, Whelan, Meyers, Ginley, & Relyea, 2020; Tolchard et al., 2017). Despite the robustness of these interventions for coping with gambling problems, however, less than 10% of the people who suffer a GD seek help, a percentage that is significantly lower than that of other mental health conditions (Gainsbury, Hing & Suhonen, 2014; Mojtabai, Olfson, Mechanic, 2002; Suurvali, Hodgins, Toneatto, & Cunningham, 2008). Also alarmingly, of those who receive treatment, drop-out rates are usually very frequent and scale up to 40% in face-to-face programs (Augner, Vlasak, Aichhorn, & Barth, 2022).

As noted earlier, an important barrier for treatment is that persons with GD are often unwilling to admit that they have a problem and tend to minimize them (Suurvali, Cordingley, Hodgins & Cunningham, 2009). They generally seek help when these problems have become extremely severe and have a devastating impact in finances, interpersonal relationships, and physical and mental health (Evans & Delfabbro, 2005; Gainsbury, Hing & Suhonen, 2014). In addition to this impaired awareness about the problem, other barriers could explain the difficulties in seeking for help. Among these, some can be internal, such as fear of stigma, shame, and denial. Other barriers can be

external, such as the lack of available or easily accessible services, difficulties in attending treatment sessions due to geographical distance, absence of local expertise and resources, time constraints, and competing work and domestic demands (Shah et al., 2020).

As already supported by some research, Internet-based interventions could be a solution to increase the accessibility of persons with GD to evidenced-based interventions. Goslar, Leibetseder, Muench, Hofmann & Laireiter (2017), for example, reported that two high-intensity structured web-based interventions were as effective as face-to-face services for the reduction of problem gambling severity, gambling frequency, and financial loss at post-treatment (Carlbring & Smith, 2008; Casey et al., 2017). In addition, a recent meta-analysis showed that online psychological treatments for GD had moderate effects in the short-term (Augner, Vlasak, Aichhorn, & Barth, 2022), with significant positive pooled effect sizes (g=.41 for treatment-control comparison, and g=1.28 for pre-post comparison). Online multi-session treatments also showed larger effects than brief interventions to decrease the amount of time and money spent on gambling (Peter et al., 2019). It is important to note that these self-guided treatments for GD have similar effectiveness when comparing interventions with or without therapist contact, but human contact shows additional advantages in terms of patient satisfaction (Goslar et al., 2017).

In sum, online interventions for persons with GD appear to be an excellent alternative to make treatments more accessible and scalable. Attrition rates of Internet-based interventions, however, are still an important unsolved issue, with losses that oscillate between 6% and 65% (Bücker, Bierbrodt, Hand, Wittekind, & Moritz, 2018; Hodgins, Cunningham, Murray, & Hagopian, 2019; Magnusson Nilsson, Andersson, Hellner, & Carlbring, 2019). Ecological Momentary assessment and interventions (EMA/EMI), as well as therapeutic support while the online interventions are carried out, are procedures that might help minimize attrition rates in online treatments (Díaz-Sanahuja et al.,2021). The literature on EMIs for persons with GD is still scarce, but encouraging. Hawker, Merkouris, Youssef & Dowling (2021), for example, recently conducted a feasibility study with an EMI system to reduce the intensity of craving in people with gambling problems and showed reductions of 71% and 72% in the average number of gambling episodes and craving occurrences, an effectiveness rate that could potentially improve treatment adherence and satisfaction.

Because there is still very little literature in the use of Internet treatments for persons with GD enhanced with EMA/EMI, the objective of this study was to assess the feasibility of the "SIN JUGAR, GANAS" [YOU WIN BY NOT BETTING] program, a self-applied psychological online treatment for GD enhanced with EMA/EMI and supported with brief phone-calls. This feasibility, pilot trial will be crucial before conducting a larger-scale randomized controlled trial in terms of potential feasibility problems and preliminary efficacy, which is important for sample size estimation (Aschbrenner, Kruse, Gallo, & Plano-Clark, 2022). All of the previous will be investigated over the first three treatment modules (i.e., motivation for change, psychoeducation and stimulus control, and responsible debt payment) to evaluate feasibility data before a full-length program is carried out.

2. METHOD

2.1. Study design

The present research corresponds to a non-randomised pilot, feasibility study. It was approved by the Ethics Committee of the Universitat Jaume I (Castellón de la Plana; CD/026/2019) and was conducted following the international standards of the Declaration of Helsinki and good clinical practice.

2.2. Participants, recruitment, and eligibility criteria

To recruit participants, we disseminated the study through professional social networks (e.g., LinkedIn and the official website of the college of psychologists), but also using non-professional social networks (e.g., announcements on Facebook, Instagram, WhatsApp, and Twitter). We also contacted different associations and mental-health services focused on treating addiction. Leaflets and flyers were distributed at the university and zones nearby. Press advertisements and radio interviews also were conducted. Interested participants were contacted via e-mail (sinjugarganas@gmail.com) and received information about the procedure to participate in the study. The recruitment process was conducted following the snowball recruitment. Table 1 shows the specific recruitment methods employed.

Table 1 Recruitment methods.

Recruitment methods, Number of persons who initially were contacted	
Paid announcements on Facebook by selecting the characteristics of the target population	4
Publications on Twitter by the ministry of health, the research group, and personal accounts.	6
Publications on Instagram and Facebook by the Jaume I University, our research group account, and personal accounts.	7
Publications on Facebook groups related to psychology and groups of pathological gamblers	80
WhatsApp groups	20
Newspapers	5
Radio interviews	3
Phone-calls to centres and associations related with the treatment of addictions	23

The inclusion criteria for the study included: being 18 years of age or older; having access to the Internet, a computer, and an e-mail account and having sufficient literacy to participate in the study (this was assessed using a 5-point Likert scale: 0 "little to none"; 1" low"; 2 "normal"; 3 "advanced"; 4 "expert level" and those with little to none or low were excluded); being able to understand, read, and write in Spanish; having a diagnosis of problem gambling or pathological gambling (scores from 3 to 10) in the Norc Diagnostic Screen for Gambling Disorders (NODS; Becoña, 2004). Participants were excluded if they presented high risk of suicide, a severe mental disorder, a medical illness that could interfere with the progress of the program, a moderate or severe substance dependence, if gambling occurred due to a manic episode, or if they were receiving another psychological treatment for gambling-related problems. To assess if participants met these inclusion/exclusion criteria, they first completed an online survey via Qualtrics and responded to sociodemographic and gambling severity questions. If they met the age and gambling severity criteria, the screening process continued, and the professional video-called the person to assess if the other inclusion criteria were also met. There was no financial compensation for participating into the study.

2.3. Intervention

"SIN JUGAR, GANAS" is an online psychological treatment for problematic and pathological gambling based on cognitive-behavioral therapy and third wave-therapies. The treatment is included in the www.psicologiaytecnologia.es website and consists of 8 therapeutic modules. In this pilot feasibility study, we included three out of the 8 modules: motivation for change, psychoeducation and stimulus control and responsible debts payment. Although it is mentioned and recommended to complete a module per week, the treatment duration needed for each individual is yet unclear considering the target population and the intervention format. In addition, even though the intervention includes a weekly telephone support call of around 10 minutes, it is also unknown whether this is feasible according to the characteristics of the target population. The protocol of the study by Díaz-Sanahuja et al. (2020) contains a more detailed explanation of the content and objectives of the modules, as well as the additional tools in the web platform, such as home, calendar, plan for returning debts, my progress, and 'What have I learned'? (see Figures 1-5), and the use of an EMA/EMI.

Figure 1. Screenshot of the content structure of the 'Psicología y Tecnología' [Psychology and Technology] web platform.
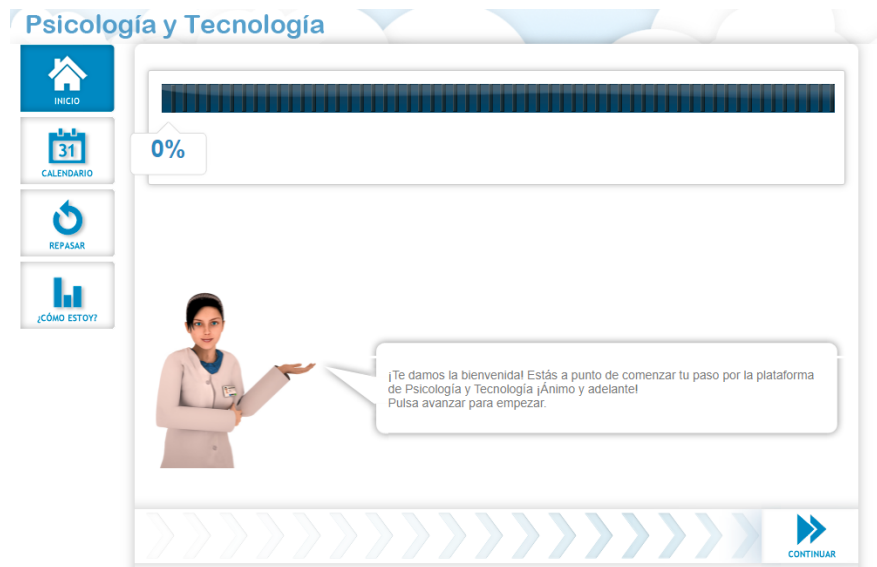
Figure 2. Screenshot of the 'home 'complementary tool of the 'Psicología y Tecnología' [Psychology and Technology] web platform.
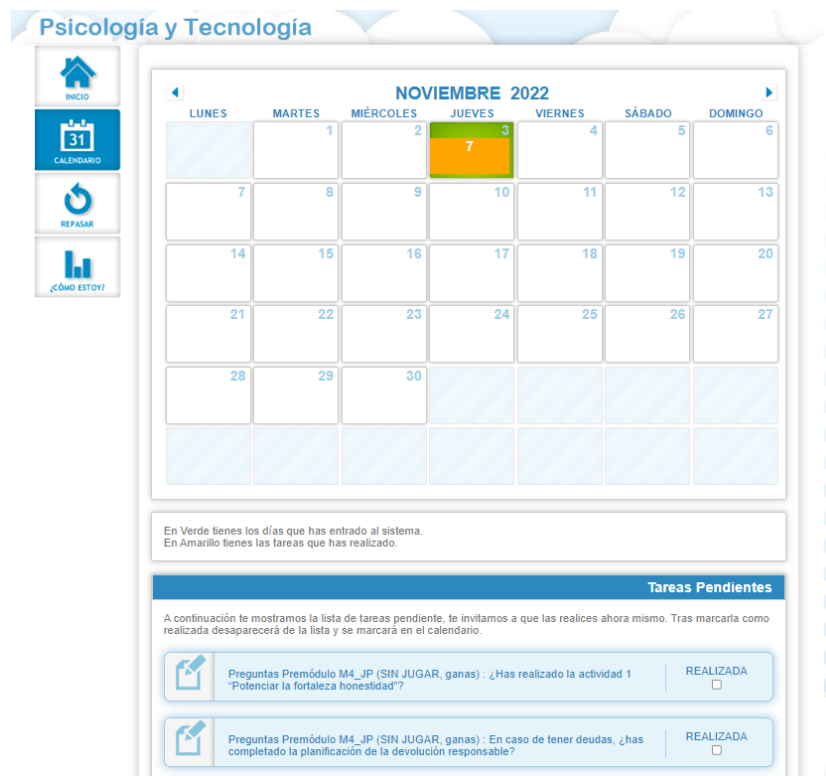
Figure 3. Screenshot of the 'calendar 'complementary tool of the 'Psicología y Tecnología' [Psychology and Technology] web platform.

Figure 4. Screenshot of the 'What have I learned'? complementary tool of the 'Psicología y Tecnología' [Psychology and Technology] web platform.
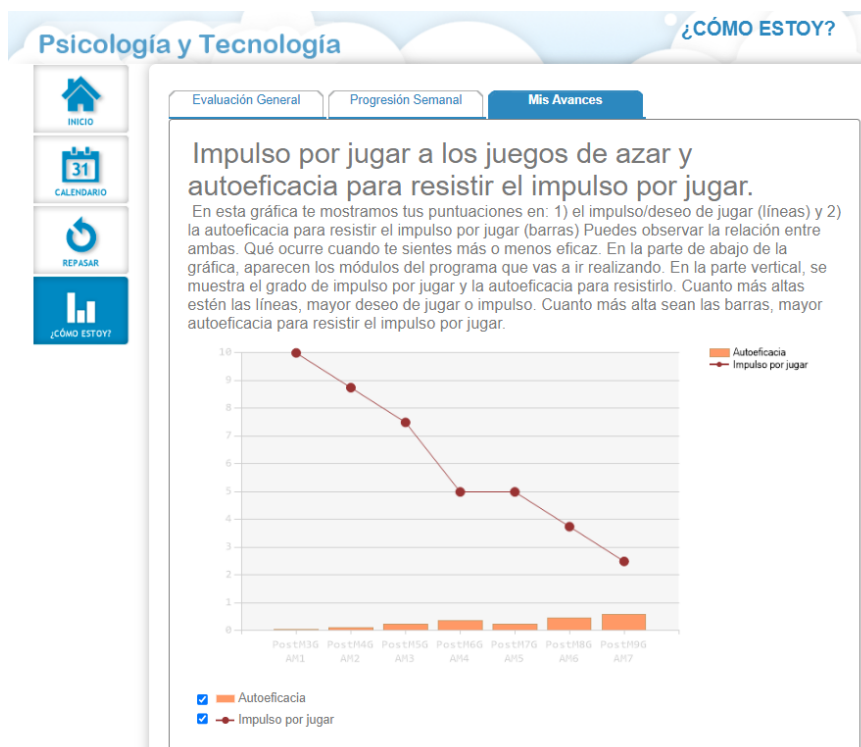
Figure 5. Screenshot of the 'my progress' complementary tool of the 'Psicología y Tecnología' [Psychology and Technology] web platform.

2.4. Measures

2.4.1. Demographics, screening, diagnostic measures and other clinical variables.

The sociodemographic variables assessed were age, sex, marital status, type of coexistence, educational level, profession, occupational situation, income, country, and spiritual beliefs. In addition, we evaluated clinical variables. For example, we evaluated whether they had previously received psychological treatment for gambling problems or other reasons.

We assessed gambling severity using the NORC DSM-IV screen for gambling problems (NODS; Gerstein et al., 1999; Spanish version by Becoña, 2004). This is a hierarchically structured screening instrument for the assessment of gambling problems in the last 12 months. It has 17 dichotomous items. The Cronbach alpha for the NODS could not be calculated in the present sample due to the behavior of items in the scale (i.e., in the NODS, not all the participants respond to the same items; there is a logic that decides which item should be presented based on responses to previous items). In addition to gambling problems, we assessed the history of gambling (Echeburúa & Báez, 1994), including the onset and aggravation of the gambling behavior and the main type of gambling behavior, as well as other gambling-related variables (e.g., economic debts, whether they have access to money, amount of time since the las bet, and risky places). We also evaluated possible comorbid diagnosis according to the Diagnostic and Statistical Manual of Mental Disorder (DSM-5), which were evaluated during a video-call of approximately one hour of duration. In addition, other clinical outcomes at pre-treatment are considered for the description of the participants' profile such as the readiness to change and quality of life. The assessment tools used to evaluate these outcomes are The University of Rhode Island Change Assessment Scale (URICA) (Gómez-Peña et al., 2011; McConnaughy, Prochaska, & Velicer, 1983) and The quality of life index (QLI) (Mezzich, Ruipérez, Pérez, Yoon, Liu, & Mahmud, 2000; Mezzich, Ruiz, & Muñoz, 1999).

The URICA assesses the pre-contemplation, contemplation, action, and maintenance stages of change proposed by Prochaska & DiClemente (1982), as well as the degree of 'Readiness to change' throughout 28 items rated on a 5-point Likert-type scale. Scores for each subscale are obtained by adding the corresponding items, which oscillate from 8 to 40. A global score of readiness to change also is calculated by adding

the mean scores of the contemplation, action, and maintenance stages and subtracting the score obtained in the pre-contemplation stage. The total score can vary from -2 to +14. The higher the value, the higher the readiness to change. A value lower than 8 means that the patient is in the pre-contemplation change stage, a score from 8 to 11 corresponds to the contemplation change stage, and a score of 12 or higher reflects an action change stage (DiClemente, Schlundt, & Gemmell, 2004). The internal consistency of the overall score of 'Readiness to change' was adequate in the present study ($\alpha = 0.72$).

The QLI measures quality of life using 10 dimensions that correspond to physical wellbeing, psychological/emotional well-being, self-care, independent functioning, occupational functioning, interpersonal functioning, social-emotional support, community and services support, personal fulfillment, spiritual fulfillment, and overall perception of quality of life. Items are rated on a 10-point Likert-type scale varying from 1 "poor" to 10 "excellent". The overall score corresponds to the average of the item values and oscillates between 1 and 10. Scores from 1 to 4.5 indicate a perception of the quality of life below the average. Values from 4.-6 to 8.1 reflect average quality of life and scores of 8.2 to 10 reflect a perceived quality of life above the average. The internal consistency of the QLI in our sample was excellent ($\alpha=.89$).

2.4.2. Primary outcomes

The primary outcomes of this single-arm feasibility study were those of feasibility research (Arain, Campbell, Cooper, & Lancaster, 2010; Lancaster, Dodd, & Williamson, 2004; Whitehaead, Sully, & Campbell, 2014):

a) Reach. The percentage of participants who are willing to participate and the extent to which they are representative of the target population (Shaw, Sweet, McBride, Adair, & Martin-Ginis, 2019).

b) Treatment appropriateness, which refers to the perceived fit, relevance, compatibility, suitability, perceived usefulness, and practicability. Appropriateness was measured with the Treatment Expectations questionnaire (Borkovec & Nau, 1972), a self-report instrument that evaluates the participants' expectations about an intervention. It comprises 6 items referring to the extent to which the treatment is logical, the expected degree of satisfaction, the extent to which they would recommend it to others, the usefulness for their problem and for coping with other problems, and the actual aversiveness to use the

program. The previous was evaluated using a Likert scale that oscillates from 0 "not at all" to 10 "very much". The Spanish adaptation of the Treatment Expectations questionnaire has been used in previous research (Botella, Mira et al., 2016; Mira, Soler et al., 2019; Tortella-Feliu et al., 2011).

c) Usability and acceptability of the technology. System usability evaluates whether users can use the technology to achieve a particular goal in a given context. This was measured by the System Usability Scale (SUS) (Brooke, 1996). The SUS assesses the usability of ICT applications using 10 items in which patients report the degree of agreement with a series of statements on a 5-point Likert scale (from 1 "Strongly disagree" to 5 "Strongly agree"). An overall score is obtained and is calculated as a percentage (0− 100) considering a formula that consists of adding all the item values that range from 0 to 4 and multiplying the score by 2.5. The higher the percentage, the greater the perceived ease and product quality (Bangor, Kortum, & Miller, 2008). The Cronbach's alpha of both the treatment expectancies scale and the SUS in our sample was good (.88 and .85, respectively).

d) Fidelity corresponds to the degree to which an intervention can be applied as initially intended. For instance, if the module time required, phone-calls duration, treatment components delivered, and format applied are the same as planned.

e) Adherence was evaluated as the number of days and minutes of platform use, the number of times that each module was reviewed, the percentage of daily evaluations completed, and the response rate and time spent on weekly-calls. Also, the response rates to the daily assessment with the EMA/EMI and alarms generated due to gambling episodes for conducting a functional analysis.

2.4.3. Secondary outcomes

Clinical variables measured at post-module such as gambling severity, the perceived self-efficacy to control gambling and anxiety and depressive symptoms were included as secondary outcomes (preliminary effectiveness). We also investigated the utility of the EMAs, that is, the information provided by the patients regarding the number of gambling episodes, their duration (in minutes), and the money spent on gambling (in euros), all of them on a daily basis.

The gambling symptom assessment scale (G-SAS) (Kim, Grant, Potenza, Blanco, & Hollander, 2009). The G-SAS comprises 12 items rated on a 4-point scale and assesses gambling symptom severity in the past week. Specifically, it evaluates the pattern of change in subgroups of symptoms (e.g., gambling urges; average frequency, duration, and control of thoughts associated with gambling; time spent on gambling; anticipatory tension caused by an imminent gambling act; excitement associated with winning; emotional distress; and personal trouble). The total score is calculated by adding the different item scores and varies from 0 to 48. Scores from 8 to 20 represent mild severity; values from 21 to 30 reflect moderate levels of symptoms; scores from 31 to 40 reflect severe symptoms; and values from 41 to 48 indicate extreme severity of gambling symptoms. This scale presented an excellent internal consistency in our sample ($\alpha = 0.96$).

The Gambling self-efficacy questionnaire (GSEQ) (May, Whelan, Steenbergh, & Meyers, 2003; Winfree, Meyers, & Whelan, 2013). The GSEQ evaluates the perceived self-efficacy to control gambling in risky situations associated with intrapersonal factors such as (un)pleasant emotions or gambling urges, as well as with interpersonal factors, such as social pressure or conflicts (Marlatt, 1985). This scale contains 16 items rated on a 6-point Likert scale ranging from 0% (Not at all confident) to 100% (Very confident). The overall score is obtained by calculating the mean response on the items and varies from 0 to 100, with higher overall scores indicating higher confidence about controlling one's gambling behavior. The Cronbach's alpha of the GSEQ in our sample was excellent ($\alpha=.95$).

Overall depression severity and impairment scale (ODSIS) (Bentley, Gallagher, Carl, & Barlow, 2014; Mira, González-Robles et al., 2019). The ODSIS evaluates the severity and functional impairment associated with depression during the past week through five items rated on a 5-point Likert scale that varies from 0 to 4. The overall score is calculated by adding the values of the items and oscillates between 0 and 20. Scores of 5 or higher indicate the presence of depressive symptoms. The Cronbach's alpha of the ODSIS in our sample was excellent ($\alpha=.91$).

The overall anxiety severity and impairment scale (OASIS) (Campbell-Sills et al., 2009; González-Robles et al., 2018). The OASIS is a 5-item self-report instrument that measures one factor defined as the severity and frequency of anxiety symptoms, behavioral avoidance, and functional impairment in the past week. It is assessed on a 5-

point Likert scale oscillating from 0 to 4. The overall score is obtained by adding the values of the items and varies between 0 and 20. Scores higher than 8 demonstrate the presence of significant anxiety symptoms. The Cronbach's alpha of the OASIS in the present study was good (α=.68).

Table 2 shows the assessment instruments used.

Table 2. Assessment instruments and the different time frames used.

Measures	Screening	Pre-Treatment	Daily	Post-Module
Sociodemographic data	X			
NODS (12 months)	X			
GI	X			
URICA		X		
QLI		X		
G-SAS (gambling urges)		X		X
GSEQ		X		X
OASIS				X
ODSIS				X
EMA measures (gambling episodes and duration and money spent)			X	
Technological profile		X		
Treatment expectations questionnaire		X		
SUS				X*

DERS: Difficulties in Emotion Regulation Scale; DM: Daily Measure: GI: Gambling history interview and current gambling situation and related variables assessment; GRCS-S: Gambling-Related Cognitions Scale; G-SAS: The Gambling Symptom Assessment Scale; GSEQ: Gambling Self-Efficacy Questionnaire; HADS: Hospital Anxiety and Depression Scale; NODS: NORC DSM-IV Screen for Gambling Problems; OASIS: The Overall Anxiety Severity and Impairment Scale; ODSIS: The Overall Depression Severity and Impairment Scale; PANAS: The Positive and Negative Affect Schedule; QLI: Quality of Life Index; SUS: System Usability Scale; UPPS-P: The Short UPPS-P Impulsivity Scale; URICA: The University of Rhode Island Change Assessment Scale.

* After the first use

Statistical Analysis

First, descriptive statistics were conducted on the sociodemographic and clinical characteristics of the sample. The percentage of participants willing to participate was analyzed (reach). Treatment adherence was evaluated considering the number of days the platform was used for each module, the average duration of platform use in minutes, and the number of times each module was reviewed. EMA adherence was calculated as the percentage of daily evaluations completed. Adherence to the weekly phone calls was also calculated. Treatment appropriateness and usability were evaluated after the first use of the web-platform, when the welcome module ended. Non-parametric analyses, including paired samples Wilcoxon tests were carried out to evaluate the preliminary effectiveness of the intervention enhanced with EMA/EMI. Specifically, we calculated changes in gambling urges (measured by the first four items of the GSAS) and gambling self-efficacy (GSEQ questionnaire) from pre-treatment to post-module 3, as well as changes in anxiety (OASIS questionnaire) and depressive symptoms (ODSIS questionnaire) from post-module 1 to 3. Statistical analyses were performed using the IBM SPSS Statistics program version 28.

3. RESULTS

3.1. Participant flow and reach.

The flow diagram (Figure 6) shows the flow of the participants' recruitment. Initially, 56 people were interested in the study. Of these, 50% (n=28) did not complete the initial survey for the assessment of their inclusion/exclusion criteria after receiving the information and the remaining 28 were assessed for eligibility. Nine of them only answered to the first screening assessment (NODS and sociodemographic data), but did not attend the appointment to assess the gambling history and gambling-related variables, as well as possible comorbidity, and were therefore excluded. In addition, 4 of them were excluded after the full screening evaluation: one participant did not meet the inclusion criteria of gambling severity, one did not meet the criteria of age, one participant was excluded because he presented high suicidal tendencies, and one presented comorbidity with severe mental health. These participants were offered alternative treatments in a blended format with more intense therapeutic support. Any participant was excluded due to low technological literacy: 72.7% (n=8) reported a score value of 2 which means

"normal", which means they considered themselves as capable to manage to do the things needed, while 27.3% (n=3) reported a score of 3, which corresponds to an advanced level, so they considered they know how to do more things than other people.

Finally, 26.8% (n=15) of the initial sample was included in the study. Of those, 4 withdrew from the intervention. Specifically, 2 did not begin the treatment and could not be contacted and 2 participants quit after completing the welcome module and did not respond to the pre-treatment evaluation because of lack of time. Consequently, the final sample used in this study included 11 participants had completed the first three modules.
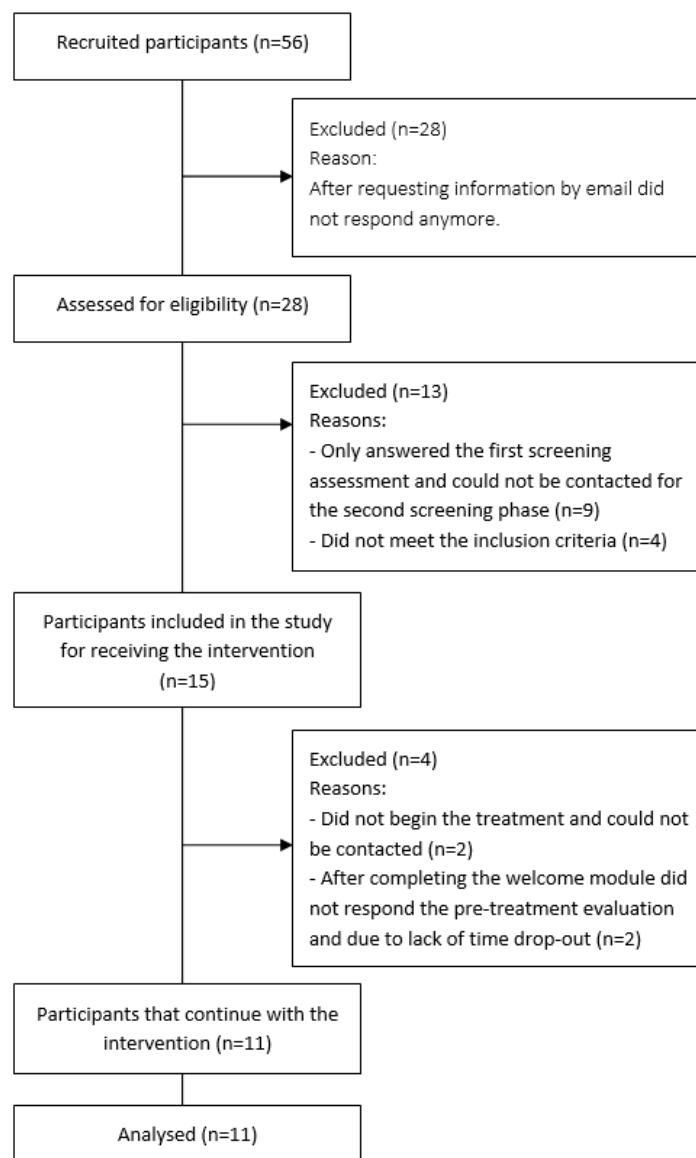
Figure 6. Flow diagram of the study.

3.2. Participant's sociodemographic, gambling history, and other related and clinical characteristics at pre-treatment.

The vast majority of the participants were male (90.9%; *n*=10). They had a mean age of 41 years (SD=13), with age ranging from 26 to 68 years. Participants were Spanish-speakers, 54.5% (n=6) from Spain, 36.4% (n=4) from Mexico, and 9.1% (n=1) from Colombia. The majority were married or in a relationship (81.9%). Only 18.2% were single. Regarding educational level, most of them had completed higher education (81.8%). The remaining participants (18.2%) had only completed elementary education. Taking employment status, 63.6% (n=7) were employed. The remaining participants were unemployed (9.1%; n=1), on temporary leave (9.1%; *n*=1), on long-term sick leave (9.1%; *n*=1), or retired (9.1%; *n*=1). Professions were mainly related to the tertiary sector (54.5%; *n*=6) (e.g., education) and secondary sector (36.4%; *n*=4) (e.g., industry and construction). Only 1 participant worked in the primary sector (e.g., agriculture). Average net incomes per year were 16,636€ (SD=10,502), ranging from 1,750€ to 41,754€. The majority of the participants were not religious/spiritual (*n*=9; 81.9%). Half of them (*n*=5; 54.5%) had previously sought help for gambling problems and 27.3% (*n*=3) for other reasons (e.g., anxiety and depressive symptoms; see Table 3).

The mean age of onset of the gambling behavior was 26.18 years (SD=8.51), which ranged from 10 to 38. The mean age at which the participants perceived gambling behavior as problematic was 30.27 years (SD=9.57), ranging from 18 to 52 years. Most participants did not have a family history of problem gambling (n=7; 63.6%) or substance-use disorders (n=9; 81.8%). However, 4 (36.4%) of them presented a family history of gambling problems and 2 (18.2%) presented substance-use addictions. The main gambling behavior types were mostly sports betting (n=5; 45.5%) and slot machines (n=4; 36.4%). Poker (n=1; 9.1%) and roulette (n=1; 9.1%) were less frequent. The gambling format was mostly only online (n=5; 45.5%), followed by only onsite (n=3; 27.3%), or combining both online and onsite (n=3; 27.3%). Almost all the participants had economical debts before starting the intervention (n=10; 90.9%). Of those who had economical debts, the average amount of debts was 14,818.01€ (SD=19,024.16), which ranged from 400€ to 61,457.70€. The average number of days without gambling at pre-treatment was 14.4 (SD=16.73), ranging from 0 to 45 days. Gambling history and other related variables are summarized in Table 4.

All the participants included in the study suffered from pathological gambling. The participants' average gambling severity (NODS questionnaire) in the past 12 months was 9.7 (SD=.47), ranging from 9 to 10. Three participants (27.3%) only presented a diagnosis of gambling disorder, while the remaining participants (n=8; 72.7%) showed comorbidity with other psychological disorders. Specifically, 3 (27.3%) presented one comorbid problem, 3 (27.3%) had two comorbid disorders, and 3 (27.3%) had three comorbid diagnoses. The most frequent comorbid disorders were major depressive disorder (n=7), followed by low suicidality risk (n=5), panic disorder (n=2), alcohol use disorder (n=2), generalized anxiety disorder (n=1), binge-eating disorder (n=1), and substance use disorder (cocaine) (n=1). Most of the participants suffered comorbidity with anxiety symptoms (63.6%; n=7), (HADS questionnaire), but did not take medication for anxiety symptoms (n=10; 90.9%).

Before beginning the intervention, 10 participants (90.9%) were in the stage of preparation/action (URICA questionnaire) and presented a low perceived ability to deal with gambling urges when they faced risky situations (GSEQ questionnaire). They also reported experiencing an impact of gambling on their psychological/emotional quality of life (QLI questionnaire). The descriptive information (i.e., means, standard deviations, and ranges) for the clinical variables and quality of life is shown in Table 5.

Table 3. Participants' sociodemographic data and history of psychotherapy.

Gender, n (%)	
Male	10 (90.9)
Female	1 (9.1)
Age, mean (SD)	41 (13)
Marital status, n (%)	
Married/in a relationship	9 (81.9)
Single	2 (18.2)
Educational level accomplished, n (%)	
Elementary education	2 (18.2)
Higher education	9 (81.8)
Employment status, n (%)	
Employed	7 (63.6)
Unemployed	1 (9.1)
On temporary leave	1 (9.1)
On long-term sick leave	1 (9.1)
Retired	1 (9.1)
Net incomes per year, mean (SD)	16636€(10502)
Religious/spiritual beliefs, n (%)	
None or slightly	9 (81.9)
Very much	2 (18.2)
Previous psychological assistance for GD, n (%)	5 (54.5)
Previous psychological assistance for other reasons, n (%)	3 (27.3)

Table 4. Gambling history and other related variables at pre-treatment.

Age of onset of gambling behavior, mean (SD)	26.18 (8.51)
Age of perceiving gambling as problematic behavior, mean (SD)	30.27 (9.57)
Family history of problem gambling, n (%)	
Yes	4 (36.4)
No	7 (63.6)
Family history of substance-use disorders, n (%)	
Yes	2 (18.2)
No	9 (81.8)
Main gambling behavior, n (%)	
Sports betting	5 (45.5)
Slot machines	4 (36.4)
Poker	1 (9.1)
Roulette	1 (9.1)
Gambling format, n (%)	
Land-based	3 (27.3)
Online	5 (45.5)
Both	3 (27.3)
Economical debts, n (%)	
Yes	10 (90.9)
No	1 (9.1)
Amount of debts (€), mean (SD)	14,818.01(19,024.16)
Number of days without gambling mean (SD)	14.4 (16.73)

Table 5. Mean, standard deviation (SD), and range of the clinical variables and quality of life.

	Mean	SD	Range
Gambling severity			
NODS (past year)	9.7	.47	9 - 10
GSAS total score (past week)	20.36	12.96	3 - 44
Gambling impulsivity (GSAS)	6.45	4.76	0 - 16
Readiness to change (URICA)	12.1	1.3	9.4 - 13.7
Gambling self-efficacy (GSEQ)	38.4	24.2	15 - 100
Quality of life (QLI)	6.1	1.7	4.3 - 9.4

3.3. Other feasibility outcomes.

3.3.1. Treatment appropriateness.

According to the treatment expectations questionnaire (Borkovec & Nau, 1972), the participants showed high expectations towards the treatment before beginning the intervention (i.e., anticipated appropriateness). The mean score obtained was 52.55 (SD=7.69) in a scale ranging from 36 to 60. The treatment was found to be logical (M=9.2; SD=1.3), potentially satisfactory (M= 9.1; SD=1.3), likely to be recommended to others (M=9.4; SD=1.2), useful for the patient's problem (M=9; SD=1.3), useful in treating other problems (M=8.5; SD=1.6), and non-invasive (M=1.6; SD=2.5). Scores ranged from 6 to 10 in all the items except in the aversiveness item, which varies from 0 to 7 and is the only item where lower scores are preferred. These results are shown in Figure 7.
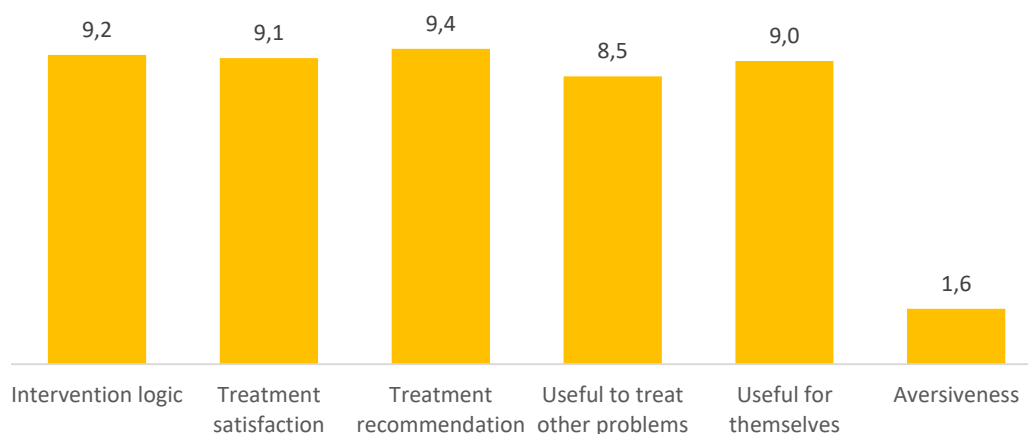
Figure 7. Mean scores of the treatment expectations scale items.

3.3.2 System usability and acceptability.

Concerning the system usability after the first use of the online platform (SUS; Brooke, 1996), the global score corresponds to a percentage and can range from 0 to 100. Results showed a mean of 83.6 (SD=15.5; range= 57.5 to 100) in the present study. According to the qualitative scale developed by Bangor et al. (2008), this means that the perceived system usability ranged from okay to the best imaginable, but would, on average, correspond to "Excellent". Three participants (27.3%) considered it "best imaginable", another 3 (27.3%) said usability was "excellent", 2 (18.2%) considered it to be "good", and 3 (27.3%) qualified it as "okay". None of the participants considered the usability to be "poor".

3.3.3. Adherence to the web platform, the phone calls, and the EMA/EMI tool, and fidelity.

Regarding the adherence to the use of the platform, this was adequate. Specifically, 73.3% of participants who were included in the study completed the first three modules. Table 6 shows the means (SD) and ranges of the number of days the participants accessed the platform, the duration (minutes) to complete each module, and the number of times each module was reviewed. The module that took the longest time to complete was module 2 (psychoeducation), followed by module 3 (stimulus control), module 1 (motivation for change), and finally the welcome module. Despite the recommendation to carry out a module per week, finishing modules 2 and 3 required more time, approximately a mean of two weeks. In addition, regarding the possibility to review the modules, reviewing was generally infrequent.

Table 6. Mean, standard deviations (SD), and range of the online platform usage up to module 3.

	GWM		SWM		M1		M2		M3	
	M (SD)	Range	M (SD)	Range	M(SD)	Range	M (SD)	Range	M (SD)	Range
Days used	2.45 (2.21)	1-8	1.18 (.40)	1-2	5 (5.62)	1-16	14.91 (20.19)	1-71	12.71 (11.10)	1-30
Duration (minutes)	378.55 (119.23)	249-640	239.36 (51.16)	134-323	537.2 (148.4)	316-743	896.73 (407.96)	457-1542	535 (263.77)	356-1085
Times reviewed	0.55 (1.04)	0-3	0.73 (1.27)	0-4	0.27 (.65)	0-2	0.91 (.30)	0-1	0.57 (1.13)	0-3

GWM: General Welcome Module; M: Mean; M1: Module 1; M2: Module 2; M3: Module 3; r: Range; SD: Standard deviation;

SWM: Specific Welcome Module.

The percentage of responded phone-calls was 66.57% (SD=27.58), which ranged from 12.5% to 100% across participants (see Figure 8). The average duration of the phone calls was 11.23 minutes (SD=6.32), ranging from 5.3 to 24.75 minutes. Means, SD, and the range of the duration of phone calls per participant are shown in Table 7.
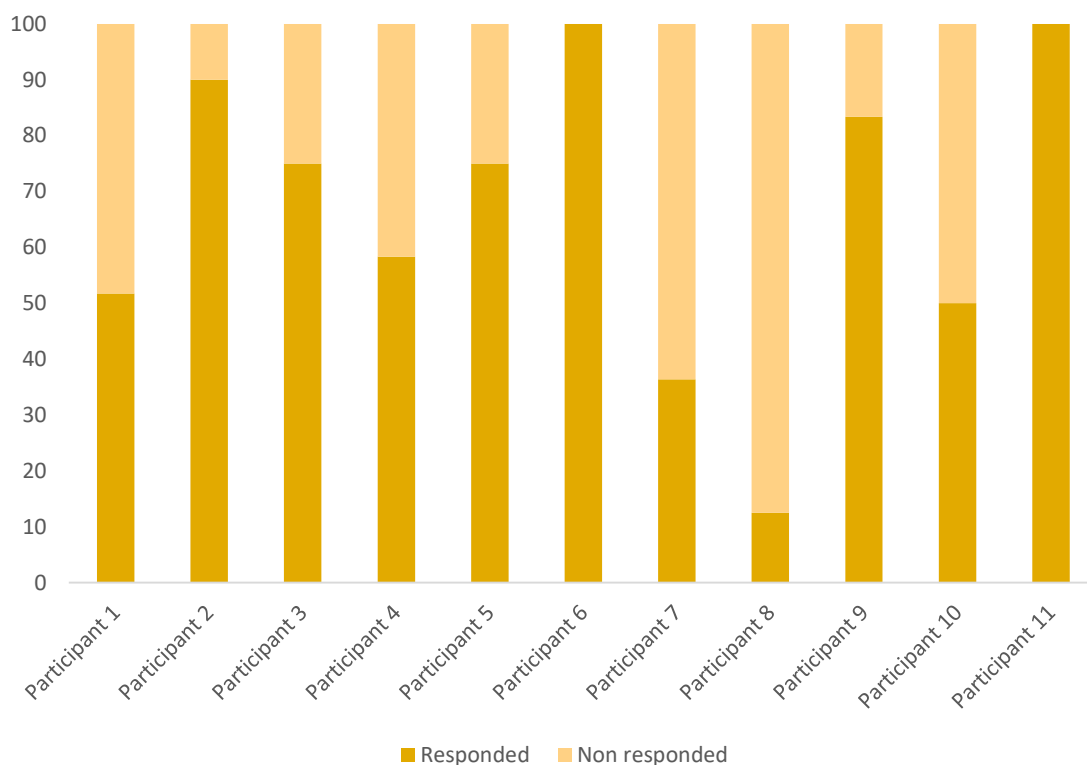
Figure 8. Response rates to the weekly phone calls per participant.

Table 7. Mean, standard deviations (SD), and range of the weekly support phone calls per participant.

	Mean	SD	Range
Participant 1	5.73	3.55	3-17
Participant 2	6.00	2.18	3-10
Participant 3	7.20	2.05	5-9
Participant 4	11.40	9.44	1-30
Participant 5	5.33	1.15	4-6
Participant 6	13.29	3.45	9-18
Participant 7	24.75	24.39	9-61
Participant 8	9.00	2.65	6-11
Participant 9	15.00	3.08	10-17
Participant 10	6.66	1.15	6-8
Participant 11	19.20	8.84	11-29

The response rates to the daily assessment with the EMA/EMI was 54.51% (SD=20.31; 20% to 84.73% range). Response rates per participant are shown in Figure 9.
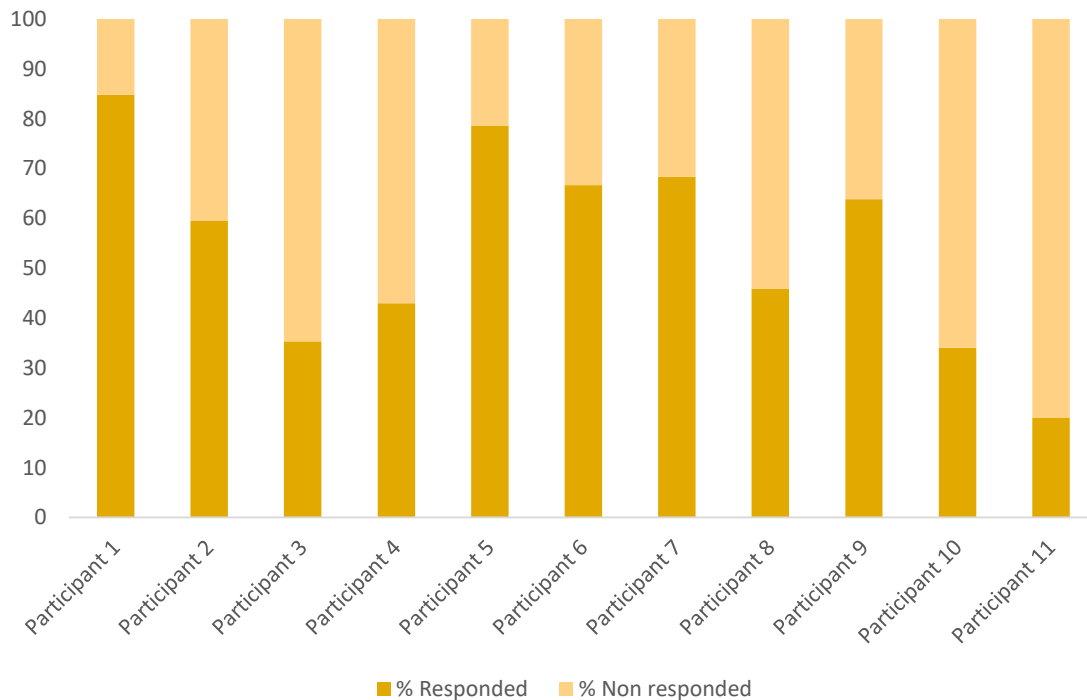
Figure 9. Response rates to the daily EMA/EMI per participant.

Regarding fidelity, there were not changes or adaptations on the program's administration format, the amount of modules presented or type of support. Nevertheless, we were more flexible with the amount of time allowed for each module and for the duration of the phone-calls.

3.4. Preliminary effectiveness data.

3.4.1. Progress of the post-module outcomes

Gambling urges measured by items 1 to 4 of the GSAS (Kim et al., 2009), which could range from 0 to 16, decreased from pre-treatment (Mdn=7) to post-module 3 (Mdn=2) and a Wilcoxon test indicated that the differences were significant (T=1.5 z=-2.12, *p*=.03). Gambling self-efficacy to cope with gambling urges also improved (i.e., increased) from pre-treatment (Mdn=36.25) to post-module 3 (Mdn=71.88) and the differences were also significant (T=26, z=-2.03, *p*=.04).

Improvements in gambling urges and perceived gambling self-efficacy were accompanied by a slight decrease in anxiety and depressive symptoms from post-module 1 (Mdn= 5 in both outcomes) to post-module 3 (Mdn=4.5 in both outcomes). However, a Wilcoxon test indicated these differences were not significant neither for anxiety (T=8, z=-.54, *p*=.59) nor for depressive symptoms (T=7.5, z=-.63, *p*=.52).

3.4.2. Utility of the EMA

Thanks to the EMA, we obtained daily information about the number of gambling episodes experienced during the day, their duration, and the money spent on gambling. Over the three modules, 5 participants (45.5%) informed of at least one gambling episode. Of these, the mean number of gambling episodes (relapses) was 2 (SD=1.41), ranging from 1 to 4. The average total amount of money spent on gambling by the 5 participants who reported relapses was 183.08 € (SD=187.79), ranging from 50 to 500€. Finally, the average duration of all gambling episodes of these 5 participants was 197.71 minutes (SD=136.62), varying from 45.25 to 392.33 minutes across individuals.

4. DISCUSSION

This study aimed to show preliminary data about the feasibility (i.e., reach, appropriateness, technology usability, fidelity, and adherence) of the "SIN JUGAR, GANAS" program for people suffering from problem gambling or GD. The study was set before conducting randomized controlled trial in order to investigate feasibility problems and to describe preliminary effectiveness data showing the progression of the participants on gambling urges, gambling self-efficacy, anxiety, and depressive symptoms. These variables were measured throughout the web-platform after each module and daily using an EMA. Overall, the feasibility results were encouraging, except for reach, and preliminary effectiveness supported some improvements, especially in the severity of gambling symptoms and self-efficacy to deal with gambling, but the results were more modest for anxiety and depression.

In terms of reach, 50% of the people who requested information were willing to participate. However, of these, only 19.8% (n=11) continued and completed the three modules. Even though we used of a broad spectrum of dissemination strategies (e.g., professional and non-professional social networks, press and radio, health centers, and gambling-related organizations, and associations), reach was problematic. One thing that emerged from this study was that the majority of potential participants was mainly searched through online means, even though some non-digital strategies were used. This demonstrates that, for future similar research, is not feasible to conduct a recruitment process mostly based on the Internet. It would be important to have access to local associations and services related with the treatment of addictions.

The sociodemographic and clinical profile of the sample corresponded mostly to men (90.9%), with a mean age of 41 years, married or in a relationship, who accomplished higher education level studies, and who were employed. All the participants were pathological gamblers according to the NODS (Becoña, 2004; Gerstein et al., 1999), which assessed gambling symptomatology during the previous 12 months. Although they were involved in gambling activities since the mean age of 26, they perceived it as a problematic behavior at a mean age of 30 years, after having approximately four years of gambling history. The main gambling behavior corresponded to sports betting and slot machines, in an online format or combining it also with a land-based format. There was a lower percentage of participants gambling only in an onsite format. Most of them

(90.9%) reported having economical debts. Our results are in the same line with previous literature, which supports the representativeness of the sample obtained with our recruitment procedures–which would be positive for reach purposes. The sociodemographic characteristics of our sample are similar to those of Aragay et al. (2021), in which the overall results indicated that participants had a mean age of 45 years, 94.3% were men, they generally had a stable partner, they were employed, and they indicated an age of gambling onset of approximately 26 years and a gambling history of approximately 5 years. Concerning the type of game and the modality, the most common gambling modes in 2019 in Spain were online sports-betting (31%) and land-based slot-machines (21%) (Dirección General de Ordenación del Juego, 2019; Jiménez-Murcia, Fernández-Aranda, Granero, & Menchón, 2014), which is again consistent with our sample characteristics.

Online gambling is a modality that is becoming increasingly popular and could raise the risk of developing a GD due to its accessibility and the availability of different types of online games (e.g., sports betting, poker, casino games, bingo, and gambling machines) (Aragay et al., 2021; Chóliz, 2016). Sports betting is one of the most prevalent types of game together slot machines, but with a tendency towards the online format. In our study, most of the participants reported they had accomplished university studies. However, past research which analyzed the profile of participants involved in different types of games found that the participants had generally completed primary or secondary education only (Aragay et al., 2021). Probably there are different types of profiles depending on the type of game participants are involved. In particular, individuals who bet on sports are more likely to be younger, single, with higher education, and have higher incomes compared to other types of gamblers (Cooper, Olfert, & Marmurek, 2022; Dowling, Merkouris, Greenwood, Oldenhof, Toumbourou, & Youssef, 2017; Jiménez-Murcia et al., 2021; Subramaniam et al., 2015). Aragay et al. (2021) also found this specific profile when analyzing only the group of sports bettors against the group who wagered on land-based slot machines.

Concerning the clinical outcomes profile, our results are similar to previous findings (Zhang, Yang, Guo, Cheok, Wong & Kandasami, 2018), in which approximately 98% of participants were pathological gamblers. Several studies indicated that gamblers often have difficulties recognizing their gambling problems (Suurvali et al., 2009) and a

high percentage of gamblers sought help when gambling severity was already very severe and there was a high impairment or interference in their quality of life (Petry, Stinson & Grant, 2005). Aragay et al. (2021) indicated that the overall duration of the GD before the treatment initiation, including online sports betting and land-based slot-machines gamblers, is over five years. Considering only the sports betting gamblers, this period was shorter, which points to different profiles according to the type of gambling behavior. Thus, the sample is representative of the target population according to previous literature (Shaw et al., 2019).

Recruitment and reach difficulties could be influenced by this tendency to ignore the gambling problem until it is very severe. People often seek help when they are in the action stage of the readiness to change and experiencing severe symptomatology. This is consistent with our findings, as the sample of the current study comprised pathological gamblers who were mostly in the action stage. The problem awareness could be associated with the fact that gambling is an acceptable and normalized leisure activity, a mean for feeling pleasure and gratification, and GD is defined as a more ego-syntonic disorder (el-Guebaly, Mudry, Zohar, Tavares, & Potenza, 2012). For instance, regarding sports-betting activities, there is an established relationship between fun, sports, competition, friendship, and other values associated with youth (Aragay et al., 2021), which probably makes it difficult to recognize when there is problematic gambling (Bijker, Booth, Merkouris, Dowling, & Rodda, 2022)

In terms of appropriateness and treatment valuation, the participants had high expectations before starting the intervention. They considered the treatment as logic, they perceived that it would satisfy them, they indicated that they would recommend it to others, they mentioned that it would be useful for the patient's problem and other problems, and the perceived aversiveness was generally low. These results are in line with other well-established works on the use of online treatments for depression (Romero et al., 2019), which is encouraging the present and future Internet-based treatments for pathological gambling.

Concerning fidelity, it was generally not necessary to carry out adaptations on the program's administration format, the amount of modules presented or type of support, but we were more flexible with the amount of time allowed for each module and for the duration of the phone-calls. We recommended to complete a module per week. The mean

duration per module ranged from 4 to 15 hours. However, the participants needed a mean of three days to complete the welcome module and the pre-treatment assessment, a mean of 5 days for module 1 (motivation for change), 15 days for module 2 (psychoeducation), and 13 days for module 3 (stimulus control). Thus, the psychoeducation and stimulus control module took longer than expected. While some previous work did not indicate this need to increase the duration of an Internet treatment for GD (Carlbring & Smith, 2008; Myrseth, Brunborg, Eidem, & Pallesen, 2013), more research is needed in this area to investigate in which contexts, for which programs, or for which participants it is important to be flexible with the duration of Internet interventions for GD. In other conditions, for example emotional disorders, we already have examples of studies recommending the completion of modules in larger periods (i.e., approximately every two weeks) (Mira et al., 2019), so flexibility might be recommendable.

The average adherence to phone-calls was 66.67% and their mean duration was 11.23 minutes, ranging from 5 to 25 minutes. This duration was also longer than planned, which affects fidelity. Phone calls took longer when participants presented lapses because the therapist had to make more efforts to motivate the participants to continue with the treatment and to avoid gambling again. The duration of phone calls in previous studies regarding GD treatment that included therapist support ranged from 15 to 45 minutes, so the reported results in the current study are in accordance with previous literature (Carlbring & Smith, 2008; Castren, Pankakoski, Tamminen, Lipsanen, Ladouceur, & Lahti, 2013; Myrseth et al., 2013).

Treatment adherence is an important issue to address because treatment drop-out rates are high in internet interventions (Pfund, Peter, McAfee, Ginley, Whelan, & Meyers, 2021). Although the results regarding the contribution of this therapeutic support for self-guided interventions needs more research, some studies report evidence that therapeutic support (e.g., via e-mails, phone-calls, or other channels during therapy) could result in better effects (Petry, Ginley & Rash, 2017; Rash & Petty, 2014; Sagoe et al., 2021). Even though the response rates to the phone calls was not always satisfactory, the overall results would support their inclusion in future studies.

In addition to the adherence with the treatment, the adherence to the daily EMA/EMI responses was also modest (i.e., 54.51% of responses provided). These findings are in the same line as Hawker et al. (2021), who found compliance rates for

EMA of 51% and EMI of 15%. This suggests that daily evaluation has to be improved, maybe with gamification elements and a sense of utility. Interestingly, though, the EMA allowed us to detect that half of the sample did presented alarms associated to lapses. In total, 45.5% of the participants reported a mean of two lapses and a range that oscillated from 1 to 4, with a mean duration of approximately 3 hours and the average of money spent was 183€. Thus, this EMA and the subsequent EMI system seems appropriate to motivate the patients to avoid gambling again after a lapse/relapse.

Finally, regarding the preliminary results of treatment efficacy, there were significant improvements in the gambling urges and the perceived self-efficacy to cope with gambling urges from pre-treatment to post-module 3. Gambling urges decreased while participants perceived themselves as more capable to deal with gambling-related high-risk situations. In addition, we also found a non-significant tendency of the participants to improve in anxiety (OASIS; Campbell-Sills et al., 2009; González-Robles et al., 2018) and depressive symptomatology (ODSIS; Bentley et al., 2014; Mira, González-Robles et al., 2019). These are encouraging preliminary results that are in the same line as Hawker et al. (2021), who reported reductions in the average of the gambling episodes, intensity of gambling urges and frequency, and a rise in gambling self-efficacy over the intervention period using an internet program.

This study presents some limitations. First, the sample size was small and we report descriptive preliminary results about feasibility and preliminary effectiveness of this program in relation to the first three modules only. Therefore, these results should be considered with caution and could be modified if the full-length intervention is administered. Nevertheless, this study makes substantial contributions by showing that it might be feasible to continue with this research line, especially if local associations or clinics are involved. The study also showed preliminary evidence regarding the program's utility. However, it also evidenced the need to adapt the program's conditions, such as increasing time per module to two weeks approximately and extending the duration of the weekly phone calls when lapses occur. Another limitation refers to the assessment instruments used, which consisted of self-report measures only. Thus, response bias could be present, which is relevant considering the characteristics of some persons with GD, who sometimes omit and lie about their gambling behavior to others, as mentioned in the DSM-5 gambling disorder criteria. Thus, although co-therapists are considered in the

treatment process to support the patients on the main therapeutic components (e.g., control stimulus and exposure with response prevention), it would be interesting to consider their participation in the EMAs to contrast the self-report information. Despite these shortcomings and the recruitment and reach difficulties, probably due to the complexity of GD, the external and internal difficulties in seeking help and the technological profile of people suffering GD, the current online treatment shows preliminary data about its excellent appropriateness and usability. Moreover, it shows preliminary data about its generally acceptable adherence and potential utility to reduce gambling symptomatology in people from different Spanish-speaking countries who could not receive help in another way due to geographical barriers, lack of time, and insufficient resources, among other reasons.

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The goal of the current Ph.D. thesis was to advance our understanding of the evaluation and treatment of GD by incorporating ICT (e.g., the Internet and smartphone applications). This objective led to the establishment of various general goals.

The first aim was to validate a Spanish adaptation of the 'Gambling Symptom Assessment Scale (G-SAS),' determining its psychometric proprieties in people with a recent history of gambling behavior (Chapter 1). Although there has been uncertainty about the G-SAS factor structure, suggesting one- to three-factor solutions (Kalkan and Griffiths, 2021; Ong et al., 2016; Yokomitsu and Kamimura, 2019), four dimensions comprised the scale's ideal fit in our sample (gambling-related symptoms, control of gambling urges/ thoughts, interference, and arousal). Our findings are comparable to those of Kalkan and Griffiths (2021), who discovered a three-factor G-SAS solution. However, we found that symptoms and their actual impact might be two different components, which coincides with diagnostic manuals of reference (e.g., CIE or DSM). The construct validity and the psychometric and conceptual adequacy of our Spanish adaptation of the G-SAS were supported. These results agree with earlier studies and support the notion that the G-SAS assesses the construct it is intended to (Ledgerwood, Dyshniku, McCarthy, Ostojic-Aitkens, Forfitt and Rumble, 2020; Manning, Gomez, Guo, Lo, Koh & Wong, 2012; Yokomitsu et al., 2019). Therefore, it could be regarded as an appropriate instrument to assess gambling symptomatology in the short term for research and therapeutic purposes. It would enable researchers and clinicians to track patient improvements according to the pattern of change in each category of symptoms.

The second objective was to develop and validate the 'Emotional Gambling Scale (EGS),' a tool that measures a new construct called 'emotional gambling,' and establish its psychometric properties and the best cut-off points (Chapter 2). This study proposes a 55-item scale that evaluates, on a 5-point Likert scale, the extent to which various emotions contributed to the desire to gamble in the previous three months. EGS presented a two-factor solution (positive and negative emotions), good internal consistency estimates in both factors (positive emotions, α=.96; and negative emotions, α=.98), good

evidence of construct validity, and an ideal cut-off of 16 for both categories, with a reasonable balance between sensitivity and specificity to distinguish between problematic and non-problematic 'emotional gambling'. Previous research reports that gambling-related urges strongly predict relapses in problem gambling and are highly correlated with gambling episodes (Hawker et al., 2021; Oei & Gordon, 2008; Smith, Battersby, Pols, Harvey, Oakes, & Baigent, 2015). Thus, evaluating this new concept of 'emotional gambling' might help clinicians and patients to recognize and acknowledge the feelings and emotions that may cause more intense gambling urges, in order to deal with them in an appropriate way and prevent possible lapses.

The third aim was to explain how the 'symptoms app,' a location-based ICT system, was employed during the SC and ERP therapeutic components to treat two patients suffering from GD. Additionally, we performed a qualitative analysis to find out the patients' opinions of the app's use (Chapter 3). We explained that therapists could configure relevant gambling-related places through the Symptoms platform. If participants were located there, they received an EMI consisting of personalized messages associated with leaving the situation (in the SC component) or staying until the gambling urges decreased, thus preventing the response of gambling behavior (during the exposure with the response prevention treatment component). Qualitative results showed that participants reported positive expectations and experienced high satisfaction levels, rating the system's usability between "excellent" and "best imaginable", which is consistent with other research studies (Santana & Fontenelle, 2011). The app was found to be helpful to the patients during the SC and ERP components. They stressed that feeling monitored and supported at all times helped them to prevent relapses, be more confident about abstaining, and become habituated to urges. According to previous literature, such as Oakes, Pols & Lawn (2019) and Jiménez-Murcia et al. (2017), support is relevant in treating GD. Thus, the LBT-based ICT system is a well-accepted tool and could be an important innovation to continue to explore, especially if it enhances adherence rates and efficacy.

The fourth objective was to design and register the "SIN JUGAR, GANAS" program, an online psychological intervention for GD, in the office for research and technology development cooperation at the "Universitat Jaume I". Additionally, we explain the research protocol in which this web-based program is used (Chapter 4). This

program was designed based on previous Internet-based interventions that included CBT and elements from CBT extensions such as mindfulness and emotion regulation, with therapeutic support applied by telephone and the use of EMA/EMIs (Bücker et al., 2018; Carlbring & Smit, 2008; Hawker et al., 2021). We planned a randomized controlled trial design, mainly following a study of reference conducted in Sweden by Carlbring & Smit (2008). However, we thought it would be better to first explore this online program's feasibility in a non-randomized pilot feasibility study design. Accordingly, the fifth objective corresponded to the feasibility study of the "SIN JUGAR, GANAS" program enhanced with EMA/EMI and supported by brief phone calls. We present preliminary feasibility and effectiveness results during the first three modules (Chapter 5).

With regard to the feasibility study, we identified difficulties with reach when focusing mainly on online recruiting methods. In this line, previous literature also reported that people frequently seek assistance when they have severe gambling symptoms. There are difficulties with problem awareness because this is a more ego-syntonic disorder, and gambling activities are usually associated with leisure and gratification (Bijker et al., 2022; el-Guebaly et al., 2012). Therefore, it is difficult to reach people with less severe symptomatology (e.g., problem gamblers) to address the problem as early as possible with a good prognosis. Another barrier related to the reach is that we are probably limiting it to a specific population with a good technological profile. Others who did not handle ICTs might prefer other treatment alternatives. Despite these reach difficulties, the technology's usability after the initial use and the treatment expectations (i.e., perceived appropriateness) were excellent. There was no need to adapt the original software to deliver the treatment (i.e., fidelity), but we were more flexible in the web-platform use duration and the phone-calls required time. The fact that 73.3% of the participants in the study completed all three modules indicates that adherence to the online treatment was adequate.

In contrast with previous research studies (Carlbring & Smit, 2008; Myrseth, Brunborg, Eidem, & Pallesen, 2013), the present feasibility study results suggest that the intervention's time frame should be extended. The time frame is similar to that of Internet-based programs that encourage participants to complete one module every two weeks to treat emotional problems (Mira et al., 2019). It would also be necessary to increase the time spent on phone-call support in the presence of lapses, based on previous literature

where the phone calls lasted from 15 to 45 minutes (Carlbring & Smit, 2008; Castren et al., 2013; Myrseth et al., 2013). Furthermore, in this study, therapeutic support was relevant for maintaining adherence rates. Although there are indications of the benefits of therapist support for GD, this problem has not been thoroughly investigated, and more research based on more rigorous designs is required (Goslar et al., 2017). Finally, at 54.51% and 66.67%, respectively, the average response rates to the EMAs and the weekly phone calls were relatively low compared to adherence to the web platform. In sum, despite difficulties with reach and EMAs and phone-call support, there were good results in terms of appropriateness, and commitment to the online platform. Moreover, preliminary efficacy findings indicate that, after completing the three modules, there were noteworthy reductions in gambling urges and self-efficacy to manage them, as well as a slight but not significant decrease in anxiety and depressive symptoms.

Limitations

Several limitations of the studies cited in this thesis must be considered to evaluate the findings.

First, with regard to the GSAS validation, the study used data from people in the general population who had recently gambled, instead of a clinical sample of people with GD. Thus, it is relevant to know that these results and factor structure are not necessarily generalizable to people with only highly severe gambling profiles. In addition, because this instrument is a self-report tool, biases such as social desirability cannot be dismissed entirely, and even though the period assessed is shorter (the past seven days) compared to other instruments such as the NODS or PGSI (e.g., 3 or 12 months), recall bias can also exist. Furthermore, in the case of the EGS validation, it was also conducted in the general population involved in gambling activities during the previous three months, and so it is necessary to be cautious about generalizing the results obtained to gamblers with severe symptoms. Moreover, on the EGS, sensitivity to change and test-retest reliability were not analyzed due to the study's cross-sectional design. Finally, on both the GSAS and EGS, because they were responded to online, we were limited to a specific sample that handles ICT. Therefore, samples that lack technical knowledge or Internet access are probably underrepresented in these studies.

Regarding the qualitative study of clients' experiences using a location-based ICT system during the SC and ERP therapeutic components, the main shortcoming is its design. We provide indicators about the participants' acceptance, satisfaction, and usability ratings, but we cannot draw robust and generalizable conclusions. However, we consider that it is a good starting point for the innovation in the treatment of GD through ICTs.

Taking the protocol study into account, the sample size for some study objectives is too small to analyze differential efficacy depending on the gambling severity. In addition, using a waiting list control group can produce an unspecific effect of the intervention (Cuijpers & Cristea, 2016) that cannot be controlled.

Finally, regarding the feasibility study, the sample size is small, and we show descriptive preliminary findings on the feasibility and effectiveness of this program during the first three modules, and so the results should be considered with caution.

Strengths

The current thesis has the following strengths:

- The Spanish version of the G-SAS was developed following a back translation process.
- The G-SAS was validated in the general population, and it is advantageous to have a method to measure the severity of gambling symptoms that can be used for all gamblers, and not just the most extreme cases.
- Exploratory factor analysis was carried out, construct validity was investigated, and the psychometric and conceptual adequacy of the Spanish G-SAS adaptation were all confirmed.
- Clinicians can use the four G-SAS dimensions (gambling-related symptoms, control of gambling urges/thoughts, interference, and arousal) to create tailored patient profiles and track patient improvement based on the variation in each subgroup of symptoms over time.
- Using qualified experts to create the EGS elements helped to strengthen our judgments about the items' representativeness in terms of the domain of interest.

- Regarding the EGS, an exploratory factor analysis was also conducted, and construct validity was shown. In addition, we analyzed the optimal thresholds for pleasant and unpleasant emotions that may contribute to having stronger gambling desires associated with problem gambling.

- For both the G-SAS and EGS, the sample sizes were adequate, according to previous literature (Clark & Watson, 1995; Comrey, 1988; Guadagnoli & Velicer, 1988; Nunnaly, 1878).

- The qualitative study about clients' opinions and experiences using an LBT-based ICT system during SC and ERP was conducted based on the standards outlined in the CQR guidelines (Hill, Thompson, & Williams, 1997), in terms of obtaining, coding, and evaluating qualitative data and establishing the proper team to reach agreements and consensus about domains, categories, and core ideas.

- It contributes with one of the advanced functionalities of the smartphones to reinforce two core components in the treatment of GD, stimulus control and exposure with response prevention, where dropouts or relapses may occur (Jiménez-Murcia et al., 2012).

- The online assessment and intervention protocol ("SIN JUGAR, GANAS" program) was designed and registered in the office for research and technology development cooperation at the "Universitat Jaume I". It is a new proposal to increase accessibility to psychological treatments for GD. In addition, the knowledge could be transferred and integrated into online healthcare platforms.

- In the study protocol for a randomized controlled trial, eligibility criteria, the intervention (web platform and EMI) and therapeutic support, assessment measures and time frames, and specific analyses were described in detail. In addition, the sample size was estimated using the G*Power tool (Buchner et al., 2014) a priori in order to achieve sufficient power to detect clinical significance and consider a dropout rate of 60%, following the Merkouris et al. (2017) recommendation.

- Before conducting the randomized controlled trial designed, a pilot feasibility study was carried out, considering the three first modules, to assess whether it was viable to proceed as planned, taking previous literature into account, as (Aschbrenner, Kruse, Gallo, & Plano-Clark, 2022) recommended.

Conclusions

The main conclusions of the studies included in the present dissertation are the following:

- The Gambling Symptom Assessment Scale (G-SAS) presented a four-factor structure (gambling-related symptoms, control of gambling urges/ thoughts, interference, and arousal). The construct validity and its psychometric and conceptual adequacy were confirmed.

- The Emotional Gambling Scale (EGS) offered a two-factor solution (positive and negative emotions), good internal consistency estimates in both factors (positive emotions, =.96; and negative emotions, =.98), and good evidence of construct validity. In addition, to distinguish between problematic and non-problematic emotional gambling, an optimal cut-off of 16 was obtained for both categories.

- The qualitative study, which uses the Symptoms app, showed that this LBT-based ICT system is well-accepted by participants as an adjunct tool in SC and ERP therapeutic component delivery in a face-to-face CBT-based intervention. It yielded high levels of satisfaction and favorable expectations, with the system's usability ranging from "excellent" to "best imaginable". Moreover, participants thought it served as accompaniment and protection, and feeling observed helped them to avoid lapses and relapses and become habituated to gambling urges.

- The 'SIN JUGAR GANAS' program was developed, and a randomized controlled trial study protocol was published, mainly following a study conducted in Sweden (Carlbring & Smit, 2008). However, we decided that it would be appropriate to initially investigate the viability of this online program in a non-randomized pilot feasibility study design before conducting the randomized controlled trial. Preliminary data showed difficulties in the reach and modest results in the adherence to EMA/EMI and weekly phone calls. However, good results were found in terms of compliance with the web platform, appropriateness and usability, and preliminary efficacy outcomes (e.g., gambling urges and self-efficacy) from pre-treatment to post-module 3.

Future lines of research

As previously mentioned in the present thesis, the evaluation research field for GD needs more attention. Therefore, it is important to continue to investigate this area in order to improve the existing assessment measures or propose new ones because this will affect the efficacy in treating GD.

Regarding the GSAS and EGS measures, future research could focus on their validation in a clinical sample diagnosed with GD. Moreover, these instruments could be adapted and tested in the context of ecological momentary assessment for daily evaluation of symptoms and possible changes during the intervention, which would help to address recall bias. Finally, following the recommendations of Boateng, Neilands, Frongillo, A., Melgar-Quiñonez, & Young (2018) for developing scales, future research could assess sensitivity to change and test-retest reliability indexes by considering longitudinal rather than cross-sectional designs.

Although the GD intervention research has received more attention than the assessment area, it is still necessary to continue to investigate how to provide more accessible and cost-effective treatments and improve the quality and adherence rates. Internet-based programs and Smartphone apps offer new possibilities to achieve these objectives (McDonald, Eccles, Fallahkhair, & Critchley, 2020; Miralles et al., 2020). Our results of the qualitative study about the clients' experiences using a location-based ICT system during the SC and ERP therapeutic components showed positive expectations and high satisfaction levels, with system usability falling between "excellent" and "best imaginable". The system was perceived as helpful for preventing lapses, due to its accompanying and support functions. Smartphone apps and sensing capabilities in GD treatments are a field to explore further. It would be interesting to conduct studies with larger samples with more robust designs, including a control group, to study acceptability, usability, and whether the efficacy and adherence rates are affected. In addition, the app's function is being developed with more complex content, such as multimedia resources (e.g., images, videos), or by adding personalized messages at different time points of the exposure component (at the beginning, in the middle, or at the end of the exposure session), depending on the gambling urge responses.

Regarding the 'SIN JUGAR, GANAS' program and the non-randomized pilot feasibility study we presented, we found that it is viable to continue the research with this type of online therapy, making the necessary adaptations after considering the data from the feasibility study. However, when conducting more rigorous designs (e.g., randomized controlled trials), the recruitment process should focus on contacting different addiction centers and health services, in addition to using online recruitment methods.

Finally, several studies have demonstrated that other ICTs, such as virtual reality and serious games, showed promising results, in terms of efficacy on different outcomes (e.g., gambling severity, general psychopathological state, relapses) and improved treatment adherence rates, as an adjunct to traditional CBT intervention (Giordano et al., 2022; Mena-Moreno et al., 2022). In addition, Bouchard et al. (2017) also demonstrated that virtual reality could elicit desire and positive anticipation to gamble, and it could be used during the exposure therapeutic component to achieve gambling urge habituation. It is feasible and helpful in identifying risk situations and coping with them. Thus, if the 'SIN JUGAR, GANAS' program demonstrates its efficacy in future research, depending on the adherence rates, it would be interesting to explore whether the use of serious games or virtual reality would improve adherence and compliance with online delivered interventions during the ERP modules.

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ANNEXES

(Nombre) ....Juana María Bretón López.........................., como coautor/ coautora doy mi **autorización** a (Nombre del doctorando/doctoranda) Laura Díaz Sanahuja para la presentación de las siguientes publicaciones como parte de su tesis doctoral.

Relación de publicaciones:

Diaz-Sanahuja, L., Campos, D., Mira, A., Castilla, D., García-Palacios, A., & Bretón-López, J. M. (2021). Efficacy of an internet-based psychological intervention for problem gambling and gambling disorder: Study protocol for a randomized controlled trial. Internet interventions, 26, 100466.

Diaz-Sanahuja, L., Miralles, I., Granell, C., Mira, A., González-Pérez, A., Casteleyn, S., García-Palacios, A., & Bretón-López, J. (2022). Client's Experiences Using a Location-Based Technology ICT System during Gambling Treatments' Crucial Components: A Qualitative Study. International journal of environmental research and public health, 19(7), 3769.

Diaz-Sanahuja, L., Paredes-Mealla, M., Suso-Ribera, C., García-Palacios, A., & Bretón-López, J. (2022). Validation of a Spanish adaptation of the Gambling Symptom Assessment Scale (G-SAS) in persons with recent history of gambling. Journal of Gambling Studies [Manuscript submitted for publication].

Diaz-Sanahuja, L., Paredes-Mealla, M., Suso-Ribera, C., García-Palacios, A., Quero, S., & Bretón-López, J. (2022). Development and validation of the Spanish Emotional Gambling Scale in the general population. Journal of behavioural addictions [Manuscript submitted for publication].

Diaz-Sanahuja, L., Suso-Ribera, C., Lucas, I., Tur, C., Gual-Montolio, P., Paredes-Mealla, M., García-Palacios, A., & Bretón-López, J.(2022). A self-applied psychological treatment for problem and pathological gambling via the Internet: A pilot, feasibility study. Work in progress.

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Diaz-Sanahuja, L., Campos, D., Mira, A., Castilla, D., García-Palacios, A., & Bretón-López, J. M. (2021). Efficacy of an internet-based psychological intervention for problem gambling and gambling disorder: Study protocol for a randomized controlled trial. Internet interventions, 26, 100466.

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Relación de publicaciones:

Diaz-Sanahuja, L., Paredes-Mealla, M., Suso-Ribera, C., García-Palacios, A., & Bretón-López, J. M. (2022). Validation of a Spanish adaptation of the Gambling Symptom Assessment Scale (G-SAS) in persons with recent history of gambling. Submitted to the Journal of Gambling Studies.

Diaz-Sanahuja, L., Paredes-Mealla, M., Suso-Ribera, C., García-Palacios, A., Quero, S., & Bretón-López, J. M. (2022). Development and validation of the Emotional Gambling Scale (EGS) in a community sample from Spain with recent history of gambling. Submitted to the Journal of Behavioral Addictions.

Diaz-Sanahuja, L., Suso-Ribera, C., Lucas, I., Tur, C., Gual-Montolio, P., Paredes-Mealla, M., García-Palacios, A., & Bretón-López, J.(2022). Implementation of a self-applied psychological treatment for problem and pathological gambling via the Internet: A feasibility study. Work in progress.

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Relación de publicaciones:

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Diaz-Sanahuja, L., Miralles, I., Granell, C., Mira, A., González-Pérez, A., Casteleyn, S., García-Palacios, A., & Bretón-López, J. (2022). Client's Experiences Using a Location-Based Technology ICT System during Gambling Treatments' Crucial Components: A Qualitative Study. International journal of environmental research and public health, 19(7), 3769.

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Todo ello, atendiendo al artículo 28 del Reglamento de los estudios de doctorado de la Universitat Jaume I de Castelló, regulados por el RD 99/2011, en la Universitat Jaume I (Aprobado en la sesión nº 8/2020 del Consejo de Gobierno de 02 /10/2020):
        "(...)
4. En el caso de publicaciones conjuntas, todas las personas coautoras deberán manifestar explícitamente su autorización para que la doctoranda o doctorando presente el trabajo como parte de su tesis y la renuncia expresa a presentar este mismo trabajo como parte de otra tesis doctoral. Esta autorización se adjuntará como documentación en el momento del inicio de evaluación de la tesis.

(Nombre)................Carlos Granell Canut................, como coautor/ coautora doy mi **autorización** a (Nombre del doctorando/doctoranda) Laura Díaz Sanahuja.para la presentación de las siguientes publicaciones como parte de su tesis doctoral.

Relación de publicaciones:

Diaz-Sanahuja, L., Miralles, I., Granell, C., Mira, A., González-Pérez, A., Casteleyn, S., García-Palacios, A., & Bretón-López, J. (2022). Client's Experiences Using a Location-Based Technology ICT System during Gambling Treatments' Crucial Components: A Qualitative Study. International journal of environmental research and public health, 19(7), 3769.

Asimismo, **renuncio** a poder utilizar estas publicaciones como parte de otra tesis doctoral.

Y para que conste firmo el presente documento,

Lugar, fecha y firma

_____

CARLOS| GRANEL L|CANUT

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Todo ello, atendiendo al artículo 28 del Reglamento de los estudios de doctorado de la Universitat Jaume I de Castelló, regulados por el RD 99/2011, en la Universitat Jaume I (Aprobado en la sesión nº 8/2020 del Consejo de Gobierno de 02 /10/2020):

"(...)
4. En el caso de publicaciones conjuntas, todas las personas coautoras deberán manifestar explícitamente su autorización para que la doctoranda o doctorando presente el trabajo como parte de su tesis y la renuncia expresa a presentar este mismo trabajo como parte de otra tesis doctoral. Esta autorización se adjuntará como documentación en el momento del inicio de evaluación de la tesis.

(Nombre)...............Ignacio Miralles Tena..............., como coautor/ coautora doy mi **autorización** a (Nombre del doctorando/doctoranda) Laura Díaz Sanahuja para la presentación de las siguientes publicaciones como parte de su tesis doctoral.

Relación de publicaciones:

Diaz-Sanahuja, L., Miralles, I., Granell, C., Mira, A., González-Pérez, A., Casteleyn, S., García-Palacios, A., & Bretón-López, J. (2022). Client's Experiences Using a Location-Based Technology ICT System during Gambling Treatments' Crucial Components: A Qualitative Study. International journal of environmental research and public health, 19(7), 3769.

Asimismo, **renuncio** a poder utilizar estas publicaciones como parte de otra tesis doctoral.

Y para que conste firmo el presente documento,

IGNACIO|
MIRALLES|
TENA

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Nombre de reconocimiento (DN): cn=IGNACIO|MIRALLES|TENA, serialNumber=20462011S, givenName=IGNACIO, sn=MIRALLES TENA, ou=CIUDADANOS, o=ACCV, c=ES
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Lugar, fecha y firma

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Todo ello, atendiendo al artículo 28 del Reglamento de los estudios de doctorado de la Universitat Jaume I de Castelló, regulados por el RD 99/2011, en la Universitat Jaume I (Aprobado en la sesión nº 8/2020 del Consejo de Gobierno de 02 /10/2020):

"(…)
4. En el caso de publicaciones conjuntas, todas las personas coautoras deberán manifestar explícitamente su autorización para que la doctoranda o doctorando presente el trabajo como parte de su tesis y la renuncia expresa a presentar este mismo trabajo como parte de otra tesis doctoral. Esta autorización se adjuntará como documentación en el momento del inicio de evaluación de la tesis.

UNIVERSITAT JAUME I

Escola de Doctorat · ED

(Nombre)................Sven Casteleyn........................, como coautor/ coautora doy mi **autorización** a (Nombre del doctorando/doctoranda) ⎽Laura Díaz Sanahuja⎽para la presentación de las siguientes publicaciones como parte de su tesis doctoral.

Relación de publicaciones:

Diaz-Sanahuja, L., Miralles, I., Granell, C., Mira, A., González-Pérez, A., Casteleyn, S., García-Palacios, A., & Bretón-López, J. (2022). Client's Experiences Using a Location-Based Technology ICT System during Gambling Treatments' Crucial Components: A Qualitative Study. International journal of environmental research and public health, 19(7), 3769.

Asimismo, **renuncio** a poder utilizar estas publicaciones como parte de otra tesis doctoral.

Y para que conste firmo el presente documento,

SVEN| CASTELEYN

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SVEN|CASTELEYN
Date: 2022.06.23
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Lugar, fecha y firma
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Todo ello, atendiendo al artículo 28 del Reglamento de los estudios de doctorado de la Universitat Jaume I de Castelló, regulados por el RD 99/2011, en la Universitat Jaume I (Aprobado en la sesión nº 8/2020 del Consejo de Gobierno de 02 /10/2020):

"(…)

4. En el caso de publicaciones conjuntas, todas las personas coautoras deberán manifestar explícitamente su autorización para que la doctoranda o doctorando presente el trabajo como parte de su tesis y la renuncia expresa a presentar este mismo trabajo como parte de otra tesis doctoral. Esta autorización se adjuntará como documentación en el momento del inicio de evaluación de la tesis.

(Nombre).................................Diana Virginia Castilla López...................., como coautor/ coautora doy mi **autorización** a (Nombre del doctorando/doctoranda) Laura Díaz Sanahuja.para la presentación de las siguientes publicaciones como parte de su tesis doctoral.

Relación de publicaciones:

Diaz-Sanahuja, L., Campos, D., Mira, A., Castilla, D., García-Palacios, A., & Bretón-López, J. M. (2021). Efficacy of an internet-based psychological intervention for problem gambling and gambling disorder: Study protocol for a randomized controlled trial. Internet interventions, 26, 100466.

Asimismo, **renuncio** a poder utilizar estas publicaciones como parte de otra tesis doctoral.

Y para que conste firmo el presente documento,

DIANA VIRGINIA| CASTILLA|LOPEZ

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Nombre de reconocimiento (DN): cn=DIANA VIRGINIA|CASTILLA|LOPEZ, serialNumber=34833268K, givenName=DIANA VIRGINIA, sn=CASTILLA LOPEZ, ou=CIUDADANOS, o=ACCV, c=ES
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Valencia, 23 Junio 2022

_____

Todo ello, atendiendo al artículo 28 del Reglamento de los estudios de doctorado de la Universitat Jaume I de Castelló, regulados por el RD 99/2011, en la Universitat Jaume I (Aprobado en la sesión nº 8/2020 del Consejo de Gobierno de 02 /10/2020):
        "(...)
4. En el caso de publicaciones conjuntas, todas las personas coautoras deberán manifestar explícitamente su autorización para que la doctoranda o doctorando presente el trabajo como parte de su tesis y la renuncia expresa a presentar este mismo trabajo como parte de otra tesis doctoral. Esta autorización se adjuntará como documentación en el momento del inicio de evaluación de la tesis.

(Nombre)................Adriana Mira Pastor.................., como coautor/ coautora doy mi **autorización** a (Nombre del doctorando/doctoranda) Laura Díaz Sanahuja para la presentación de las siguientes publicaciones como parte de su tesis doctoral.

Relación de publicaciones:

Diaz-Sanahuja, L., Campos, D., Mira, A., Castilla, D., García-Palacios, A., & Bretón-López, J. M. (2021). Efficacy of an internet-based psychological intervention for problem gambling and gambling disorder: Study protocol for a randomized controlled trial. Internet interventions, 26, 100466.

Diaz-Sanahuja, L., Miralles, I., Granell, C., Mira, A., González-Pérez, A., Casteleyn, S.,García-Palacios, A., & Bretón-López, J. (2022). Client's Experiences Using a Location-Based Technology ICT System during Gambling Treatments' Crucial Components: A Qualitative Study. International journal of environmental research and public health, 19(7), 3769.

Asimismo, **renuncio** a poder utilizar estas publicaciones como parte de otra tesis doctoral.

Y para que conste firmo el presente documento,

ADRIANA|
MIRA|PASTOR

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Lugar, fecha y firma
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Todo ello, atendiendo al artículo 28 del Reglamento de los estudios de doctorado de la Universitat Jaume I de Castelló, regulados por el RD 99/2011, en la Universitat Jaume I (Aprobado en la sesión nº 8/2020 del Consejo de Gobierno de 02 /10/2020):
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(Nombre)......................Macarena Paredes Mealla......................, como coautor/ coautora doy mi **autorización** a (Nombre del doctorando/doctoranda) Laura Díaz Sanahuja para la presentación de las siguientes publicaciones como parte de su tesis doctoral.

Relación de publicaciones:

Diaz-Sanahuja, L., Paredes-Mealla, M., Suso-Ribera, C., García-Palacios, A., & Bretón-López, J. M. (2022). Validation of a Spanish adaptation of the Gambling Symptom Assessment Scale (G-SAS) in persons with recent history of gambling. Submitted to the Journal of Gambling Studies.

Diaz-Sanahuja, L., Paredes-Mealla, M., Suso-Ribera, C., García-Palacios, A., Quero, S. & Bretón-López, J. M. (2022). Development and validation of the Emotional Gambling Scale (EGS) in a community sample from Spain with recent history of gambling. Submitted to the Journal of Behavioral Addictions.

Diaz-Sanahuja, L., Suso-Ribera, C., Lucas, I., Tur, C., Gual-Montolio, P., Paredes-Mealla, M., García-Palacios, A., & Bretón-López, J.(2022). Implementation of a self-applied psychological treatment for problem and pathological gambling via the Internet: A feasibility study. Work in progress.

Asimismo, **renuncio** a poder utilizar estas publicaciones como parte de otra tesis doctoral.

Y para que conste firmo el presente documento,

DANA MACARENA| PAREDES| MEALLA

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Todo ello, atendiendo al artículo 28 del Reglamento de los estudios de doctorado de la Universitat Jaume I de Castelló, regulados por el RD 99/2011, en la Universitat Jaume I (Aprobado en la sesión nº 8/2020 del Consejo de Gobierno de 02 /10/2020):
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(Nombre)..................Patricia Gual Montolio.................., como coautor/ coautora doy mi **autorización** a (Nombre del doctorando/doctoranda) Laura Díaz Sanahuja para la presentación de las siguientes publicaciones como parte de su tesis doctoral.

Relación de publicaciones:

Diaz-Sanahuja, L., Suso-Ribera, C., Lucas, I., Tur, C., Gual-Montolio, P., Paredes-Mealla, M., García-Palacios, A., & Bretón-López, J.(2022). Implementation of a self-applied psychological treatment for problem and pathological gambling via the Internet: A feasibility study.

[Work in progress]

Asimismo, **renuncio** a poder utilizar estas publicaciones como parte de otra tesis doctoral.

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Lugar, fecha y firma

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GUAL|
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Todo ello, atendiendo al artículo 28 del Reglamento de los estudios de doctorado de la Universitat Jaume I de Castelló, regulados por el RD 99/2011, en la Universitat Jaume I (Aprobado en la sesión nº 8/2020 del Consejo de Gobierno de 02 /10/2020):
        "(...)
4. En el caso de publicaciones conjuntas, todas las personas coautoras deberán manifestar explícitamente su autorización para que la doctoranda o doctorando presente el trabajo como parte de su tesis y la renuncia expresa a presentar este mismo trabajo como parte de otra tesis doctoral. Esta autorización se adjuntará como documentación en el momento del inicio de evaluación de la tesis.

(Nombre)................Ignacio Lucas Adell................., como coautor/ coautora doy mi **autorización** a (Nombre del doctorando/doctoranda) Laura Díaz Sanahuja para la presentación de las siguientes publicaciones como parte de su tesis doctoral.

Relación de publicaciones:

Diaz-Sanahuja, L., Suso-Ribera, C., Lucas, I., Tur, C., Gual-Montolio, P., Paredes-Mealla, M., García-Palacios, A., & Bretón-López, J.(2022). Implementation of a self-applied psychological treatment for problem and pathological gambling via the Internet: A feasibility study. Work in progress.

Asimismo, **renuncio** a poder utilizar estas publicaciones como parte de otra tesis doctoral.

Y para que conste firmo el presente documento,

Lugar, fecha y firma

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ADELL
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LUCAS ADELL
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Todo ello, atendiendo al artículo 28 del Reglamento de los estudios de doctorado de la Universitat Jaume I de Castelló, regulados por el RD 99/2011, en la Universitat Jaume I (Aprobado en la sesión nº 8/2020 del Consejo de Gobierno de 02 /10/2020):
    "(...)
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(Nombre)...................... Cintia Tur Domenech ...., como coautor/ coautora doy mi **autorización** a (Nombre del doctorando/doctoranda) Laura Díaz Sanahuja para la presentación de las siguientes publicaciones como parte de su tesis doctoral.

Relación de publicaciones:

Diaz-Sanahuja, L., Suso-Ribera, C., Lucas, I., Tur, C., Gual-Montolio, P., Paredes-Mealla, M., García-Palacios, A., & Bretón-López, J.(2022). Implementation of a self-applied psychological treatment for problem and pathological gambling via the Internet: A feasibility study.

[Work in progress].

Asimismo, **renuncio** a poder utilizar estas publicaciones como parte de otra tesis doctoral.

Y para que conste firmo el presente documento,

Lugar, fecha y firma

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CINTIA TUR
DOMENECH -
NIF:***3277**
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Todo ello, atendiendo al artículo 28 del Reglamento de los estudios de doctorado de la Universitat Jaume I de Castelló, regulados por el RD 99/2011, en la Universitat Jaume I (Aprobado en la sesión nº 8/2020 del Consejo de Gobierno de 02 /10/2020):

"(...)

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(Nombre)..............Soledad Quero Castellano.........., como coautor/ coautora doy mi **autorización** a (Nombre del doctorando/doctoranda) _Laura Díaz Sanahuja_ para la presentación de las siguientes publicaciones como parte de su tesis doctoral.

Relación de publicaciones:

Diaz-Sanahuja, L., Paredes-Mealla, M., Suso-Ribera, C., García-Palacios, A., Quero, S., & Bretón-López, J. M. (2022). Development and validation of the Emotional Gambling Scale (EGS) in a community sample from Spain with recent history of gambling. Submitted to the Journal of Behavioral Addictions.

Asimismo, **renuncio** a poder utilizar estas publicaciones como parte de otra tesis doctoral.

Y para que conste firmo el presente documento,

SOLEDAD| QUERO| CASTELLANO

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Lugar, fecha y firma

Todo ello, atendiendo al artículo 28 del Reglamento de los estudios de doctorado de la Universitat Jaume I de Castelló, regulados por el RD 99/2011, en la Universitat Jaume I (Aprobado en la sesión nº 8/2020 del Consejo de Gobierno de 02 /10/2020):

"(...)

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303

Beatriz Susana Tomás Mallén, secretaria de la Comisión Deontológica de la Universitat Jaume I de Castellón de la Plana,

CERTIFICO; que la Comisión Deontológica de la Universitat Jaume I ha emitido informe sobre la tesis doctoral de Laura Díaz Sanahuja, con número de expediente "CD/17/2021" Validación de la Escala para la evaluación de los síntomas del trastorno por juego (G-SAS)., presentado por Juana Maria Bretón López, por considerar que cumple con las normas deontológicas exigidas.

Castellón de la Plana, 15 de abril de 2021

Beatriz Susana Tomás Mallén, secretaria de la Comisión Deontológica de la Universitat Jaume I de Castellón de la Plana,

CERTIFICO; que la Comisión Deontológica de la Universitat Jaume I ha emitido informe sobre el proyecto con número de expediente "CD/20/2021" SyMptOMS (Sensor and Mobile based Mental Health Solutions). , presentado por Juana Maria Bretón López, por considerar que cumple con las normas deontológicas exigidas.

Castellón de la Plana, 18 de marzo de 2021

Beatriz Tomás Mallén, secretaria de la Comisión Deontológica de la Universitat Jaume I de Castelló de la Plana,

CERTIFICO: Que la Comisión Deontológica de la Universitat Jaume I ha emitido informe FAVORABLE sobre el proyecto de tesis doctoral de Laura Díaz Sanahuja, con núm. de expediente CD/026/2019 y título "Eficacia de un programa de intervención para juego patológico a través de tecnologías de la información y la comunicación", presentado por Juana María Bretón López, por considerar que cumple las normes deontològics exigidas.

Castellón de la Plana, 2 de mayo de 2019

**INFORME DEL COMITÉ DE ÉTICA DE LA INVESTIGACIÓN SOBRE
PROYECTOS DE INVESTIGACIÓN BIOMÉDICA**

El Dr. Enric Sospedra Martínez, responsable de la Secretaría Técnica del Comité de Ética de la Investigación del Hospital Universitari de Bellvitge,

CERTIFICA

Que el Comité de Ética de la Investigación, en su reunión de fecha 26 de mayo de 2022 (Acta 11/22), tras examinar toda la documentación presentada sobre el proyecto de investigación con nuestra Ref. **PR053/22** titulado:

"ESTUDIO DE FIABILIDAD SOBRE UN PROGRAMA DE INTERVENCIÓN PARA JUEGO PATOLÓGICO A TRAVÉS DE TECNOLOGÍAS DE LA INFORMACIÓN Y LA COMUNICACIÓN",

Documentos con versiones:

Protocolo Labpsitec	Versión aprobada en fecha 17/03/2022
Protocolo Evaluación SIN JUGAR GANAS	Versión aprobada en fecha 17/03/2022
Protocolo Intervención SIN JUGAR GANAS	Versión aprobada en fecha 17/03/2022
Consentimiento Informado_SIN JUGAR, ganas	versión aprobada en fecha de 26/05/22

Presentado por la Dra. Susana Jiménez Murcia, del Servicio de Psiquiatría del Hospital Universitari de Bellvitge, como investigadora principal, y promovido por el Laboratorio de Psicología y Tecnología (LabPsiTec), de la Universidad Jaume I de Castellón, ha acordado emitir INFORME FAVORABLE al mencionado proyecto.

Que la composición actual del Comité de Ética de la Investigación es la siguiente:

Presidente	Dr. Francesc Esteve Urbano	Médico - Medicina Intensiva
Vicepresidenta	Dra. Pilar Hereu Boher	Médico - Farmacología Clínica
Secretario	Dr. Enric Sospedra Martínez	Farmacéutico - Farmacia Hospitalaria
Vocales:	Dr. Jordi Adamuz Tomás	Enfermero – Enfermería
	Sra. Anna Boix Traserra	Derecho - DPD
	Dra. Concepción Cañete Ramos	Médico - Neumología

Dr. José Luis Ferreiro Gutiérrez	Médico - Cardiología
Dra. Ana María Ferrer Artola	Farmacéutica - Miembro sanitario
Dr. Xavier Fulladosa Oliveras	Médico - Nefrología
Dra. Margarita García Martín	Médico - Oncología Médica
Dr. Carles Lladó i Carbonell	Médico - Urología
Dr. Josep Manel Llop Talaveron	Farmacéutico – Farmacia Hospitalaria
Dra. Sara Larriba Bartolomé	Farmacia - Sanitario
Sra. Sonia López Ortega	Graduado Social - Atención a la Ciudadanía
Dr. Sergio Morchón Ramos	Médico - Medicina Preventiva
Dr. Miguel Ángel Pavón Ribas	Biólogo- Miembro no sanitario
Dr. Joan Josep Queralt Jiménez	Jurista
Dra. Gemma Rodríguez Palomar	Farmacéutica – Atención Primaria
Dr. Petru Cristian Simon	Médico - Farmacología Clínica

Que este Comité cumple la legislación española vigente para este tipo de proyectos, así como las normas ICH y las Normas de Buena Práctica Clínica.

Que en dicha reunión del Comité de Ética de la Investigación se cumplió el quórum preceptivo legalmente.

Lo que firmo en L'Hospitalet de Llobregat, a 16 de junio de 2022.

SOSPEDRA MARTINEZ ENRIQUE - 36986426B

Signat digitalment per SOSPEDRA MARTINEZ ENRIQUE - 36986426B
DN: c=ES, serialNumber=IDCES-36986426B, givenName=ENRIQUE, sn=SOSPEDRA MARTINEZ, cn=SOSPEDRA MARTINEZ ENRIQUE - 36986426B
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Dr. Enric Sospedra Martínez

Generalitat de Catalunya

INFORMED CONSENT FOR THE STUDY OF CHAPTER 1 AND CHAPTER 2

¡Bienvenid@ a esta encuesta sobre tus experiencias con los juegos de apuestas!

Responde y te recompensaremos con 5 euros (tarjeta regalo de Decathlon.es)

Puedes participar si:

- Tienes al menos 18 años
- Has apostado dinero al menos una vez en los últimos 3 meses a juegos de azar (p.ej., apuestas deportivas, póquer, tragaperras, ruleta, lotería, rasca y gana, juegos online, etc.)
- Tienes la nacionalidad española

Para poder obtener la tarjeta regalo de Decathlon, debes completar todas las preguntas. No se entregará la tarjeta regalo en caso de detectar mediante las preguntas control que se ha respondido de forma aleatoria a la encuesta.

Todas las preguntas que te haremos y la forma de proteger tus datos han sido aprobados por el Comité de Ética de la Universidad Jaime I (número de expediente CD/17/2021).

Información básica sobre protección de datos	
Responsable del tratamiento	Universitat Jaume I. LabPsiTec del Grupo de Investigación de Psicopatología, Evaluación y Tratamiento de los Trastornos Emocionales.
Finalitat del tractament	Gestión de los datos personales (identificativos, e incentivos) de los participantes del proyecto "Validación de la Escala para la evaluación de los síntomas del trastorno por juego (G-SAS)".
Legitimación	La legitimación se basa en el consentimiento según el que se dispone en los 6.a) i 89 del RGPD, y en el interés público establecido en el artículo 1 de la Ley orgánica 6/2021, de 21 de diciembre, de Universidades. Los datos económicos de esta actividad de tratamiento se conservarán al amparo de la Ley 58/2003, de 17 de diciembre, General Tributaria.
Destinatarios	No se cederán datos a terceras partes derecho que será de obligación legal.
Derechos	Puedes ejercer tus derechos de acceso, rectificación, supresión y portabilidad, y la limitación o la oposición al tratamiento dirigiéndose a la Secretaría

	General de la UJI mediante el Registro Electrónico (https://ujiapps.uji.es/reg/rest/publicacion/solicitud_generica) o, presencialmente, a la Oficina de Información y Registro (InfoCampus), situada en el Ágora Universitaria- Locales 14-15.
Informacin adicional	Puede consultar la información adicional y detallada sobre este tratamiento de datos en https://www.uji.es/protecciodades/clausules/?t=I096

Para cualquier duda contacta con Laura Díaz (lsanahuj@uji.es; +34 964387651) o con el Delegado de Protección de Datos Contacto de la Universidad Jaume I (protecciondatos@uji.es)

MANIFIESTO:

- Que he sido informado/a suficientemente de las pruebas que recibiré como consecuencia de la investigación que se practica.
- Que estoy de acuerdo y acepto libre y voluntariamente participar en este estudio y me comprometo a seguir las prescripciones y a formalizar los cuestionarios que se presenten.
- Que puedo abandonar la colaboración en el momento que lo desee.
- Que, salvaguardando siempre el derecho a la intimidad, acepto que los datos que se puedan derivar de esta investigación puedan ser utilizados para la divulgación científica.
- Me han informado que LabPsiTec, del grupo de investigación de Psicopatología, Evaluación y Tratamiento de los trastornos emocionales de la Universitat Jaume I llevará a cabo el tratamiento de tus datos personales de acuerdo al Reglamento General de Protección de Datos (UE) 2016/679.

☐ CONFIRMO que cumplo con los criterios anteriores y ACEPTO responder a la encuesta

☐ CONFIRMO que cumplo con los criterios anteriores y ACEPTO responder a la encuesta

INFORMED CONSENT FOR THE STUDY OF CHAPTER 3

Nombre y Apellidos:

MANIFIESTO:

1. Que he sido informado suficientemente del sistema de geolocalización que se empleará como parte del tratamiento que voy a seguir en el Servicio de Asistencia Psicológica de la Universidad Jaume I.
2. Que estoy de acuerdo y acepto libre y voluntariamente a utilizar el sistema de geolocalización.
3. Que durante todo el uso del sistema de geolocalización se salvaguardará mi derecho a la intimidad, confidencialidad y anonimato y por lo tanto se atenderá únicamente a los datos de mi posicionamiento relevantes para el problema por el que estoy recibiendo ayuda psicológica.

☐ Que estoy de acuerdo y acepto libre y voluntariamente que los datos de geolocalización se cedan a otros grupos de investigación con fines de investigación científica, teniendo en cuenta que los datos son anonimizados. En el caso que otros grupos de investigación utilicen estos datos de geolocalización para la investigación científica seré informado/a de ello.

En el caso del grupo de investigación GeoTec de la Universitat Jaume I se tratarán los citados datos según las condiciones que se pueden consultar aquí: https://www.uji.es/protecciodades/clausules/?t=I052

Información básica sobre protección de datos	
Responsable del tratamiento	Universitat Jaume I. LabPsiTec del Grupo de Investigación de Psicopatología, Evaluación y Tratamiento de los Trastornos Emocionales.
Finalitat del tractament	Gestión de los datos personales (identificativos, de salud e historial clínico) de los participantes del proyecto al SyMptOMs - Sensor and Mobile based Mental Health Solutions.
Legitimación	La legitimación se basa en el consentimiento según el que se dispone en los artículos 6 i 9.2.j de RGPD, así como la Disposición adicional decimoséptima de la Ley

	orgánica 3/2018, de 5 de diciembre, de Protección de Datos Personales y garantía de los derechos digitales.
Destinatarios	No se cederán datos a terceras partes derecho que será de obligación legal. En caso de aceptación expresa por parte de las personas participantes, los datos disociados de trayectorias, recorridos y posicionamientos pueden ser comunicadas al grupo de investigación GeoTec con finalidades únicamente de investigación y mejora del sistema técnico. .
Derechos	Puedes ejercer tus derechos de acceso, rectificación, supresión y portabilidad, y la limitación o la oposición al tratamiento dirigiéndose a la Secretaría General de la UJI mediante el Registro Electrónico (https://ujiapps.uji.es/reg/rest/publicacion/solicitud_generica) o, presencialmente, a la Oficina de Información y Registro (InfoCampus), situada en el Ágora Universitaria- Locales 14-15.
Informacin adicional	Puede consultar la información adicional y detallada sobre este tratamiento de datos en https://www.uji.es/protecciodades/clausules/?t=I097

El interesado/a,   La directora del Servicio de Asistencia Psicológica de la
                                     Universidad Jaume I

Castellón, _____ de _____ del 20_____

INFORMED CONSENT FOR THE STUDY OF CHAPTERS 4 AND 5

BIENVENIDO/A AL PROYECTO DE INVESTIGACIÓN: SIN JUGAR, ganas

Apreciado/a Sr./Sra.:

Antes de confirmar tu participación en el estudio es importante que entiendas en qué consiste. Por favor, lee detenidamente este documento y haz todas las preguntas que te puedan surgir.

Objetivo del estudio:

Avanzar en el conocimiento científico en el tratamiento psicológico de las personas con problemas con los juegos de azar.

Contacto:

Este proyecto tiene el aval del Comité de Ética de la Universitat Jaume I (núm. expediente (CD/026/2019). Para cualquier duda o aclaración sobre la investigación puedes contactar con Laura Díaz Sanahuja, al correo electrónico lsanahuj@uji.es

Desarrollo del estudio:

En una primera fase del estudio se evaluará mediante un cuestionario online la gravedad de tus problemas con los juegos de apuestas. Posteriormente, un profesional contactará contigo y realizaréis una sesión de evaluación online, y en caso de cumplir con los criterios para participar en este estudio, podrás comenzar la intervención. Es un tratamiento autoaplicado a través de Internet que consta de 8 módulos, y puede realizarse a lo largo de 12 semanas. Además, se cuenta con apoyo terapéutico, que consiste en una llamada telefónica breve semanal. En estos módulos se abordarán los componentes terapéuticos recomendados para afrontar los problemas con los juegos de apuestas.

Para poder participar en el estudio se deberán cumplir una serie de criterios, entre algunos de ellos:

- Tener 18 años o más.
- Estar dispuesto/a a participar en este estudio y firmar el consentimiento informado.
- Disponer de ordenador, Internet y una dirección de correo electrónico.
- Capacidad para comprender, leer y escribir en español.
- Padecer juego problemático o patológico.
- Estar dispuesto/a a realizar las evaluaciones de seguimiento.

Implicaciones para el paciente

 Beneficios/riesgos:

El beneficio para los pacientes será recibir un tratamiento psicológico basado en la evidencia para el tratamiento de los problemas con los juegos de apuestas, así como poder realizar un seguimiento sobre el problema.

No existen riesgos en la realización de este estudio. No obstante, la aparición de cualquier cambio que suponga peligro para un participante, no sólo supondrá su salida del estudio, sino también se le ofrecerá la posibilidad de recibir atención psicológica en el Servicio de Asistencia Psicológica de la Universitat Jaume I, o se le derivará si su estado clínico así lo aconsejara.

Participación voluntaria: Tu participación en el estudio es enteramente voluntaria.

A continuación, te informamos que el Grupo LabPsiTec de Investigación de Psicopatología, Evaluación y Tratamiento de los Trastornos Emocionales de la Universidad Jaume I llevará a cabo el tratamiento de tus datos personales de acuerdo con el Reglamento General de Protección de Datos (UE) 2016/679.

¿Quién es el responsable del tratamiento de tus datos?

Responsables: Juana María Bretón López y Laura Díaz Sanahuja
Identidad: Universidad Jaume I

Facultad de Ciencias de la Salud. Grupo LabPsiTec de Investigación de Psicopatología, Evaluación y Tratamiento de los Trastornos Emocionales

Dirección postal: Av. de Vicent Sos Baynat, s/n 12071 Castelló de la Plana

Teléfono: +34 964 387642/ 964 38 7651

Dirección electrónica: lsanahuj@uji.es

Delegado de Protección de Datos

Contacto DPD: proteccióndatos@uji.es

¿Con qué finalidad tratamos tus datos personales?

Avanzar en el conocimiento científico en el tratamiento de las personas con problemas con los juegos de azar. Asimismo, la divulgación de los datos obtenidos, completamente anonimizados, en cuanto a nuevos avances del tratamiento del trastorno por juego. No se cederán datos a terceras partes salvo que sea obligación legal.

¿Cuánto tiempo conservaremos tus datos?

Los datos personales proporcionados se conservarán durante 5 años según protocolo. Después de este tiempo, y en virtud de criterios clínicos, se considerará la posibilidad de destruir el historial clínico. Se podrá solicitar la supresión de los datos personales antes de 5 años. Puede ejercer sus derechos de acceso, rectificación, supresión y portabilidad, y a la limitación o la oposición al tratamiento ante la Secretaría General de la Universitat Jaume I mediante el Registro Electrónico (https://ujiapps.uji.es/reg/rest/publicacion/solicitud_generica) o, presencialmente, en la Oficina de Información y Registro (InfoCampus), situada en el Ágora Universitaria - Locales 14-15.

Información adicional: Puede consultar la información adicional y detallada sobre este tratamiento de datos a https://www.uji.es/protecciodades/clausules/?t=I001

¿Cuál será el coste económico?

La intervención será gratuita al ser un proyecto financiado por el Plan Nacional sobre Drogas, y estar enmarcado en un contexto de investigación.

Categorías de datos personales tratadas

Se obtendrán datos identificativos que posteriormente serán totalmente anonimizados y codificados de forma numérica, así como datos sociodemográficos, de sintomatología clínica y otras variables relevantes, todo ello mediante entrevistas semiestructuradas y cuestionarios.

En el caso de haber accedido a este estudio a través del Servicio de Psiquiatría del Hospital Universitario de Bellvitge, será el "Institut Català de la Salut (Hospital Universitari de Bellvitge)" quien actuará como responsable del tratamiento de datos en colaboración con el grupo de investigación LabPsiTec de la Universitat Jaume I de Castellón, cumpliendo con la Ley Orgánica 3/2018 de Protección de Datos de Carácter Personal y Garantía de los Derechos Digitales, y Reglamento (UE) 2016/679 General de Protección de Datos. El período de tiempo de conservación de los datos del estudio serán también 5 años. El participante tendrá derecho a acceder, rectificar, cancelar, oponerse, y a limitar el tratamiento de los datos considerados incorrectos, a solicitar una copia o a que se trasladen a un tercero (portabilidad) los datos que ha facilitado para el estudio. Para el ejercicio de dichos derechos, el participante podrá acudir a la investigadora principal, la Dra. Susana Jiménez Murcia, o bien al delegado de protección de datos del centro (dpd@ticsalutsocial.cat). Finalmente, el participante tiene el derecho a presentar una reclamación ante la "Autoritat Catalana de Protecció de Dades", si considera que sus derechos en materia de protección de datos han sido vulnerados.

MANIFIESTO

• Que he sido informado/a suficientemente de las pruebas y tratamientos que recibiré como consecuencia de la investigación que se practica.

• Que estoy de acuerdo y acepto libre y voluntariamente recibir única y exclusivamente este tratamiento y me comprometo a seguir las prescripciones y a formalizar los cuestionarios que se presenten.

• Que puedo abandonar el tratamiento/colaboración en el momento que lo desee.

• Que el/la terapeuta puede decidir la finalización del tratamiento si no cumplo un mínimo de las pautas establecidas que posibilite un tratamiento adecuado.

- Que, salvaguardando siempre el derecho a la intimidad, acepto que los datos que se puedan derivar de esta investigación puedan ser utilizados para la divulgación científica.

Tras leer y comprender la información presentada anteriormente en el consentimiento informado, ¿Aceptas estas condiciones y la participación en el estudio?

☐   ACEPTO participar en este estudio.

☐   NO ACEPTO participar en este estudio

SI TIENES 18 AÑOS O MÁS, NACIONALIDAD ESPAÑOLA Y HAS APOSTADO AL MENOS UNA VEZ EN LOS ÚLTIMOS 3 MESES ...

Contesta a unas preguntas y recibirás una tarjeta regalo de 5€ de Decathlon.es

Además, te diremos si tienes una conducta de juego saludable o no

Escanea este código para entrar en la encuesta:

Para más información contacta con nosotros:

964 387651   lsanahuj@uji.es

SI TIENES 18 AÑOS O MÁS, NACIONALIDAD ESPAÑOLA Y HAS APOSTADO AL MENOS UNA VEZ EN LOS ÚLTIMOS 3 MESES ...

**Contesta a unas preguntas y recibirás una
tarjeta regalo de 5€ de Decathlon.es**

Escanea este código para entrar en la encuesta:

Para más información contacta con nosotros:

964 387651   lsanahuj@uji.es

¿APUESTAS A JUEGOS DE AZAR
O CONOCES A ALGUIEN QUE LO HAGA?

DESDE LA UNIVERSITAT JAUME I TE OFRECEMOS **TRATAMIENTO PSICOLÓGICO GRATUITO** PARA DEJAR DE JUGAR

¡CONTÁCTANOS!

@ sinjugarganas@gmail.com

📞 964 38 76 51

SIN JUGAR ganas

PLAN NACIONAL SOBRE DROGAS

labpsitec
LABORATORIO DE PSICOLOGÍA Y TECNOLOGÍA

UNIVERSITAT JAUME I

"SIN JUGAR, GANAS", es un tratamiento psicológico autoaplicado a través de Internet que está dirigido a personas con problemas con los juegos de azar (p.ej., apuestas deportivas, máquinas tragaperras, bingo, póquer, etc.).

🕐 Duración: entre 2 y 3 meses.
Haremos seguimientos a los 3-, 6- y 12 meses de haber finalizado la intervención.

¿QUIÉN HA DESARROLLADO Y APLICA ESTE PROGRAMA?

Miembros del grupo de investigación LabPsiTec de la Universitat Jaume I y del Servicio de Asistencia Psicológica (Castellón, España).
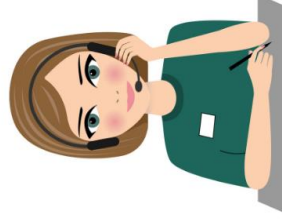
CONTACTO

sinjugarganas@gmail.com

964387651

Contarás con apoyo terapéutico, que cosiste en una llamada telefónica breve semanal.

SIN JUGAR ganas

labpsitec
LABORATORIO DE PSICOLOGÍA Y TECNOLOGÍA

UNIVERSITAT JAUME I

PLAN NACIONAL SOBRE DROGAS

Incluye **8 módulos terapéuticos** en los que se utilizan técnicas que han demostrado evidencia científica y que están basadas en la Terapia Cognitivo-Conductual (TCC) y en extensiones e innovaciones de la TCC.

Módulo 4.
¿Cómo influyen mis pensamientos?

En este módulo te explicaremos el papel que juegan los pensamientos sobre lo que hacemos y sentimos, y cómo algunos de ellos se convierten en trampas que favorecen que se inicie y se continúe jugando a pesar de las pérdidas ocasionadas y las consecuencias negativas.

Módulo 5.
¿Cómo puedo regular mis emociones?

Te ayudará a la comprensión de emociones que pueden impulsar la conducta de juego, y en la puesta en marcha de estrategias de regulación emocional.

Módulo 6. ¿Qué actividades alternativas puedo planificar?

En este módulo ampliarás el abanico de actividades agradables y adaptativas que puedes realizar como alternativa a la conducta de juego, y que sean significativas para uno/a mismo/a, que se pueden realizar solo/a o incluyendo a otras personas. También te explicaremos cómo realizar estas actividades aplicando la toma de conciencia o mindfulness.

Módulo 7.
¿Cómo puedo enfrentarme al impulso por jugar en mi vida cotidiana?

Te habituarás a las sensaciones y emociones desagradables generadas mediante la exposición a situaciones relacionadas con la conducta de juego, previniendo que se lleve dicha conducta. Además, te enseñaremos estrategias que te ayudarán a rechazar invitaciones a jugar de una forma adecuada.

Módulo 8. ¿Y a partir de ahora qué?

En este módulo revisaremos tu progreso y los logros alcanzados. También, valoraremos las situaciones de alto riesgo que podrían llevarte a recaer. Repasarás las técnicas aprendidas en este programa, que deberás seguir practicando y que podrás utilizar para afrontar situaciones difíciles; y te daremos recomendaciones para prevenir y/o gestionar una caída/recaída.

Módulo 1. ¿Quiero cambiar mi situación?

Este módulo es clave ya que la motivación para el cambio es uno de los aspectos fundamentales para poder abordar el problema. Trabajarás la motivación para realizar este cambio y maximizar el aprendizaje a lo largo de este programa.

Módulo 2. ¿Qué es el trastorno por juego?

En este módulo aprenderás qué características de los juegos de azar los hacen potencialmente adictivos, las razones por las que se juega, las fases por las que puede pasar un jugador, los tipos de jugadores, y en qué consiste el trastorno por juego, cómo se inicia y se mantiene.

Módulo 3. ¿Cómo gestionar mi situación de juego?

En este módulo conocerás la importancia de controlar todos aquellos aspectos que puedan hacerte que juegues, como puede ser la disponibilidad de dinero y el entorno que rodea a la situación de juego. También, valoraremos la existencia de deudas y planificaremos cómo podrás devolverlas de forma responsable.

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VARIABLES SOCIODEMOGRÁFICAS

SEXO:

☐ Masculino

☐ Femenino

☐ Intersexual

GÉNERO:

☐ Hombre

☐ Mujer

☐ Otros

En caso de indicar otros, escribe con qué género te identificas:

EDAD:

FECHA DE NACIMIENTO (dd/mm/aaaa): ___ /___ / _____

PAÍS DE ORIGEN: _____ Ciudad Natal: _____

PAÍS DE RESIDENCIA: _____Ciudad de Residencia: _____

ESTADO CIVIL:

☐ Casado/a

☐ En pareja

☐ Soltero/a

☐ Separado/a

☐ Divorciado/a

☐ Viudo/a

CONVIVENCIA:

☐ Domicilio propio solo/a

☐ Domicilio propio con la pareja

☐ Domicilio propio con pareja y/o hijos

☐ Domicilio de familiares

☐ Domicilio con amigos o compañeros de piso

☐ Residencia

☐ Otros (especificar):

NIVEL DE ESTUDIOS COMPLETADOS:

☐ Ninguno

☐ Primarios

☐ Secundarios

☐ Bachillerato

☐ FP o ciclos formativos

☐ Universitarios

☐ Máster

☐ Doctorado

PROFESIÓN: _____

SITUACIÓN LABORAL:

☐ Estudiante

☐ Empleado/a

☐ En desempleo

☐ De baja temporal

☐ Baja por larga enfermedad

☐ Jubilado/a

☐ Otros (especificar)

Tipo de contrato en el lugar de trabajo (Solamente Empleados)

☐ Funcionario/a

☐ Contrato indefinido

☐ Contrato temporal de menos de 6 meses

☐ Contrato temporal de más de 6 meses

☐ Contrato temporal sin especificar la duración (obra y servicio, o similar)

☐ Trabajador/a de una empresa de trabajo temporal (ETT)

☐ Trabaja sin contrato

☐ Trabaja por su cuenta (autónomos, empresarios, profesionales liberales)

☐ Otra relación contractual (especificar):

INGRESOS ECONÓMICOS (ingreso neto por año): _____

¿En qué medida te identificas con determinades creencias religioses/espirituales?

☐ Nada

☐ Poco

☐ Algo

☐ Bastante

☐ Mucho

Indica cuáles (Creencias religiosas/espirituales):

BÚSQUEDA DE AYUDA PSICOLÓGICA PREVIA POR PROBLEMAS CON LOS JUEGOS DE AZAR:

☐ No

☐ Sí

Especifique qué tipo de ayuda ha recibido (por problemas con los juegos de azar):

BÚSQUEDA DE AYUDA PSICOLÓGICA PREVIA POR OTROS MOTIVOS:

☐ No

☐ Sí

Especifique que tipo de ayuda ha recibido (por otros motivos):

NODS (NORC DSM-IV Screen for Gambling Problems)

(Gernstein, Murphy, Tace, Hoffmann, Palmer, Johnson et al., 1999; (Adaptado de Becoña, 2004)

A continuación, encontrarás una serie de preguntas relacionadas con tu experiencia en los juegos de azar. Las preguntas se refieren a tu relación con el juego **en los últimos 12 meses**. Por favor, responde "SI" o "NO" según tu caso.

1. ¿Ha tenido períodos de 2 o más semanas en las que pasase una gran cantidad de tiempo pensando en sus experiencias con el juego o planificando detalladamente futuros episodios de juego o de apuestas?

    ☐ SI

    ☐ NO

2. ¿Ha tenido períodos de 2 o más semanas en los que pasase mucho tiempo pensando en cómo conseguir dinero para jugar?

    ☐ SI

    ☐ NO

3. ¿Ha tenido períodos de 2 o más semanas en los que necesitaba jugar con cantidades de dinero cada vez mayores, o apuestas mayores que antes, para conseguir la misma excitación?

    ☐ SI

    ☐ NO

4. ¿Ha intentado alguna vez dejar, reducir o controlar su juego?

    ☐ SI

    ☐ NO

5. En una o más de estas ocasiones de intento de dejar, reducir o controlar su juego, ¿se sintió intranquilo o irritable?

    ☐ SI

    ☐ NO

6. ¿Alguna vez ha intentado dejar, reducir o controlar su conducta de juego sin poder conseguirlo?

☐ SI

☐ NO

7. En el caso de que fuese así, ¿ha sucedido 3 o más veces?

☐ SI

☐ NO

8. ¿Ha jugado alguna vez como una forma de escapar de los problemas personales?

☐ SI

☐ NO

9. ¿Ha jugado alguna vez para aliviar sentimientos desagradables como culpabilidad, ansiedad, indefensión o depresión?

☐ SI

☐ NO

10. ¿Ha tenido alguna vez un período en el cual si perdía dinero en el juego volvía otro día para recuperarlo?

☐ SI

☐ NO

11. ¿Ha mentido alguna vez a su familia, amigos o a otros sobre cuánto juega o cuánto dinero perdía en el juego?

☐ SI

☐ NO

12. Si es así, ¿esto ha sucedido 3 o más veces?

☐ SI

☐ NO

13. ¿Ha extendido alguna vez un cheque sin fondos o cogido dinero que no era suyo de familiares u otra persona para gastar en el juego?

☐ SI

☐ NO

14. ¿Le ha causado alguna vez el juego problemas graves o repetidos en su relación con algún familiar o amigo?

☐ SI

☐ NO

15. ¿Le ha producido el juego algún problema con los estudios, como por ejemplo perder clases o días de escuela o suspender algún curso?

    ☐ SI

    ☐ NO

16. ¿Le ha causado el juego la pérdida de un trabajo, tener problemas en el trabajo o no poder aprovechar una oportunidad profesional importante?

    ☐ SI

    ☐ NO

17. ¿Ha necesitado alguna vez pedir dinero prestado a un familiar, o a otra persona, para poder salir de una situación económica desesperada causada en gran parte por su juego?

    ☐ SI

    ☐ NO

ENTREVISTA HISTORIA DE JUEGO Y VARIABLES RELEVANTES RELACIONADAS

(Parte de esta entrevista está basada en la Entrevista Estructurada de la historia de juego; Echeburúa, E. y Báez, C., 1994)

A continuación, se van a realizar unas preguntas sobre la historia de juego y otras variables relevantes que nos ayudarán a entender en mejor medida la situación en la que se encuentra. Recuerda que estos datos son totalmente confidenciales, es esencial responder con la máxima sinceridad, ya que será de la única forma mediante la que le podremos ayudar en mayor medida, y que facilitará el éxito de la intervención.

Conducta problema principal:

1. ¿A qué edad comenzó a jugar?

2. ¿A qué edad y en qué sentido comenzó el juego a ser un problema para usted?

3. ¿Coincide esto con algún acontecimiento en su vida?

4. ¿Cómo ha evolucionado el problema hasta ahora? (altibajos, períodos de no-juego...)

5. ¿Hay o ha habido en su familia alguna persona con problemas de juego?

6. Actualmente, ¿tiene deudas económicas?

  ☐ SI
  ☐ NO

6.1. ¿A qué personas o entidades debe dinero y qué cuantía? (familiares, amigos, banco, prestamistas, etc.).

6.2. ¿A cuánto asciende la cuantía total? _____ €

7. ¿Actualmente tiene acceso a dinero?

     ☐ SI

     ☐ NO

Indique específicamente a través de qué medios puede acceder a dinero (p.ej., tarjetas bancarias, dinero en metálico, etc.).

8. ¿Qué ha hecho hasta este momento para solucionar el problema? (p.ej., recibir asistencia psicológica, autoexclusión, limitar el acceso a fondos mediante la solicitud de una curatela, etc.).

9. ¿Cuánto tiempo ha pasado desde la última vez que realizó una apuesta?

10. Indique aquellos lugares específicos de riesgo mediante los que puede disponer de juegos de azar, y otras posibles formas (p.ej., acceso a Internet mediante el uso del móvil, Tablet, ordenador, etc.).

ENFERMEDAD MÉDICA

¿Padeces alguna enfermedad o problema físico (aparato cardiovascular, respiratorio...)? ¿Toma algún tipo de medicación?

CONTROL MEDICACIÓN

1) En el momento de la evaluación inicial, ¿tomaba algún tipo de medicación para controlar su ansiedad?

  ☐ SI

  ☐ NO

Si la repuesta es SI, anotar nombre y dosis de la medicación.

Nombre	Dosis

¿Cuánto tiempo lleva tomando esta medicación?

2) ¿Ha comenzado a tomar medicación durante el tratamiento?

Si la respuesta es SI, anotar nombre y dosis de la medicación.

Nombre	Dosis

¿Cuánto tiempo después de iniciar el tratamiento comenzó a tomar medicación?

3) Desde que inició el tratamiento la dosis de medicación (señalar una opción):

☐ permanece igual

☐ ha aumentado en _____

☐ ha disminuido en _____

☐ ha sido discontinuada

☐ ha sido añadida otra medicación. Nombre y dosis _____

There are included other questionnaires/questions that are used in the protocol study at pre-treatment, post-module, post-treatment or follow-ups, and/or in the validation studies.

ESCALA DE EXPECTATIVAS SOBRE EL TRATAMIENTO

(Adaptación de Nau y Borkovec, 1972)

Ahora que sabes en qué va a consistir el tratamiento que vas a recibir, nos gustaría saber tu opinión sobre el mismo. Por favor, contesta a las siguientes preguntas:

1.- ¿En qué medida te parece lógico este tratamiento?

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Nada   Muchísimo

2.- ¿En qué medida te satisface el tratamiento que vas a recibir?

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Nada   Muchísimo

3.- ¿En qué medida le recomendarías este tratamiento a un amigo que tuviera tu mismo problema?

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Nada   Muchísimo

4.- ¿En qué medida crees que este tratamiento podría ser útil para tratar otros problemas psicológicos?

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Nada   Muchísimo

5.- ¿En qué medida crees que el tratamiento va a resultar útil en tu caso?

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Nada   Muchísimo

6.- ¿En qué medida este tratamiento te resulta aversivo?

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Nada   Muchísimo

NODS (NORC DSM-IV Screen for Gambling Problems)

(Gernstein, Murphy, Tace, Hoffmann, Palmer, Johnson et al., 1999)

(Adaptado de Becoña, 2004)

A continuación, encontrarás una serie de preguntas relacionadas con tu experiencia en los juegos de azar. Las preguntas se refieren a tu relación con el juego en los últimos 3 meses. Por favor, responde "SI" o "NO" según tu caso.

1. ¿Ha tenido períodos de 2 o más semanas en las que pasase una gran cantidad de tiempo pensando en sus experiencias con el juego o planificando detalladamente futuros episodios de juego o de apuestas?

    ☐ SI

    ☐ NO

2. ¿Ha tenido períodos de 2 o más semanas en los que pasase mucho tiempo pensando en cómo conseguir dinero para jugar?

    ☐ SI

    ☐ NO

3. ¿Ha tenido períodos de 2 o más semanas en los que necesitaba jugar con cantidades de dinero cada vez mayores, o apuestas mayores que antes, para conseguir la misma excitación?

    ☐ SI

    ☐ NO

4. ¿Ha intentado alguna vez dejar, reducir o controlar su juego?

    ☐ SI

    ☐ NO

5. En una o más de estas ocasiones de intento de dejar, reducir o controlar su juego, ¿se sintió intranquilo o irritable?

    ☐ SI

    ☐ NO

6. ¿Alguna vez ha intentado dejar, reducir o controlar su conducta de juego sin poder conseguirlo?

    ☐ SI

    ☐ NO

7. En el caso de que fuese así, ¿ha sucedido 3 o más veces?

    ☐ SI

    ☐ NO

8. ¿Ha jugado alguna vez como una forma de escapar de los problemas personales?

    ☐ SI

    ☐ NO

9. ¿Ha jugado alguna vez para aliviar sentimientos desagradables como culpabilidad, ansiedad, indefensión o depresión?

    ☐ SI

    ☐ NO

10. ¿Ha tenido alguna vez un período en el cual si perdía dinero en el juego volvía otro día para recuperarlo?

    ☐ SI

    ☐ NO

11. ¿Ha mentido alguna vez a su familia, amigos o a otros sobre cuánto juega o cuánto dinero perdía en el juego?

    ☐ SI

    ☐ NO

12. Si es así, ¿esto ha sucedido 3 o más veces?

    ☐ SI

    ☐ NO

13. ¿Ha extendido alguna vez un cheque sin fondos o cogido dinero que no era suyo de familiares u otra persona para gastar en el juego?

    ☐ SI

    ☐ NO

14. ¿Le ha causado alguna vez el juego problemas graves o repetidos en su relación con algún familiar o amigo?

    ☐ SI

    ☐ NO

15. ¿Le ha producido el juego algún problema con los estudios, como por ejemplo perder clases o días de escuela o suspender algún curso?

    ☐ SI

☐ NO

16. ¿Le ha causado el juego la pérdida de un trabajo, tener problemas en el trabajo o no poder aprovechar una oportunidad profesional importante?

☐ SI

☐ NO

17. ¿Ha necesitado alguna vez pedir dinero prestado a un familiar, o a otra persona, para poder salir de una situación económica desesperada causada en gran parte por su juego?

☐ SI

☐ NO

PGSI (Problem Gambling Severity Index)

(Ferris y Wynne, 2001; Validación española López-González, Estévez y Griffiths, 2018).

Piensa en los últimos 3 meses y responde a las preguntas teniendo en cuenta la siguiente escala: 0 = Nunca; 1 = Algunas veces; 2 = La mayoría de las veces; 3 = Casi siempre.

1.	¿Has apostado más de lo que realmente podías permitirte perder?	0	1	2	3
2.	Teniendo en cuanta los últimos 3 meses, ¿has necesitado jugar cantidades de dinero cada vez mayores para conseguir la misma sensación de excitación?	0	1	2	3
3.	Cuando juegas dinero, ¿vuelves otro día para intentar recuperar el dinero perdido?	0	1	2	3
4.	¿Has pedido dinero o vendido algo para conseguir dinero para jugar?	0	1	2	3
5.	¿Crees que tienes o has tenido alguna vez problemas con el juego?	0	1	2	3
6.	¿El juego te ha ocasionado algún problema de salud, incluido estrés o ansiedad?	0	1	2	3
7.	¿Te ha criticado la gente por jugar dinero o te ha dicho que tienes un problema con el juego, independientemente de que tú pensaras que era cierto o no?	0	1	2	3
8.	¿El juego te ha ocasionado algún problema económico en ti o en tu casa?	0	1	2	3
9.	¿Te has sentido alguna vez culpable por jugar o por lo que ocurre cuando juegas?	0	1	2	3

CUESTIONARIO DE PENSAMIENTOS RELACIONADOS CON EL JUEGO (GRCS-S; The Gambling Related Cognitions Scale)

(Raylu, N., y Oei, T., 2004; Validación española Del Prete et al., 2016)

Por favor indica en qué medida estás de acuerdo con cada enunciado siguiendo la siguiente escala: 1= Totalmente en desacuerdo; 2= Moderadamente en desacuerdo; 3= Ligeramente en desacuerdo; 4= Ni de acuerdo ni en desacuerdo; 5= Ligeramente de acuerdo; 6= Moderadamente de acuerdo; 7= Totalmente de acuerdo

1.	Jugar me hace más feliz.	1 2 3 4 5 6 7
2.	No puedo funcionar sin jugar.	1 2 3 4 5 6 7
3.	Rezar me ayuda a ganar.	1 2 3 4 5 6 7
4.	Las pérdidas en el juego, sin duda, van seguidas de una racha de ganancias.	1 2 3 4 5 6 7
5.	Relacionar mis ganancias con mi habilidad y mi destreza en el juego hacen que siga jugando.	1 2 3 4 5 6 7
6.	Jugar hace que las cosas parezcan mejores.	1 2 3 4 5 6 7
7.	Estoy fuera de control, así que me resulta difícil parar de jugar.	1 2 3 4 5 6 7
8.	Algunos colores y números incrementan mis probabilidades de ganar.	1 2 3 4 5 6 7
9.	Hay que perder durante un tiempo si se quiere adquirir la experiencia necesaria para ganar.	1 2 3 4 5 6 7
10.	Relacionar mis pérdidas con la mala suerte o a las circunstancias adversas me hace seguir jugando.	1 2 3 4 5 6 7
11.	Jugar hace que el futuro parezca mejor.	1 2 3 4 5 6 7
12.	No puedo resistir las ganas de jugar.	1 2 3 4 5 6 7
13.	Guardo objetos que me ayudan a tener más probabilidades de ganar.	1 2 3 4 5 6 7
14.	Si consigo ganar una vez, sin duda, seguiré ganando.	1 2 3 4 5 6 7
15.	Relacionar mis pérdidas con la casualidad hace que siga jugando.	1 2 3 4 5 6 7
16.	Echar una partida me ayuda a reducir la tensión y el estrés.	1 2 3 4 5 6 7

17. No soy lo suficientemente fuerte como para dejar de jugar.   1 2 3 4 5 6 7

18. Ciertos hábitos y rituales mejoran mis probabilidades de ganar.   1 2 3 4 5 6 7

19. A veces me siento con suerte, y aprovecho esas ocasiones para jugar.   1 2 3 4 5 6 7

20. Recordar cuánto dinero gané la última vez, me hace continuar jugando.   1 2 3 4 5 6 7

21. Nunca seré capaz de dejar de jugar.   1 2 3 4 5 6 7

22. Tengo cierta capacidad para predecir cuándo voy a ganar.   1 2 3 4 5 6 7

23. Si cambio los números a los que juego habitualmente, tengo menos posibilidades de ganar que si mantengo siempre los mismos números.   1 2 3 4 5 6 7

ESCALA DE EVALUACIÓN DEL CAMBIO DE LA UNIVERSIDAD DE RHODE ISLAND (URICA)

(McConnaughy, Prochaska y Velicer, 1983; Validación española Gómez-Peña et al., 2011)

Cada afirmación describe cómo una persona se sentiría cuando empieza una terapia. Por favor, indica la opción que mejor describa cuánto estás de acuerdo o en desacuerdo con cada afirmación, según te sientas ahora, y no como te sentías en el pasado o cómo te gustaría sentirte. 1= Muy en desacuerdo; 2= En desacuerdo; 3=Indeciso; 4=De acuerdo; 5= Muy de acuerdo.

Aquí[1] hace referencia al lugar de tratamiento

1.	En mi opinión, no tengo ningún problema que necesite cambiar.	1	2	3	4	5
2.	Pienso que podría estar preparado para alguna automejora.	1	2	3	4	5
3.	Estoy haciendo algo sobre los problemas que me han estado preocupando.	1	2	3	4	5
4.	Yo no soy el único problema. Para mí no tiene mucho sentido estar aquí[1].	1	2	3	4	5
5.	Me preocupa que pudiese volver a caer en un problema que ya he cambiado, por ello estoy aquí[1] solicitando ayuda.	1	2	3	4	5
6.	Finalmente, estoy haciendo algo por mi problema.	1	2	3	4	5
7.	He estado pensando que podría querer cambiar algo de mí mismo/a.	1	2	3	4	5
8.	A veces mi problema es difícil, pero estoy trabajando en ello.	1	2	3	4	5
9.	Estar aquí[1] es una pérdida de tiempo para mí porque el problema no tiene que ver conmigo.	1	2	3	4	5
10.	Espero que este lugar me ayudará a entenderme mejor a mí mismo/a.	1	2	3	4	5
11.	Supongo que tengo defectos, pero realmente no hay nada que yo necesite cambiar.	1	2	3	4	5
12.	Realmente estoy trabajando duro para cambiar.	1	2	3	4	5

13. Tengo un problema y realmente pienso que debería trabajar en él.   1   2   3   4   5

14. No estoy progresando en lo que ya he cambiado tanto como yo hubiese esperado y estoy aquí[1] para prevenir una recaída en el problema.   1   2   3   4   5

15. Aunque no siempre tengo éxito a la hora de cambiar, al menos estoy trabajando por mi problema.   1   2   3   4   5

16. Pensaba que una vez hubiese resulto el problema estaría libre de él, pero a veces aún me encuentro luchando contra él.   1   2   3   4   5

17. Desearía tener más ideas sobre cómo resolver mi problema.   1   2   3   4   5

18. Quizá en este lugar sean capaces de ayudarme.   1   2   3   4   5

19. Ahora podría necesitar tener un apoyo que me ayudara a mantener los cambios que ya he hecho.   1   2   3   4   5

20. Puede que yo sea parte del problema, pero realmente no pienso que lo sea.   1   2   3   4   5

21. Espero que alguien aquí[1] tenga buenos consejos para mí.   1   2   3   4   5

22. Cualquier persona puede hablar sobre cambiar; en realidad yo estoy haciendo algo por conseguirlo.   1   2   3   4   5

23. Todo sobre la psicología es aburrido. ¿Por qué la gente no puede simplemente olvidarse de sus problemas?   1   2   3   4   5

24. Estoy aquí[1] para evitar recaer en mi problema.   1   2   3   4   5

25. Es frustrante, pero siento que podría estar recayendo en un problema que pensaba que había resuelto.   1   2   3   4   5

26. Yo tengo preocupaciones, pero cualquiera las tiene. ¿Por qué malgastar el tiempo pensando en ellas?   1   2   3   4   5

27. Estoy trabajando activamente en mi problema.   1   2   3   4   5

28. Después de todo lo que he intentado hacer para cambiar mi problema, una y otra vez vuelve a perseguirme.   1   2   3   4   5

GSEQ (Gambling Self-Efficacy Questionnaire)

(May, Whelan, Steenbergh, y Meyers, 2003; Validación Española Winfree, W. R., Ginley, M. K., Whelan, J. P., y Meyers, A. W, 2014).

A continuación, hay una lista de situaciones u ocasiones en las cuales alguna gente experimenta problemas relacionados con el juego. Imagínate a ti mismo como si estuvieras ahora mismo en cada una de esas situaciones e indica en la escala de abajo que tan confiado/a estás en que serás capaz de controlar tu conducta de apostar (0 "no confiado/a en absoluto" de que podría controlar la conducta de apostar; 100 "Muy confiado/a que podría controlar la conducta de apostar).

Sería capaz de controlar mis apuestas:

		No confiado/a en absoluto				*Muy confiado/a*	
1.	Si sintiera que me hubiera decepcionado a mí mismo.	0	20	40	60	80	100
2.	Si hubiera peleas en casa.	0	20	40	60	80	100
3.	Si tuviera problemas durmiendo.	0	20	40	60	80	100
4.	Si tuviera una disputa con un amigo.	0	20	40	60	80	100
5.	Si me sintiera relajado y confiado.	0	20	40	60	80	100
6.	Si estuviera disfrutado y me quisiera sentir aún mejor.	0	20	40	60	80	100
7.	Si hubiera perdido dinero apostando un día y sintiera la urgencia de recuperarlo al día siguiente.	0	20	40	60	80	100
8.	Si estuviera en un lugar donde otra gente estuviera apostando.	0	20	40	60	80	100
9.	Si me preguntara sobre mi auto control apostando y quisiera ponerlo a prueba.	0	20	40	60	80	100
10.	Si estuviera furioso por el modo en que las cosas salen.	0	20	40	60	80	100

11.	Si estuviera relajándome con un buen amigo y quisiera pasar un buen rato apostando.	0	20	40	60	80	100
12.	Como si sintiera un nudo en el estómago.	0	20	40	60	80	100
13.	Si saliera con mis amigos y quisiera pasarlo mejor.	0	20	40	60	80	100
14.	Si me encontrara con un amigo y él/ella sugiriera que vayamos a apostar.	0	20	40	60	80	100
15.	Si de repente sintiera la urgencia de apostar.	0	20	40	60	80	100
16.	Si quisiera probarme que podría apostar en pocas veces ocasiones sin perder el control.	0	20	40	60	80	100

ESCALA HOSPITALARIA DE DEPRESIÓN Y ANSIEDAD (HADS)

(Zigmond & Snaith, 1983; Validación española De las Cuevas, García-Estrada, y González de Rivera, 1995)

Este cuestionario ha sido diseñado para ayudarnos a saber cómo te sientes. Lee cada frase y marca la respuesta que más se ajuste a cómo te sentiste durante la semana pasada. No pienses mucho las respuestas. Lo más seguro es que si respondes deprisa tus respuestas se ajustarán mucho más a cómo realmente te sentiste.

1. Me siento tenso/a o nervioso/a.
   a) Todos los días.
   b) Muchas veces.
   c) A veces.
   d) Nunca.

2. Todavía disfruto con lo que antes me gustaba.
   a) Como siempre.
   b) No lo bastante.
   c) Sólo un poco.
   d) Nada.

3. Tengo una sensación de miedo, como si algo horrible me fuera a suceder.
   a) Definitivamente y es muy fuerte.
   b) Sí, pero no es muy fuerte.
   c) Un poco, pero no me preocupa.
   d) Nada.

4. Puedo reírme y ver el lado divertido de las cosas.
   a) Al igual que siempre lo hice.
   b) No tanto ahora.
   c) Casi nunca.
   d) Nunca.

5. Tengo mi mente llena de preocupaciones.
   a) La mayoría de las veces.
   b) Con bastante frecuencia.
   c) A veces, aunque no muy a menudo.
   d) Sólo en ocasiones.

6.Me siento alegre.

    a) Nunca.

    b) No muy a menudo.

    c) A veces.

    d) Casi siempre.

7.Puedo estar sentado/a tranquilamente y sentirme relajado/a.

    a) Siempre.

    b) Por lo general.

    c) No muy a menudo.

    d) Nunca.

8.Me siento como si cada día estuviera más lento/a.

    a) Por lo general, en todo momento.

    b) Muy a menudo.

    c) A veces.

    d) Nunca.

9.Tengo una sensación extraña, como de aleteo en el estómago.

    a) Nunca.

    b) En ciertas ocasiones.

    c) Con bastante frecuencia.

    d) Muy a menudo.

10.He perdido interés por mi aspecto personal.

    a) Totalmente.

    b) No me preocupo tanto como debiera.

    c) Podría tener un poco más de cuidado.

    d) Me preocupo igual que siempre.

11.Me siento inquieto/a, como si no pudiera parar de moverme.

    a) Mucho.

    b) Bastante.

    c) No mucho.

    d) Nada.

12.Me siento optimista respecto al futuro.

    a) Igual que siempre.

    b) Menos de lo que acostumbraba.

c) Mucho menos de lo que acostumbraba.

d) Nada.

13. Me asaltan sentimientos repentinos de pánico.

a) Muy frecuentemente.

b) Bastante a menudo.

c) No muy a menudo.

d) Nada.

14. Me divierto con un buen libro, la radio, o un programa de televisión.

a) A menudo.

b) A veces.

c) No muy a menudo.

d) Rara vez.

OVERALL DEPRESSION SEVERITY AND IMPAIRMENT SCALE (ODSIS)

(Bentley, Gallagher, Carl & Barlow, 2014; Validación española Mira et al., 2019)

Los siguientes ítems preguntan sobre depresión. Para cada ítem, selecciona el número que mejor describe tu experiencia durante la última semana.

1. Durante la última semana, ¿con qué frecuencia te has sentido deprimido?

0 = No me sentí deprimido durante la última semana.

1 = Depresión infrecuente. Me sentí deprimido en algunos momentos.

2 = Depresión ocasional. La mitad del tiempo me sentí deprimido y la otra mitad no.

3 = Depresión frecuente. Me sentí deprimido la mayor parte del tiempo.

4 = Depresión constante. Me sentí deprimido todo el tiempo.

2. Durante la última semana, cuando te sentiste deprimido, ¿en qué medida tu depresión fue intensa o severa?

0 = Poco o nada. La depresión estuvo ausente o casi no la noté.

1 = Leve. La depresión fue de baja intensidad.

2 = Moderada. La depresión me generó malestar en algunos momentos.

3 = Severa. La depresión fue intensa la mayor parte del tiempo.

4 = Extrema. La depresión me sobrepasó.

3. Durante la última semana, ¿con qué frecuencia tuviste dificultad para realizar o interesarte en actividades que normalmente disfrutas debido a tu depresión?

0 = Ninguna. No tuve dificultades para realizar o interesarme en actividades que normalmente disfruto debido a la depresión.

1 = Infrecuente. Algunas veces tuve dificultades para realizar actividades o interesarme en actividades que normalmente disfruto, debido a la depresión. Mi estilo de vida no se vio afectado.

2 = Ocasional. Tuve algunas dificultades para realizar actividades o interesarme en actividades que normalmente disfruto, debido a la depresión. Mi estilo de vida sufrió pocos cambios.

3 = Frecuente. Tuve bastantes dificultades para realizar actividades o interesarme en actividades que normalmente disfruto, debido a la depresión. He realizado cambios significativos en mi estilo de vida por no poder interesarme en actividades que solía disfrutar.

4 = Todo el tiempo. No he podido participar o interesarme en actividades que normalmente disfruto, debido a la depresión. Mi estilo de vida se ha visto enormemente afectado y ya no hago cosas que solía disfrutar.

4. Durante la última semana, ¿en qué medida ha interferido la depresión en tu capacidad para hacer las cosas que tenías que hacer respecto al trabajo, el colegio o tu hogar?

0 = Nada. La depresión no interfirió en mi trabajo/hogar/colegio.

1 = Leve. La depresión me causó algo de interferencia en mi trabajo/hogar/colegio. Las cosas fueron más difíciles, pero pude realizar todo lo que necesitaba hacer.

2 = Moderada. La depresión definitivamente interfirió en mis tareas. He podido realizar la mayoría de las cosas, pero sólo algunas las he hecho tan bien como en el pasado.

3 = Severa. La depresión verdaderamente ha interferido en mis tareas. Algunas tareas las he podido realizar, pero muchas otras no. Mi rendimiento se ha visto definitivamente afectado.

4 = Extrema. La depresión ha llegado a ser incapacitante. He sido incapaz de completar mis tareas y he tenido que irme del colegio, he dejado o me han despedido de mi trabajo o he sido incapaz de completar las tareas del hogar y he sufrido consecuencias como desalojos, cobradores de cuentas, etc.

5. Durante la última semana, ¿en qué medida ha interferido la depresión en tu vida social y en tus relaciones?

0 = Nada. La depresión no interfirió en mis relaciones.

1 = Leve. La depresión apenas interfirió en mis relaciones. Algunas de mis amistades y otras relaciones se han visto afectadas, pero en conjunto mi vida social sigue siendo satisfactoria.

2 = Moderada. La depresión ha interferido algo en mi vida social, pero sigo teniendo algunas relaciones cercanas. No paso tanto tiempo con otros como en el pasado, pero sigo manteniendo relaciones sociales algunas veces.

3 = Severa. Mis amistades y otras relaciones se han visto muy afectadas a causa de mi depresión. No disfruto de las actividades sociales. Tengo muy pocas relaciones sociales.

4 = Extrema. La depresión ha alterado completamente mis actividades sociales. Todas mis relaciones se han visto afectadas o han finalizado. Mi vida familiar es extremadamente tensa.

ITEM DE SUICIDIO

Durante la última semana, ¿Con qué frecuencia has tenido pensamientos sobre suicidio?

0 = Nada. No he tenido pensamientos de suicidio.

1 = Infrecuente. En alguna ocasión he tenido pensamientos de suicidio, pero de forma esporádica.

2= Ocasional. Algunas veces he tenido pensamientos de suicidio.

3 = Frecuente. En muchas ocasiones he tenido pensamientos de suicidio.

4=Todo el tiempo. Casi la mayor parte del tiempo he tenido pensamientos de suicidio.

OVERALL ANXIETY SEVERITY AND IMPAIRMENT SCALE (OASIS)

(Campbell-Sills et al., 2009.; Validación española González-Robles et al., 2018)

Los siguientes ítems preguntan sobre ansiedad y miedo. Para cada ítem, selecciona el número que mejor describe tu experiencia durante la última semana.

1. Durante la última semana, ¿con qué frecuencia te has sentido ansioso?

0 = No me sentí ansioso durante la última semana.

1 = Ansiedad infrecuente. Me sentí ansioso en algunos momentos.

2 = Ansiedad ocasional. La mitad del tiempo me sentí ansioso y la otra mitad no. Me costó relajarme.

3 = Ansiedad frecuente. Me sentí ansioso la mayor parte del tiempo. Me resultó muy difícil relajarme.

4 = Ansiedad constante. Me sentí ansioso todo el tiempo y nunca llegué a relajarme.

2. Durante la última semana, cuando te sentiste ansioso, ¿en qué medida tu ansiedad fue intensa o severa?

0 = Poco o nada. La ansiedad estuvo ausente o casi no la noté.

1 = Leve. La ansiedad fue de baja intensidad. Pude relajarme cuando lo intenté. Los síntomas físicos fueron sólo un poco molestos.

2 = Moderada. La ansiedad me generó malestar en algunos momentos. Me resultó difícil relajarme o concentrarme, pero pude hacerlo cuando lo intenté. Los síntomas físicos fueron molestos.

3 = Severa. La ansiedad fue intensa la mayor parte del tiempo. Me resultó muy difícil relajarme o concentrarme en cualquier otra cosa. Los síntomas físicos fueron enormemente molestos.

4 = Extrema. La ansiedad me sobrepasó. Me fue totalmente imposible relajarme. Los síntomas físicos fueron insoportables.

3. Durante la última semana, ¿con qué frecuencia evitaste situaciones, lugares, objetos o actividades debido a tu ansiedad o miedo?

0 = Ninguna. No evité lugares, situaciones, actividades o cosas por miedo.

1 = Infrecuente. Evité algunas cosas de vez en cuando, pero por lo general me enfrenté a las situaciones u objetos. Mi estilo de vida no se vio afectado.

2 = Ocasional. Tuve algo de miedo a ciertas situaciones, lugares u objetos, pero

todavía pudo manejarlos. Mi estilo de vida sufrió pocos cambios. Siempre o casi siempre evité las cosas que me dan miedo si estaba solo, pero las pude manejar si alguien venía conmigo.

3 = Frecuente. Tuve bastante miedo y realmente intenté evitar las cosas que me asustan. He hecho cambios significativos en mi estilo de vida para evitar objetos, situaciones, actividades o lugares.

4 = Todo el tiempo. Evitar objetos, situaciones, actividades o lugares ha ocupado gran parte de mi vida. Mi estilo de vida se ha visto enormemente afectado y ya no hago cosas con las que solía disfrutar.

4. Durante la última semana, ¿en qué medida ha interferido la ansiedad en tu capacidad para hacer las cosas que tenías que hacer respecto al trabajo, el colegio o tu hogar?

0 = Nada. La ansiedad no interfirió en mi trabajo/hogar/colegio.

1 = Leve. La ansiedad me causó algo de interferencia en mi trabajo/hogar/colegio. Las cosas eran más difíciles, pero pude realizar todo lo que necesitaba hacer.

2 = Moderada. La ansiedad definitivamente interfirió en mis tareas. He podido realizar la mayoría de las cosas, pero sólo algunas las he hecho tan bien como en el pasado.

3 = Severa. La ansiedad verdaderamente ha cambiado mi capacidad para hacer las cosas. Algunas cosas las he podido realizar, pero otras no. Mi rendimiento se ha visto definitivamente afectado.

4 = Extrema. La ansiedad ha llegado a ser incapacitante. He sido incapaz de completar mis tareas y he tenido que irme del colegio, he dejado o me han despedido de mi trabajo o he sido incapaz de completar las tareas del hogar y he sufrido consecuencias como desalojos, cobradores, etc.

5. Durante la última semana, ¿en qué medida ha interferido la ansiedad en tu vida social y en tus relaciones?

0 = Nada. La ansiedad no interfirió en mis relaciones.

1 = Leve. La ansiedad apenas interfirió en mis relaciones. Algunas de mis amistades y otras relaciones se han visto afectadas, pero en conjunto mi vida social sigue siendo satisfactoria.

2 = Moderada. La ansiedad interfirió algo en mi vida social, pero sigo teniendo algunas relaciones cercanas. No paso tanto tiempo con otros como en el pasado, pero sigo teniendo relaciones sociales algunas veces.

3 = Severa. Mis amistades y otras relaciones se han visto muy afectadas a causa de mi ansiedad. No disfruto de las actividades sociales. Tengo muy pocas relaciones sociales.

4 = Extrema. La ansiedad ha alterado completamente mis actividades sociales. Todas mis relaciones se han visto afectadas o han finalizado. Mi vida familiar es extremadamente tensa.

ESCALA DE DIFICULTADES EN REGULACIÓN EMOCIONAL (DERS)

(Gratz y Roemer, 2004.; Validación española Hervás y Jordar, 2008)

Este cuestionario consta de 28 afirmaciones en referencia a tu forma de ser o comportarte. Por favor, lee cada frase con atención. Debes indicar tu grado de acuerdo según el siguiente código: 1 = Casi nunca (0-10%); 2 = Algunas veces (11-35%); 3 = La mitad de las veces (36-65%); 4 = La mayoría de las veces (66-90%); 5 = Casi siempre (91-100%).

1.	Percibo con claridad mis sentimientos.	1	2	3	4	5
2.	Presto atención a cómo me siento.	1	2	3	4	5
3.	Vivo mis emociones como algo desbordante y fuera de control.	1	2	3	4	5
4.	No tengo ni idea de cómo me siento.	1	2	3	4	5
5.	Tengo dificultades para comprender mis sentimientos.	1	2	3	4	5
6.	Estoy atento a mis sentimientos.	1	2	3	4	5
7.	Doy importancia a lo que estoy sintiendo.	1	2	3	4	5
8.	Estoy confuso/a sobre lo que siento.	1	2	3	4	5
9.	Cuando me siento mal, reconozco mis emociones.	1	2	3	4	5
10.	Cuando me siento mal, me enfado con migo mismo/a por sentirme de esa manera	1	2	3	4	5
11.	Cuando me encuentro mal, me da vergüenza sentirme de esa manera.	1	2	3	4	5
12.	Cuando me siento mal, tengo dificultades para sacar el trabajo adelante.	1	2	3	4	5
13.	Cuando me siento mal, pierdo el control.	1	2	3	4	5
14.	Cuando me siento mal, creo que estaré así durante mucho tiempo.	1	2	3	4	5
15.	Cuando me encuentro mal, creo que acabaré sintiéndome muy deprimido/a.	1	2	3	4	5
16.	Cuando me siento mal, me resulta difícil centrarme en otras cosas.	1	2	3	4	5
17.	Cuando me encuentro mal, me siento fuera de control.	1	2	3	4	5
18.	Cuando me siento mal, me siento avergonzado conmigo mismo/a por sentirme de esa manera.	1	2	3	4	5

19.	Cuando me encuentro mal, me siento como si fuera una persona débil.	1 2 3 4 5
20.	Cuando me encuentro mal, me siento culpable por sentirme de esa manera.	1 2 3 4 5
21.	Cuando me siento mal, tengo dificultades para concentrarme.	1 2 3 4 5
22.	Cuando me siento mal, tengo dificultades para controlar mi comportamiento.	1 2 3 4 5
23.	Cuando me siento mal, me irrito conmigo mismo/a por sentirme de esa manera.	1 2 3 4 5
24.	Cuando me encuentro mal, empiezo a sentirme muy mal sobre mí mismo/a.	1 2 3 4 5
25.	Cuando me siento mal, creo que regodearme en ello es todo lo que puedo hacer.	1 2 3 4 5
26.	Cuando me siento mal, pierdo el control sobre mi comportamiento.	1 2 3 4 5
27.	Cuando me siento mal, tengo dificultades para pensar sobre cualquier otra cosa.	1 2 3 4 5
28.	Cuando me siento mal, mis emociones parecen desbordarse.	1 2 3 4 5

PANAS (RASGO)

(Crawford et al., 2004; Validación española Díaz-García, A., 2019)

A continuación, se indican una serie de palabras que describen sentimientos y emociones. Lee cada una de ellas y contesta hasta qué punto sueles sentirte HABITUALMENTE de la forma que indica cada expresión.

	Nada o casi nada	Un poco	Bastante	Mucho	Muchísimo
1. Interesado/a por las cosas.	1	2	3	4	5
2. Estresado/a, tenso/a.	1	2	3	4	5
3. Emocionado/a, ilusionado/a.	1	2	3	4	5
4. Disgustado/a, molesto/a.	1	2	3	4	5
5. Con energía, con vitalidad.	1	2	3	4	5
6. Culpable.	1	2	3	4	5
7. Asustado/a.	1	2	3	4	5
8. Hostil.	1	2	3	4	5
9. Entusiasmado/a.	1	2	3	4	5
10. Orgulloso/a (de algo), satisfecho/a conmigo mismo/a.	1	2	3	4	5
11. Irritable, malhumorado/a.	1	2	3	4	5
12. Despejado/a, despierto/a.	1	2	3	4	5
13. Avergonzado/a.	1	2	3	4	5
14. Inspirado/a.	1	2	3	4	5
15. Nervioso/a.	1	2	3	4	5
16. Decidido/a.	1	2	3	4	5
17. Atento/a (a las cosas), concentrado/a.	1	2	3	4	5
18. Intranquilo/a, inquieto/a.	1	2	3	4	5
19. Activo/a.	1	2	3	4	5
20. Con miedo, miedoso/a.	1	2	3	4	5

PANAS (ESTADO)

(Crawford et al., 2004; Validación española Díaz-García, A., 2019)

A continuación, se indican una serie de palabras que describen sentimientos y emociones. Lee cada una de ellas y contesta hasta qué punto te has sentido así EN LA ÚLTIMA SEMANA de la forma que indica cada expresión.

	Nada o casi nada	Un poco	Bastante	Mucho	Muchísimo
1. Interesado/a por las cosas.	1	2	3	4	5
2. Estresado/a, tenso/a.	1	2	3	4	5
3. Emocionado/a, ilusionado/a.	1	2	3	4	5
4. Disgustado/a, molesto/a.	1	2	3	4	5
5. Con energía, con vitalidad.	1	2	3	4	5
6. Culpable.	1	2	3	4	5
7. Asustado/a.	1	2	3	4	5
8. Hostil.	1	2	3	4	5
9. Entusiasmado/a.	1	2	3	4	5
10. Orgulloso/a (de algo), satisfecho/a conmigo mismo/a.	1	2	3	4	5
11. Irritable, malhumorado/a.	1	2	3	4	5
12. Despejado/a, despierto/a.	1	2	3	4	5
13. Avergonzado/a.	1	2	3	4	5
14. Inspirado/a.	1	2	3	4	5
15. Nervioso/a.	1	2	3	4	5
16. Decidido/a.	1	2	3	4	5
17. Atento/a (a las cosas), concentrado/a.	1	2	3	4	5
18. Intranquilo/a, inquieto/a.	1	2	3	4	5
19. Activo/a.	1	2	3	4	5
20. Con miedo, miedoso/a.	1	2	3	4	5

ESCALA BREVE DE IMPULSIVIDAD (UPPS-P)

(Lynam, Smith, Whiteside & Cyders, 2006; Validación española Cándido, Orduña, Perales, Verdejo-García & Billieux, 2012)

Por favor, indica tu grado de conformidad con cada una de las siguientes frases (1= Si estás "rotundamente de acuerdo"; 2= si estás "algo de acuerdo"; 3=si estás "algo en desacuerdo"; 4= si estás "rotundamente en desacuerdo).

1.	Normalmente pienso cuidadosamente antes de hacer cualquier cosa.	1	2	3	4
2.	Cuando estoy realmente animado, no suelo pensar en las consecuencias de mis acciones.	1	2	3	4
3.	A veces me gusta hacer cosas que dan un poco de miedo.	1	2	3	4
4.	Cuando estoy irritado suelo actuar sin pensar.	1	2	3	4
5.	En general me gusta asegurarme de llevar las cosas a buen término.	1	2	3	4
6.	Mi manera de pensar es normalmente meticulosa y centrada.	1	2	3	4
7.	En el acaloramiento de una discusión, con frecuencia digo cosas de las que luego me arrepiento.	1	2	3	4
8.	Termino lo que empiezo.	1	2	3	4
9.	Disfruto mucho corriendo riesgos.	1	2	3	4
10.	Cuando estoy rebosante de alegría, siento que no puedo evitar "tirar la casa por la ventana".	1	2	3	4
11.	Casi siempre termino los proyectos que empiezo.	1	2	3	4
12.	Con frecuencia empeoro las cosas porque actúo sin pensar cuando estoy irritado.	1	2	3	4
13.	Normalmente tomo mis decisiones mediante un cuidadoso razonamiento.	1	2	3	4
14.	Generalmente busco experiencias y sensaciones nuevas y excitantes.	1	2	3	4
15.	Cuando estoy realmente contento por algo, tiendo a hacer cosas que pueden tener malas consecuencias.	1	2	3	4
16.	Soy una persona que siempre deja el trabajo hecho.	1	2	3	4

17. Cuando me siento rechazado, frecuentemente digo cosas de las que luego me arrepiento.   1   2   3   4

18. Me gustan experiencias y sensaciones nuevas y excitantes, aunque causen un poco de miedo y sean poco convencionales.   1   2   3   4

19. Antes de implicarme en una nueva situación me gusta informarme sobre qué puedo esperar de ella.   1   2   3   4

20. Cuando estoy muy feliz, veo bien sucumbir a mis deseos o darme algún capricho de más.   1   2   3   4

ÍNDICE DE CALIDAD DE VIDA (QLI)

(Mezzich, Cohen y Ruiperez, 1999; Validación española Mezzich, Ruipérez, Pérez, Yoon, Liu & Mahmud, 2000)

Por favor, indica cuál es tu nivel de salud y calidad de vida en la actualidad, de "mala" a "excelente", marcando uno de los diez puntos que aparecen en cada una de las siguientes escalas:

1. Bienestar físico (sentirse lleno de energía, sin dolores ni problemas físicos).

1	2	3	4	5	6	7	8	9	10
Malo									Excelente

2. Bienestar psicológico/emocional (sentirse bien consigo mismo).

1	2	3	4	5	6	7	8	9	10
Malo									Excelente

3. Autocuidado y funcionamiento independiente (desempeñar sus tareas cotidianas básicas, tomar sus propias decisiones).

1	2	3	4	5	6	7	8	9	10
Malo									Excelente

4. Funcionamiento ocupacional (desempeñar su trabajo, tareas escolares, y tareas domésticas).

1	2	3	4	5	6	7	8	9	10
Malo									Excelente

5. Funcionamiento interpersonal (relacionarse bien con la familia, amigos y grupos).

1	2	3	4	5	6	7	8	9	10
Malo									Excelente

6. Apoyo social-emocional (disponer de personas en quien confiar, que le proporcionen ayuda).

1	2	3	4	5	6	7	8	9	10

Malo   Excelente

7. Apoyo comunitario y de servicios (vecindario seguro y bueno, acceso a recursos financieros, de información y otros).

1	2	3	4	5	6	7	8	9	10

Malo   Excelente

8. Plenitud personal (sentimiento de equilibrio personal, dignidad y solidaridad; disfrute sexual, de las artes, etc.).

1	2	3	4	5	6	7	8	9	10

Malo   Excelente

9. Plenitud espiritual (sentimiento de fe, religiosidad y trascendencia, más allá de la vida material ordinaria).

1	2	3	4	5	6	7	8	9	10

Malo   Excelente

10. Percepción global de calidad de vida (sentimiento de satisfacción y felicidad con su vida en general).

1	2	3	4	5	6	7	8	9	10

Malo   Excelente

SUS (SYSTEM USABILITY SCALE)

(Validación española Castilla et al., 2016)

Marca en qué medida estás de acuerdo con cada una de las siguientes afirmaciones:

		Totalmente en desacuerdo				Totalmente de acuerdo
1.	Creo que me gustaría usar este sistema frecuentemente.	1	2	3	4	5
2.	Encontré el sistema innecesariamente complejo.	1	2	3	4	5
3.	Pensé que el sistema era fácil de usar.	1	2	3	4	5
4.	Creo que necesitaría la ayuda de personal técnico para poder usar este sistema.	1	2	3	4	5
5.	Encontré que las diversas funciones de este sistema estaban bien integradas.	1	2	3	4	5
6.	Pensé que había demasiada inconsistencia en este sistema.	1	2	3	4	5
7.	Imagino que la mayoría de las personas podrían aprender a usar este sistema muy rápidamente.	1	2	3	4	5
8.	Encontré el sistema muy difícil de usar.	1	2	3	4	5
9.	Me sentí muy seguro usando el sistema.	1	2	3	4	5
10.	Necesité aprender muchas cosas antes de poder empezar a usar este sistema.	1	2	3	4	5

ESCALA DE OPINIÓN Y SATISFACCIÓN SOBRE EL TRATAMIENTO

(Adaptado de Borkovec y Nau, 1972)

Después de haber recibido el tratamiento, nos gustaría saber tu opinión sobre el mismo. Por favor, contesta a las siguientes preguntas.

1.- ¿En qué medida te ha parecido lógico este tratamiento?

0	1	2	3	4	5	6	7	8	9	10

Nada   Muchísimo

2.- ¿En qué medida te ha satisfecho el tratamiento que has recibido?

0	1	2	3	4	5	6	7	8	9	10

Nada   Muchísimo

3.- ¿En qué medida le recomendarías este tratamiento a un amigo que tuviera tu mismo problema?

0	1	2	3	4	5	6	7	8	9	10

Nada   Muchísimo

4.- ¿En qué medida crees que este tratamiento podría ser útil para tratar otros problemas psicológicos?

0	1	2	3	4	5	6	7	8	9	10

Nada   Muchísimo

5.- ¿En qué medida crees que el tratamiento te ha resultado útil en tu caso?

0	1	2	3	4	5	6	7	8	9	10

Nada   Muchísimo

6.- ¿En qué medida este tratamiento te ha resultado aversivo?

0	1	2	3	4	5	6	7	8	9	10

Nada   Muchísimo

NEGATIVE EFFECTS QUESTIONNAIRE (NEQ)

(Rozental et al., 2018; Rozental et al., 2019)

Sucesos y efectos negativos del tratamiento psicológico

Durante un tratamiento puede haber sucesos y efectos que se interpretan tanto de manera positiva como negativa. Queremos que usted piense en lo que sucedió durante el período en que realizó el tratamiento y que considere negativo o indeseable. Lea las siguientes afirmaciones e indique si usted experimentó algunos de estos sucesos o efectos. Indique luego cuán negativamente lo han influido y si cree que fueron causados durante el tratamiento que realizó o por otras circunstancias que tuvieron lugar durante el mismo período del tratamiento.

Sucesos y efectos:	¿Experimentó esto?		Si responde Sí – influyó negativamente de esta manera en mí:					Fue causado probablemente por:	
	No	Sí	Nada	Algo	Moderadamente	Mucho	De manera extrema	El tratamiento que realicé	Otras circunstancias
1. Tuve problemas considerables con mi sueño	○	○	○	○	○	○	○	○	○
2. Me sentí más estresado	○	○	○	○	○	○	○	○	○
3. Sentí más angustia	○	○	○	○	○	○	○	○	○
4. Estuve más preocupado	○	○	○	○	○	○	○	○	○
5. Sentí mayor desesperación	○	○	○	○	○	○	○	○	○
6. Experimenté varios sentimientos desagradables	○	○	○	○	○	○	○	○	○
7. Sentí que el motivo por el cual busqué ayuda se agravó	○	○	○	○	○	○	○	○	○
8. Sentí que retornaban viejos recuerdos desagradables	○	○	○	○	○	○	○	○	○
9. Sentí temor de que otras personas pensaran que yo estaba realizando un tratamiento	○	○	○	○	○	○	○	○	○
10. Pensé que sería mejor que yo no estuviera más aquí o que debería quitarme la vida	○	○	○	○	○	○	○	○	○
11. Comencé a avergonzarme ante otras personas porque realicé un tratamiento	○	○	○	○	○	○	○	○	○
12. Dejé de creer que las cosas podían mejorar	○	○	○	○	○	○	○	○	○
13. Comencé a creer que el motivo por el cual buscaba ayuda no mejoraría	○	○	○	○	○	○	○	○	○
14. Me parece que he desarrollado una dependencia de mi tratamiento	○	○	○	○	○	○	○	○	○

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Sucesos y efectos:	¿Experimentó esto?		Si responde Sí – influyó negativamente de esta manera en mí:					Fue causado probablemente por:	
	No	Sí	Nada	Algo	Modera-damente	Mucho	De manera extrema	El tratamiento que realicé	Otras circunstancias
15. No siempre comprendo mi tratamiento	○	○ →	○	○	○	○	○	○	○
16. No siempre comprendo a mi terapeuta	○	○ →	○	○	○	○	○	○	○
17. No tenía confianza en mi tratamiento	○	○ →	○	○	○	○	○	○	○
18. Sentí que el tratamiento no daba resultado	○	○ →	○	○	○	○	○	○	○
19. No sentí que mis expectativas en el terapeuta obtuvieran respuestas	○	○ →	○	○	○	○	○	○	○
20. Pensé que el tratamiento no era motivante	○	○ →	○	○	○	○	○	○	○

Otros - describa con sus propias palabras si hubo otros sucesos o efectos negativos y qué los caracterizó

QUESTION RELATED TO THE PERCENTAGE OF DEBTS RETURNED

Recuerda el ejercicio "Las áreas de mi vida, lo que es y lo que me gustaría que fuese". ¿Qué porción ocupan los juegos de azar en el gráfico de las áreas de tu vida? Indica el porcentaje de tiempo que dedicas a pensar en el juego, planificar nuevas apuestas, pensar en cómo conseguir dinero para jugar, analizar jugadas anteriores, o estás involucrado/a en actividades relacionadas con los juegos de azar (p.ej., buscar vídeos o información relacionada con los juegos de azar, jugar o apostar, etc.).

0%	10	20	30	40	50	60	70	80	90	100%

QUESTION RELATED TO THE PERCENTAGE OF TIME THINKING ABOUT OR BEING INVOLVED IN GAMBLING RELATED ACTIVITIES

¿Qué porcentaje de deudas has podido devolver hasta este momento? Indica 0% en caso de que no hayas realizado ninguna devolución; y 100% si has afrontado todas las deudas. En caso de no tener deudas marca como opción 100%.

0%	1- 20%	30-50%	60-70%	80-90%	100%

Ninguna devolución — Devolución total de las deudas.

O No existen deudas.

Personalized feedback message depending on the value they indicate:

0% Aunque todavía no has comenzado, recuerda la relevancia de planificar y realizar una devolución responsable de deudas. Es importante que identifiques las entidades a las que debes dinero y/o personas que te deben dinero, y la cantidad total, que evalúes tus ingresos mensuales, y que, en base a esto, organices por orden de prioridad qué cantidad vas a poder devolver mensualmente a cada entidad. Una vez planifiques esta devolución, empieza por el primer pago. Puedes pedir ayuda a la persona que te apoya como coterapeuta durante el tratamiento para planificar esta devolución responsable de deudas.

1- 25% Has empezado a realizar la devolución responsable de deudas. Sabes que esto es un paso muy importante. ¡Sigue así, lo estás haciendo muy bien! Cada devolución que hagas, por pequeña que te parezca, te permite estar un paso más cerca de alcanzar tu objetivo. Aunque te parezca que aún falta bastante por devolver, ya has logrado o estás cerca de afrontar ¼ de la deuda. Ajústate al plan que has organizado en la medida que sea posible y verás cómo vas a ir superando tus deudas. Recuerda que los juegos de azar no son la solución a tus problemas económicos, sino que son la causa de tus problemas, y producen más deudas. Por tanto, no recurras a ellos.

26-50% ¡Enhorabuena! Has conseguido afrontar o estás cerca de devolver la mitad de tus deudas. Te encuentras a mitad camino, mucho más cerca de deshacerte del peso que suponen esas deudas en tu vida. Lo has logrado gracias a tu perseverancia y organización. Continúa como lo has hecho hasta ahora, devolviendo el dinero por ti mismo/a, sin recurrir al juego ni pedir préstamos.

51-75% Te felicitamos porque estás gestionando muy bien la devolución de deudas. Con tiempo y esfuerzo, estás viendo que eres capaz de devolver el dinero de forma responsable. Sigue ajustándote al plan establecido en la medida que sea posible. Es importante que pienses que la devolución tiene una fecha de finalización y que en algún momento de este recorrido podrás deshacerte de ellas al completo.

76-99% ¡Te felicitamos por tus progresos! Estás a punto de finalizar la devolución responsable de deudas. Te queda muy poco para poder liberarte de las deudas económicas. Estás ya en la recta final, sigue conforme los has estado haciendo hasta este momento, y así podrás conseguirlo.

100% ¡Enhorabuena, lo has conseguido! Has devuelto todas tus deudas, has sido capaz de afrontarlas de forma responsable, por ti mismo/a. Has comprendido que, para lograrlo, has necesitado tiempo y planificación, y por supuesto, no recurrir a los juegos de azar o a préstamos. Conoces cómo pueden afectar los juegos de azar a tu situación económica, que no son un medio adecuado para ganar dinero ni para afrontar deudas, y que pueden conllevar muchas consecuencias negativas en distintas esferas de tu vida. En este caso, en el ámbito económico. Sabes el esfuerzo que supone hacer frente a las deudas. Utiliza toda esta información para evitar recaídas. Ahora puedes vivir una vida libre de deudas. Aprovéchala y disfruta de ella todo lo posible sin juegos de azar.

En caso de que hayas indicado 100% porque no has contraído deudas, es importante que te mantengas así, sin contraer deudas. Es importante que recuerdes que el juego no es un método para ganar dinero. Por el contrario, involucrarte en juegos de azar con ese fin puede llevarte a tener deudas importantes que incrementarían la gravedad de tu conducta con los juegos de azar. Por tanto, no pidas dinero prestado para jugar. Sigue en abstinencia, sin jugar, todo ese dinero que ya no utilizas para jugar, es dinero que puedes ahorrar y utilizar para realizar otras actividades alternativas a los juegos de azar, significativas y adaptativas, y que te permitirán disfrutar de tu vida de forma saludable.