

Efficacy of cognitive-behavioral therapy in improving the quality of life of people with compulsive gambling, a systematic review

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ABSTRACT

Fundamentals: Cognitive-behavioral therapy can reduce gambling behavior and other symptoms of pathological gambling.

Aim: To synthesize and analyze the evidence on the efficacy of cognitive-behavioral interventions to improve the quality of life of people with pathological gambling.

Methodology: Systematic review with a narrative synthesis of clinical trials published in English and Spanish in Medline, Scopus, Web of Science, CINAHL, The Cochrane Library Plus, PsycInfo, and ProQuest of articles until January 2020 that will analyze this phenomenon. The PRISMA Declaration was followed and the quality of the articles was analyzed with the Jadad scale.

Results: 1233 articles were found, including nine in the review. Two studies confirmed the efficacy of cognitive behavioral therapy-based interventions for improving the quality of life in people with pathological gambling. In addition, these interventions improved depression, anxiety, the amount of money played, and reduced alcohol consumption and the gambling diagnosis score, which had an impact on improving the quality of life. Cognitive behavioral interventions were more effective when it was supported by a manual or when were combined with Mindfulness or Player Anonymous sessions. Having better long-term results in these cases.

Conclusions: Cognitive behavioral-based interventions can improve the quality of life of people with pathological gambling and other psychological variables without being its immediate effect. Future research should analyze whether they are more efficacy online or in person, individually, or in groups, and the number of sessions required for their effects to last over time.

Introduction

Gambling is a common activity in almost all cultures that is characterized by including an element of risk when trying to obtain a desired goal, for example, playing a game of chance for money. Gambling activities include a wide variety of activities, from informal games of chance such as sports betting to legal and formal games such as casinos, and can be practiced in various ways online, slot machines, bingo, casino, video games ... Although most of the population considers gambling as an enjoyable social and recreational activity, for some people it can be a serious problem becoming pathological gambling or compulsive gambling (Custer, 1984; Salaberría et al., 1998).

Although most individuals participate in gambling as an enjoyable social activity, a small group of people become too seriously involved in terms of time invested and money wagered, and they continue to gamble despite substantial and negative personal, social, family, and financial effects.

Gambling is an addictive disorder characterized by frequent and repeated participation in gambling, with those affected being unable to resist the urge to gamble, which comes to dominate their lives and set aside their social, labor, material and family values and obligations (Bahamón, 2010; Morrison, 2014). This behavior is persistent and has negative personal, family, social, and financial consequences, such as the loss of personal assets, the deterioration of family relationships or

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the appearance of critical personal situations (Bahamón, 2010; Fernández-Montalvo et al., 2000). Pathological gambling is included in DSM-V within a new category called “substance-related disorders and addictive disorders” as gambling behaviors can activate reward systems similar to those activated by drugs and can cause behavioral symptoms similar to substance use disorders (Morrison, 2014).

The incidence of compulsive gambling worldwide ranges from 0.2 % to 5 % of the adult population (Hodgins et al., 2011). In 2018, Spain had the highest rate in Europe of people with compulsive gambling between the ages of 14 and 21 (Dirección General de Ordenación de Juego, 2018). According to data from 2017, in Spain seven out of ten people were gamblers without risk, while 6.3 % said they had, at some point in their lives, some problem related to gambling or were at risk of suffering from it (Dirección General de Ordenación del Juego, 2017). In addition, 3.5 % of Spaniards were gamblers at risk, having a problem related to gambling or were at risk of developing a pathology due to gambling (Dirección General de Ordenación del Juego, 2017).

Previous studies show the association between gambling and depression, anxiety disorder caused by addiction, psychosomatic disorders, and multiple addiction disorders (Blanco Miguel, 2013; Quigley et al., 2015). In addition, gambling is associated with personal, psychological, social, labor, legal and health costs, due to the loss of control that it causes (Salaberría et al., 1998; Walker & Barnett, 1999). We know that people with compulsive gambling have significant losses at the social level, due to the increase in crime, bankruptcies and problems with gambling (Chhabra, 2007). In addition, financial losses from gambling-related debts are frequent (Petry & Armentano, 1999).

We know that people with compulsive gambling tend to have a poorer quality of life, consume more medications, and have a higher risk of obesity. Gambling is also associated with disorders such as depression, anxiety, insomnia, intestinal disorders, headaches, stress, tachycardia, angina, or cirrhosis (Black et al., 2013; Petry & Armentano, 1999).

In relation to the interventions that have been used for the treatment of problem gambling, the behavioral interventions aim to correct the pathological gambler through the techniques of imagined desensitization, relaxation, stimulus control and exposure with response prevention. Cognitive interventions attempt to correct the irrational thoughts of those affected, such as chance control or overvaluation of the odds of winning using cognitive restructuring, relapse prevention or motivational therapy (Floros, 2018). Pharmacological treatments have also been used mostly to complement other therapies, especially selective serotonin reuptake inhibitor antidepressants, opiate antagonists, mood stabilizers, and atypical neuroleptics (Choi et al., 2017). Self-help groups (anonymous gamblers) with a dynamic like that of alcoholics anonymous have also been used in the treatment of gambling (Floros, 2018). Other interventions have combined professional treatments with the use of self-help groups, having positive results in the desire to play compared to the exclusive use of self-help groups (Floros, 2018). In addition, we know that drug therapy can reduce the urge, treat comorbidities and prevent relapses in people with problem gambling (Choi et al., 2017).

Other psychosocial interventions have used cognitive-behavioral therapy, achieving a reduction in gambling behavior, and other symptoms related to pathological gambling (Choi et al., 2017; Cowlishaw et al., 2012; Gooding & Tarrrier, 2009). Despite the above, to our knowledge, no systematic review has analyzed the efficacy of interventions based on cognitive-behavioral therapies to improve the quality of life of people with problem gambling.

The objective of this review was to synthesize and analyze clinical trials that analyzed the efficacy of interventions based on cognitive-behavioral therapies to improve the quality of life of people with problem gambling.

Material and methods

The principles of the PRISMA Declaration were followed for the preparation of systematic reviews (Page et al., 2021).

Eligibility criteria

Systematic review with narrative synthesis of the results of randomized clinical trials (RCTs) that will analyze the efficacy of interventions based on cognitive-behavioral therapies to improve the quality of life of people with gambling problems.

Information sources

The search included articles published in English and Spanish from any date until January 2020 in the databases of Medline (Pubmed), Scopus, Web of Science, CINAHL, The Cochrane Library Plus, PsycInfo and ProQuest.

Search

A search was carried out in the selected databases using a combination of keywords that was adapted according to the database (Table 1). In addition, a secondary search was carried out through the references included in the studies found and those references that the databases suggested during the initial search due to their relationship with the objective.

Study selection

Two researchers independently searched for articles in the selected databases, subsequently agreeing on the results; in case of disagreement, a third reviewer was used. The following criteria were used for the search: Inclusion criteria: 1) randomized clinical trials that analyzed the efficacy of interventions based on cognitive-behavioral therapies to improve the quality of life of people with problem gambling, 2) studies published in English and in Spanish from any time until January 2020 and 3) studies with good methodological quality according to the Jadad scale (Clark et al., 1999). Exclusion criteria: 1) studies focused on the prevention of gambling and 2) mixed designs in which quantitative data were not analyzed in a disaggregated manner.

Data extraction process

Two researchers independently performed the data extraction from the included articles, subsequently agreeing on the results, in case of disagreement a third reviewer was used. During this process, an Excel form was used that included the data from Table 2.

Risk of study bias

The quality of the articles included was analyzed with the Jadad Scale (Clark et al., 1999), which includes three items that evaluate the randomization of patients, the use of double blindness and the loss of individuals in the study, including two additional items that evaluate the randomization. Their total score is five points, with an additional two points for other randomization methods and masking methods, and the studies can be classified between 0 (weak) and 5 (good).

Summary measures

The main outcome measure was an improvement in the quality of life of people with compulsive gambling after the intervention.

Other secondary measures were depression, anxiety, amount of time played, and money wagered, alcohol consumption, level of gambling, and changes in behavior.

Table 1
Search strategy in the analyzed databases.

Database	Thesaurus	Search strategy
Web Of Science	Medical Subject Headings (MeSH)	((efficacy* OR efficiency* OR effectiveness*) AND (cognitive-behavioral therapy*) AND (gambling* OR gambling problem* OR pathological gambling* OR pathological gamblers*))
Scopus	Educational Resources Information Center (ERIC)	TITLE-ABS-KEY ((efficacy* OR efficiency* OR effectiveness*) AND (cognitive-behavioral therapy*) AND (gambling* OR gambling problem* OR pathological gambling* OR pathological gamblers*)).
The Cochrane Library	Medical Subject Headings (MeSH)	Effectiveness AND cognitive behavior therapy AND problem gambling. en Título Resumen Palabra clave - (Se han buscado variaciones de la palabra)
CINAHL	Medical Subject Headings (MeSH)	((efficacy* OR efficiency* OR effectiveness*) AND (cognitive-behavioral therapy*) AND (gambling* OR gambling problem* OR pathological gambling* OR pathological gamblers*))
ProQuest	Medical Subject Headings (MeSH)	((efficacy* OR efficiency* OR effectiveness*) AND (cognitive-behavioral therapy*) AND (gambling* OR gambling problem* OR pathological gambling* OR pathological gamblers*))
PsycInfo		((efficacy* OR efficiency* OR effectiveness*) AND (cognitive-behavioral therapy*) AND (gambling* OR gambling problem* OR pathological gambling* OR pathological gamblers*)).
		(efficacy[All Fields] OR efficacy*[All Fields] OR efficacy's[All Fields] OR efficacy,[All Fields] OR efficacy100[All Fields] OR efficacy and[All Fields] OR efficacy and long[All Fields] OR efficacy clinical[All Fields] OR efficacy ficus[All Fields] OR efficacy in[All Fields] OR efficacy of[All Fields] OR efficacy on[All Fields] OR efficacy oral [All Fields] OR efficacys[All Fields] OR efficacy t[All Fields] OR efficacyt1[All Fields] OR efficacy the[All Fields] OR efficacy to[All Fields] OR efficacy trade [All Fields] OR efficacy up gradation [All Fields] OR efficacy xgis[All Fields]) OR (efficiency[All Fields] OR efficiency*[All Fields] OR efficiency's [All Fields] OR efficiency1[All Fields] OR efficiency2[All Fields] OR efficiency a[All Fields] OR efficiency and[All Fields] OR efficiency at[All Fields] OR efficiency complication[All Fields] OR efficiency current[All Fields] OR efficiency dagger[All Fields] OR efficiency for[All Fields] OR efficiencyheat32[All Fields] OR efficiency improvement[All Fields] OR efficiency in[All Fields] OR efficiency in the[All Fields] OR efficiency is[All Fields] OR efficiency of[All Fields] OR efficiency one[All Fields] OR efficiency support[All Fields] OR efficiency taian [All Fields] OR efficiency was[All Fields] OR efficiency y[All Fields]) OR (effectiveness[All Fields] OR effectiveness*[All Fields] OR effectiveness^[All Fields] OR effectiveness's[All Fields] OR effectiveness1[All Fields] OR effectiveness2[All Fields] OR effectiveness and[All Fields] OR effectiveness at[All Fields] OR
Medline (Pubmed)	Medical Subject Headings (MeSH)	effectiveness cea[All Fields] OR effectiveness dagger department[All Fields] OR effectiveness does[All Fields] OR effectivenesses[All Fields] OR effectiveness evaluation[All Fields] OR effectiveness http[All Fields] OR effectiveness models[All Fields] OR effectiveness of[All Fields] OR effectiveness of the[All Fields] OR effectiveness ratio[All Fields] OR effectiveness researchers[All Fields] OR effectivenesss[All Fields] OR effectiveness safety resource[All Fields] OR effectivenesst[All Fields] OR effectiveness there[All Fields] OR effectiveness trial[All Fields] OR effectiveness was[All Fields] OR effectiveness what[All Fields]) AND (cognitive behavioral therapy[All Fields] OR cognitive behavioral therapy,[All Fields]) AND ((gambling [All Fields] OR gambling^[All Fields] OR gambling's[All Fields] OR gamblingless[All Fields] OR gamblingts [All Fields]) OR (gambling problem[All Fields] OR gambling problems[All Fields] OR pathological gambling[All Fields] OR pathological gamblers[All Fields])

Table 1 (continued)

Database	Thesaurus	Search strategy
		effectiveness cea[All Fields] OR effectiveness dagger department[All Fields] OR effectiveness does[All Fields] OR effectivenesses[All Fields] OR effectiveness evaluation[All Fields] OR effectiveness http[All Fields] OR effectiveness models[All Fields] OR effectiveness of[All Fields] OR effectiveness of the[All Fields] OR effectiveness ratio[All Fields] OR effectiveness researchers[All Fields] OR effectivenesss[All Fields] OR effectiveness safety resource[All Fields] OR effectivenesst[All Fields] OR effectiveness there[All Fields] OR effectiveness trial[All Fields] OR effectiveness was[All Fields] OR effectiveness what[All Fields]) AND (cognitive behavioral therapy[All Fields] OR cognitive behavioral therapy,[All Fields]) AND ((gambling [All Fields] OR gambling^[All Fields] OR gambling's[All Fields] OR gamblingless[All Fields] OR gamblingts [All Fields]) OR (gambling problem[All Fields] OR gambling problems[All Fields] OR pathological gambling[All Fields] OR pathological gamblers[All Fields])

Synthesis of the results

Due to the heterogeneity of the included studies ($I^2 > 90\%$), a meta-analysis could not be performed, and a thematic synthesis of the results was carried out.

Results

Study selection

After searching the different databases, 1233 records were found, nine of which were included in the thematic synthesis. Fig. 1 details the study search and screening process.

Study characteristics

The main characteristics of the analyzed studies are shown in Table 2.

The nine articles included in the review were randomized clinical trials (RCTs) (Carlbring et al., 2010; Casey et al., 2017; Dowling et al., 2007; Harris & Mazmanian, 2016; McIntosh et al., 2016; Myrseth et al., 2009; Nilsson et al., 2020; Oei et al., 2018; Petry et al., 2006) and none systematic review was found. The studies were conducted in Australia (Casey et al., 2017; Dowling et al., 2007; McIntosh et al., 2016; Oei et al., 2018), Canada (Harris & Mazmanian, 2016), Sweden (Carlbring et al., 2010; Nilsson et al., 2020), Norway (Myrseth et al., 2009), and in the United States of America (Petry et al., 2006).

The main outcome measure analyzed in the studies was quality of life, assessed with the questionnaires Quality of Life Enjoyment and Satisfaction (Q-LES-Q) (Casey et al., 2017), World Health Organisation Quality of Life (Oei et al., 2018), Satisfaction with Life Scale (Oei et al., 2018), Quality of Life Inventory (Casey et al., 2017) and Short Form Health Inventory (McIntosh et al., 2016) (Table 3).

Risk of bias in the studies

All studies scored two points on the Jadad scale as they were not blinded.

Table 2
Main characteristics of the analyzed studies.

Authors, year	Countries	Type of study	Intervention and follow-up	Objectives	Sample characteristics	Outcome measures	Results	Conclusions	JADAD Scale
Oei, Raylu and Lai, 2017 ²¹	Australia	Randomized clinical trial (RCT).	Participants were randomly assigned to the control group (CG): waiting list or to the intervention group (IG) that received cognitive-behavioral therapy (CBT). All participants completed pre-treatment questionnaires. IG participants completed a cognitive behavioral therapy self-help manual, reading one chapter a week and doing a series of activities. Follow-up of interventions: 6 weeks.	Reinforce the information on self-help treatments for problems related to gambling and know the effectiveness of self-help programs based on a cognitive-behavioral therapy intervention to improve the quality of life, anxiety, depression, stress and alcohol consumption in people with compulsive gambling.	IG: 23 people with compulsive gambling over 18 years of age (52.2 % men and 47.8 % women). CG: 32 people with compulsive gambling (46.9 % men and 53.1 % women) older than 18 years. Participants were recruited through radio announcements, newspaper articles, and a 24-h gambling helpline.	<ul style="list-style-type: none"> • Diagnosis of pathological gambling evaluated with the DSM-IV diagnostic criteria for pathological gambling. • Cognition in people with compulsive gambling assessed with the Gambling Related Cognition Scale and the Gambling Urge Scale. • Psychological variables evaluated with the scale of anxiety, depression, stress-21 (The Depression Anxiety Stress Scale-21). • Quality of life and satisfaction evaluated with the scale of satisfaction with life (Satisfaction with Life Scale), the quality of life of the World Health Organization (World Health Organization), the Quality of life (Quality of Life). • Alcohol consumption with the Alcohol Use Disorders Identification Test. 	The cognitive-behavioral therapy intervention for people with problem gambling, based on a manual, reported significant improvements ($p < 0.01$) in the effectiveness of the participants to solve their problems, in quality of life and in satisfaction with life. In addition, there were even more significant changes ($p < 0.001$) in game thinking, game frequency, anxiety, depression, and stress. However, after CBT, no significant changes were found in alcohol consumption.	A cognitive-behavioral therapy intervention that uses a manual achieves significant improvements in the frequency of play and the severity of symptoms in people with problem gambling, also improving quality of life and life satisfaction. This intervention is useful for people seeking treatment and trying to improve their quality of life, and may be useful for use in intervention clinics for people with gambling disorder and in Primary Care.	2/5.
Harris and Mazmanian, 2016 ²²	Canada	RCT	The participants were randomly assigned to the CG: waiting list or to the IG that received cognitive-behavioral therapy, which consisted of an individual session at the beginning and 12 group sessions (one each week), each lasting 90 min. At the end of the sessions, post-tests were carried out via e-mail up to 3 months after the treatment. Follow-up of interventions: 3 months.	To examine the efficacy of cognitive-behavioral therapy for self-identification of gamers with Internet problems and thereby improve their quality of life.	GC: 16 players online. GI (in groups of 3 to 5 people): 16 players online. In total, 17 men and 15 women, aged between 22 and 52, participated. Participants were recruited through newspaper advertisements.	<ul style="list-style-type: none"> • 695 / 5000 Resultados da tradução • Gambling behavior measures (Gambling Behavior) and the Treatment Participation Questionnaire. • Diagnosis of compulsive gambling according to the diagnostic criteria of the DSM-IV (DSM-IV). • Perception of control, desire to gamble and frequency of gambling evaluated with the questionnaire of questions related to the game (Gambling-Related Questions) to measure the. • Alcohol consumption 	After CBT, which consisted of an initial individual session and 12 weekly group sessions for people with gambling problems, significant changes ($p < 0.001$) were found in the level of gambling, perception of control, decreased desire to play and the frequency of the game. Furthermore, when comparing the pre-treatment and post-treatment scores at three months in the IG, the same results were found as just after treatment. However, no significant changes were found when comparing the post-	CBT achieves significant improvements in people with gambling, either just after finishing the treatment or at 3 months, in the level of gambling, in the frequency of playing, in the perception of control and in the desire to play. However, CBT does not achieve significant improvements in results between post-treatment at 3 months and just after finishing CBT. CBT is useful for problem gamblers and online gamblers, having important clinical implications regardless of the type of gambling	2/5.

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Table 2 (continued)

Authors, year	Countries	Type of study	Intervention and follow-up	Objectives	Sample characteristics	Outcome measures	Results	Conclusions	JADAD Scale
Carlbörling, Jonsson, Josephson and Forsberg, 2010 ²³	Sweden	RCT	<p>Participants were randomly assigned to CG: waiting list or IG. There were two GIs. IG 1 who received CBT in closed groups with a session of three hours per week for 8 weeks, each session lasting 135 min, based on psychoeducation, exercises and tasks.</p> <p>IG 2 received an intervention based on the motivational interview of 50 min per session, being the same number of weeks as CBT. In it, the negative and positive consequences on gambling were explored and an attempt was made to guide the patient to make a decision about gambling.</p> <p>Follow-up of the interventions: 3 months, 6 months and 12 months.</p>	To assess the effectiveness of motivational interviewing and cognitive-behavioral group therapy for the treatment of gambling, observing the probable improvement in the level of gambling and psychological problems, thus improving the quality of life of patients.	<p>21 women and 106 men with a mean age of 40.5 years.</p> <p>CG: 46 people with compulsive gambling.</p> <p>IG: (group 1) 50 people with gambling who received CBT, (group 2) 54 people with gambling who received a motivational interview.</p>	<p>assessed with the Alcohol Use Disorders Identification Test.</p> <ul style="list-style-type: none"> • Psychological symptoms assessed with the revised 90 symptoms checklist (The Symptom Checklist-90-Revised). • The DSM-IV (DSM-IV) diagnostic criteria for the diagnosis of compulsive gambling. • The Beck Depression Scale (Beck Depression Inventory-29 to assess depression. • The Beck Anxiety Inventory to assess anxiety. 	<p>treatment scores and at 3 months after the intervention.</p> <p>After the interventions, a significant improvement ($p < 0.05$) was found in depression values and in the level of problems with gambling in GI 1 and GI 2. When comparing the results after the two interventions with the results of the CG in the pre and post-treatment at 6 and 12 months after the interventions, significant differences were found ($p < 0.05$) between the pre-treatment, post-treatment, at 6 months and at 12 months in the levels of depression, in anxiety, in the level of problems and in the money spent. In addition, compulsive gambling days also improved ($p < 0.05$), being higher compared to the post at 12 months and also being higher at 6 months than at 12 months. After the interventions, they found improvements in time spent playing ($p < 0.05$), being greater in the pre-treatment than at 6 months and at 12 months and also in the post-treatment than at 6 months and 12 months. The participants preferred group interventions over individual ones, with some participants refusing to receive the motivational interview. On the other hand, the</p>	<p>that participants have. Future studies should continue to investigate the long-term efficacy of CBT.</p> <p>An intervention based on a group in a CBT and in another group in a motivational interview in people with gambling disorder provides significant improvements from pre to post-treatment, at 6 months and at 12 in the levels of depression, anxiety, in the level of problems with gambling and money spent, demonstrating the effectiveness of both CBT and motivational interviewing. Furthermore, there are no differences between the results of CBT and motivational interviewing, both interventions being effective. Future studies should inquire into patients' preferences for both interventions, which will help improve their efficacy.</p>	2/5.

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Table 2 (continued)

Authors, year	Countries	Type of study	Intervention and follow-up	Objectives	Sample characteristics	Outcome measures	Results	Conclusions	JADAD Scale
Dowling, Smith and Thomas, 2006 ²⁴	Australia	RCT.	The participants were randomly assigned to the CG: waiting list or to the IG: who received group and individual cognitive behavioral therapy. Group treatment consisted of 12 sessions including setting a financial limit, planning alternative activities, cognitive correction, problem solving, communication training, relapse prevention, and imaginary desensitization. The individual sessions consisted of the same treatment, but with less time, being 1.5 h, compared to the 2 h of group CBT. Follow-up of interventions: 12 to 51 weeks.	To determine the effectiveness of an individual and group cognitive-behavioral intervention in pathological female players.	IG: 31 women with compulsive gambling (14 received individual treatment and 17 group treatment). CG: 26 women with compulsive gambling. Participants were recruited from the community through television and radio advertisements.	<ul style="list-style-type: none"> • The DSM-IV (DSM-IV) diagnostic criteria for the diagnosis of compulsive gambling. • Gambling behavior measures to assess the frequency, duration, amount of money wagered, and amount of money lost and won. • The Beck Depression Inventory-2 to assess depression. • The anxiety scale (State-Trait Anxiety Inventory) to assess anxiety. 	money gained / lost in the pre-treatment was lower than in the post, at 6 months and at 12 months. Finally, there were no significant differences in alcohol consumption between the participants. Nor were significant differences found between the IG in any of the variables evaluated. After CBT, group or individual, significant improvements were found in frequency, duration, money staked and in spending ($p < 0.05$). In relation to psychological symptoms, significant improvements were found in the IG in depression, in anxiety and in personal evaluation ($p < 0.05$). Comparing the two interventions, significant improvements ($p < 0.001$) were found after treatment in the two interventions when the results were compared in the initial phase, during treatment in frequency, in duration, in money staked, in depression, in anxiety and in personal evaluation. On the other hand, at 6 months after treatment, 92 % of the people with gambling disorder who received the individual intervention had lower scores in the diagnostic criterion of gambling, while in the group that received the group intervention it was 60 %.	Group or individual CBT in women with compulsive gambling has significant improvements in all outcome measures. Although at 6 months, the people who received the individual intervention have lower scores on the diagnostic criteria, so individual interventions may be more effective than group interventions, an aspect that should be confirmed in future studies.	2/5.
Myrseth H, Litre I, Stoylen IJ, Pallesen S, 2009 ²⁵	Norway	RCT.	All participants completed an initial individual interview. Afterwards, the participants were randomly assigned to the CG: waiting list or to the IG that	To evaluate the efficacy of group cognitive-behavioral therapy in the short term for players with gambling problems, checking if	All participants were of legal age and were recruited because they sought treatment at the University of Bergen. IG: 7 people (4 men and 3	The scales used to measure the results were: <ul style="list-style-type: none"> • Beck's Anxiety Inventory (BAI) to assess anxiety. • The Alcohol Use 	After the short-term group CBT, the IG had immediate effects, obtaining a lower score on the DSM-IV ($p < 0.01$). While in the CG there	Short-term CBT based is able to lower the DSM-IV score in people with gambling, but has no significant effect right after treatment on	2/5.

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Table 2 (continued)

Authors, year	Countries	Type of study	Intervention and follow-up	Objectives	Sample characteristics	Outcome measures	Results	Conclusions	JADAD Scale
			received short-term group CBT, which consisted of 6 group meetings, following a manual based on the pathological gambling literature and on the central components of the treatment of other addictive behaviors, such as motivation, ambivalence, decision-making, problem solving and relapse prevention, each session lasting 2 h. Follow-up of the intervention: 3 months.	there are improvements in the lives of these people.	women) who received CBT. CG: 7 people (all of them men).	Disorders Identification Test (AUDIT) to assess alcohol use. • The South Oaks Gambling Screen (SOGS) questionnaire to assess loss of control, where they get their money and emotions. • The DSM-IV (DSM-IV) diagnostic criteria for the diagnosis of compulsive gambling. • Self-registration of money spent during the last week on bets. • Gambling Inventory of Negative Consequences (GINC) to assess the negative consequences of gambling over the past 3 months.	were no significant improvements. No significant differences were found in either the IG or the CG regarding the money spent in the last week on bets ($p > 0.05$) after comparing the results in the pre and post-treatment. Treatment effects on IG at 3 months were significant for DSM-IV scores ($p < 0.001$) and on money spent last week on gambling ($p < 0.05$), also reducing the negative consequences of the Pathological gambling in the participants ($p < 0.05$), the effects of the intervention not being immediate.	money spent on gambling. Within three months of treatment, CBT is able to decrease DSM-IV scores, money spent on gambling, and negative consequences during the last three months. Therefore, the effects of CBT are not immediate, but you have to wait a while, when you get to change emotions before behavior.	
Petry NM, Ammerman Y, Bohl J, Doersch A, Gay H, Kadden R, Molina C and Steinberg K, 2006 ²⁶	United States of america	RCT.	Participants were randomized to one of the following interventions: • Group 1 only anonymous players (JA): participants received a list of the 22 places they had to attend the meetings. • Group 2 JA + CBT based on a manual: where the participants had to attend the JA sessions and then go through a chapter each week and perform the subsequent exercises once a week for 8 weeks. • Group 3 JA + individual CBT sessions: in which the participants had to attend the JA sessions and subsequently receive a one-hour session each week for 8 weeks by a therapist. Follow-up: 12 months.	To assess the efficacy of CBT and to compare its efficacy with an intervention based on anonymous gamblers, observing the improvement of the lives of people with compulsive gambling.	IG: 84 people with gambling, group 1 (JA + book CBT) and 84 people with gambling, group 2 (JA + CBT sessions) and 63 people with group 3 gambling (JA treatment). All the participants were over 18 years of age.	• DSM-IV (DSM-IV) diagnostic criteria for the diagnosis of compulsive gambling. • The South Oaks Pathological Gambling Questionnaire (SOGS) to assess problem gambling problems. • The Addiction Severity Index assessed the problems that addictive behaviors cause. • The timeline follow-back method (TLFB) that evaluated the frequency and intensity of past behaviors. • Record of the days on which the bet was made. • The Brief Symptom Inventory (BSI) to assess psychiatric symptoms. • The service scale (The Service Utilization Form) to assess satisfaction with the treatment received.	The participants of the three groups who received the interventions JA, JA + book CBT or JA + CBT sessions reported significant improvements in the frequency and intensity of gambling behaviors ($p < 0.05$). Furthermore, during the treatment, there were significant changes in all the variables studied ($p < 0.001$). In group 3 that received the JA intervention, 47.2 % of the people had a score below 5 in problems with gambling, while in group 1 that received the JA + CBT intervention it was 51, 4 % and in group 2 that received the intervention of JA + individual CBT of 69.2 %, (demonstrating an improvement regarding the use of CBT, and more individual CBT). When evaluating the problems of gambling and	590 / 5000 Resultados da tradução An intervention based on JA, JA + manual CBT and JA + individual CBT sessions reduces participation in the game in people with compulsive gambling, although it has better results when JA is combined with CBT. The benefits are greater in some variables when the CBT sessions are individual. CBT is effective in improving the quality of life of people with problem gambling, improving variables that influence it and the psychiatric problems that they may have. More studies are needed to investigate the cost-benefit of this type of therapy.	2/5.

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Table 2 (continued)

Authors, year	Countries	Type of study	Intervention and follow-up	Objectives	Sample characteristics	Outcome measures	Results	Conclusions	JADAD Scale
							<p>the money staked, it was observed that group 2 that received the intervention of JA + individual CBT sessions, 59 % of these recovered, 37.2 % improved and 3.8 % did not had changes (this group had no deterioration). However, in group 1 that received the JA + manual CBT intervention, 39.2 % of the participants recovered, 41.9 % improved, 16.2 % unchanged and 2.7 % worsened and in the group 3 that received JA intervention, 34 % recovered, 43.4 % improved, 18.9 % had no changes and 3.8 % worsened. In post-treatment evaluations, no significant changes were found in terms of baseline psychiatric symptoms, although a considerable improvement was associated with group 2 that received an intervention based on JA + individual CBT sessions ($p < 0.01$) in terms of abstinence compared to group 3 that received the JA intervention. However, no significant improvements were found in comparison between group 1 that received the JA + manual CBT-based intervention and group 2 that received the JA + individual CBT-based intervention ($p > 0.05$). At 12 months, 60 % of the participants in group 1 were classified as abstinent from gambling, compared to 65.7 % in group 2 and 60.5 % in group 3. Regarding the</p>		

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Table 2 (continued)

Authors, year	Countries	Type of study	Intervention and follow-up	Objectives	Sample characteristics	Outcome measures	Results	Conclusions	JADAD Scale
Leanne, Casey, Tian, Oei, Raylu, Horrigan, Day, Ireland, Bonnie, Clough, 2017 ²⁷	Australia	RCT.	Participants who completed the pre-treatment procedures were randomly assigned to either the IG or the CG. Participants assigned to the IG received the Odds program, which was developed to help people with gambling control or abstain from gambling, classifying themselves either in the CBT group or motivation, feedback and support group. Participants completed face-to-face sessions once a week for 6 weeks.	To analyze the efficacy of an online cognitive-behavioral therapy program for treating gambling problems, improving your life, and also comparing the efficacy of an online intervention based on CBT with an online intervention based on providing people with gambling with motivation, feedback and support.	G: 60 people with gambling (cognitive behavioral therapy) and 59 people with gambling (motivation, feedback and support therapy (MRA)). CG: 55 people with compulsive gambling. Participants were recruited through internet advertisements, newspapers, and radio shows. All were of legal age, residents of Australia and with the characteristics of DSM-IV gambling.	<ul style="list-style-type: none"> • The Gambling Symptom Assessment Scale for behaviors, interpersonal functions and cognition. • The South Oaks Gambling Screen questionnaire to assess problem gambling problems. • The game's momentum scale (Gambling Urge Scale) to assess momentum. • The Gambling Refusal Self-Efficacy Questionnaire and the Gambling Related Cognitions Scale to assess 	<p>variables psychiatric, depression decreased in all groups ($p < 0.001$). In addition, group 2 that received the JA + individual CBT-based intervention had more significant improvements than group 1 that received the JA + manual CBT-based intervention in reducing psychiatric symptoms ($p < 0.05$). On the other hand, reductions in alcohol consumption and legal situations were not related to treatment allocation.</p> <p>Throughout the follow-up, the effects continued to be significant for psychiatric scores and emerged in medical scores, where it was group 2 that received an intervention based on JA + individual CBT sessions that presented better results, while group 3 that received a JA-based intervention showed little change and group 1 that received a JA + manual CBT-based intervention had the worst results.</p> <p>After the CBT-based intervention or the intervention based on motivation, feedback and support, there were significant improvements in behaviors, interpersonal functions and problems with gambling ($p < 0.001$), in the group that received CBT and in the group that received CBT. group that received an ARM-based intervention versus CG. However, there were no significant differences between the group that</p>	A CBT intervention and an ARM-based intervention are effective in improving the behavior and attitudes of people with gambling disorder, although in variables such as alcohol consumption, anxiety and stress, CBT is more effective. However, these interventions do not improve quality of life. The results of the different variables are better in CBT than in ARM, suggesting that CBT is more effective in	2/5.

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Table 2 (continued)

Authors, year	Countries	Type of study	Intervention and follow-up	Objectives	Sample characteristics	Outcome measures	Results	Conclusions	JADAD Scale
			Follow-up of interventions: 12 months.			gambling behavior and money wagered. <ul style="list-style-type: none"> • The Depression Anxiety and Stress Scales to assess depression, anxiety and stress. • The Alcohol Use Disorders Identification test to assess alcohol use. • Quality of Life Inventory to assess quality of life. • Satisfaction with Life Inventory to measure satisfaction with life. 	received CBT and the group that received an ARM-based intervention. Regarding the money bet, there were no significant differences in any group evaluated. Yes, significant changes were found in the frequency of the game, between the IG and the CG ($p < 0.001$), but there were no significant differences between the IG. In behavior and cognition there were significant improvements in the group that received CBT ($p < 0.001$). There were no significant changes in depression in any of the evaluated groups, while in anxiety and alcohol consumption there were only important changes between the group that received CBT and the CG ($p < 0.001$). In stress, there were changes between the group that received CBT compared to the CG and between the two IGs ($p < 0.001$). Finally, there were no significant differences between the groups in quality of life or satisfaction with life.	treating people with gambling disorder. Future studies should look into additional ways CBT could be used to increase treatment options for people with problem gambling.	
Nilsson, Magnusson, Carlbring, Andersson, Hellner, 2019 ²⁸	Sweden	RCT.	The participants were randomly assigned to the CG: waiting list or to the IG that received a behavioral therapy in couples. Both interventions were carried out online, with 10 self-help modules guided by the therapist, accompanied by weekly telephone and email support from a therapist for 12 weeks.	To compare the response to treatment in gambling behaviors, mental health, relationship satisfaction and adherence to treatment of players with gambling problems.	GI: 68 people with problem gambling and 68 people concerned with gambling. CG: 68 people with gambling and 68 with gambling problems. Participants were recruited through the Swedish National Gambling Network. Players had to show symptoms of gambling problems. The companions had to be	<ul style="list-style-type: none"> • Time-line flow-back for Gambling method to evaluate frequency. • Patient Health Questionnaire-9 to assess depression. • The Generalized Anxiety Disorder scale to assess anxiety. • The Alcohol Use Disorders Identification Test to assess alcohol use. • Relationship Assessment Scale Generic 	After an online CBT as a couple or individually, there were only significant changes in post-treatment in depression and anxiety ($p < 0.05$). There was greater participation and adherence to treatment in people who received CBT in pairs (16.2 %) compared to participants who received it individually (10.2 %). No	Receiving an online CBT as a couple or individually does not affect its effectiveness, since there are no improvements in the variables, in the quality of life, nor a significant decrease in the level of gambling. However, performing the intervention as a couple is significant for deciding to start the intervention and for adherence to it.	2/5.

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Table 2 (continued)

Authors, year	Countries	Type of study	Intervention and follow-up	Objectives	Sample characteristics	Outcome measures	Results	Conclusions	JADAD Scale
McIntosh et al. (2016) ²⁹	Australia	RCT.	Participants were randomized to CG: who only received individual CBT in person, through an initial session of 90 min and subsequent sessions of 60 min, or to IG 1 0 2 that received a CBT based on a manual and Mindfulness-based intervention. CBT and Mindfulness were administered in 4 weeks.	To explore the efficacy of an intervention that combined Mindfulness and CBT to improve mental quality of life and mental quality of life in people with compulsive gambling and assess whether sequencing these interventions affects the efficacy of treatment.	partners, a family member or a friend of the player. All participants resided in Sweden and were over 18 years of age. All people who sought treatment at a Sydney city treatment clinic were invited to participate. IG: (group 1) Group CBT first + Mindfulness: 23 people, (Group 2) Mindfulness first + CBT: 28 people. CG: (Group 3) Group with individual sessions of individual CBT: 26 people.	to assess the satisfaction with the partner. <ul style="list-style-type: none"> • The Pathological Gambling Questionnaire (The South Oaks Screen) (SOGS) and DSM-IV Diagnostic Criteria (DSM-IV) to assess the frequency of gambling, intensity, time elapsed since each participant began to play. Gambling and the amount of time each participant had problems with their gambling (Diagnosis of compulsive gambling). • The depression, anxiety and stress scale (Depression Anxiety and Stress Scale-21) to assess anxiety, depression and stress. • Short questionnaire of the five factors of Mindfulness (Five Factor Mindfulness Questionnaire Short-Form) to evaluate satisfaction with the technique. • Short Form Health Inventory to assess quality of life. Satisfaction Questionnaire (The Client Satisfaction Questionnaire) to assess satisfaction with treatment. 	significant changes were found in the other variables. All groups reported significant differences ($p < 0.001$), in the DSM-IV during treatment and in the post-treatment and in the pathological gambling questionnaire (SOGS) ($p < 0.001$) in the post-treatment. Regarding the days since the game was played, in group 1, which received an intervention based on CBT first and then Mindfulness, significant changes were found during treatment ($p < 0.001$) and fewer changes in post-treatment ($p < 0.01$). Group 2, who received an intervention based on Mindfulness first and then CBT, had the same changes, during treatment ($p < 0.001$) and post-treatment ($p < 0.01$). However, in group 3, which received an intervention based on individual CBT sessions, there were the same changes during treatment and post-treatment ($p < 0.01$). Regarding gambling episodes, in group 1 there were large significant changes during treatment and post-treatment ($p < 0.001$), while in group 2 there were significant improvements ($p < 0.001$) during treatment, worsening in the post-treatment ($p < 0.01$) and group 3 obtained the same significant changes	Future studies should continue to investigate the benefits of CBT as a couple. After the different types of interventions based on CBT first and then Mindfulness, Mindfulness first and then CBT or individual CBT sessions, there are improvements in the frequency, in the money wagered and a lower score in the questionnaire for the diagnosis of gambling. On the other hand, combined interventions in which the participants who receive the Mindfulness-based intervention before CBT compared to the group who receive the intervention based on individual CBT sessions, improve the quality of life of people with gambling disorder. Therefore, using Mindfulness in addition to CBT improves the effectiveness of the treatment. Mindfulness-based interventions are a therapeutic alternative for people with problem gambling who are not prone to receiving more traditional therapies or also for participants who want to improve their quality of life, obtaining greater benefits if Mindfulness is performed before CBT. Future studies should investigate whether changes in variables that measure other gambling behaviors are not	2/5.

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Table 2 (continued)

Authors, year	Countries	Type of study	Intervention and follow-up	Objectives	Sample characteristics	Outcome measures	Results	Conclusions	JADAD Scale
							<p>as in the other variable ($p < 0.01$) during the treatment and afterwards. Regarding the money wagered, significant changes were found in group 1 during treatment ($p < 0.01$) and greater changes during post-treatment ($p < 0.001$). While in group 2 there were significant changes during treatment ($p < 0.05$), also improving in the post-treatment ($p < 0.01$) and in group 3 there were changes during treatment and post ($p < 0.01$).</p> <p>Regarding the quality of mental life, only in group 2 there were significant changes ($p < 0.05$). In mental quality of life, there were significant changes in group 1 in the post-treatment ($p < 0.01$), while group 2 had greater changes during treatment and in the post ($p < 0.001$). Finally, in group 3 there were changes during treatment and post-treatment ($p < 0.01$).</p>	<p>clinically relevant, such as preventing relapse for a longer period of time or whether heterogeneous groups of people with gambling respond differently to treatment.</p>	

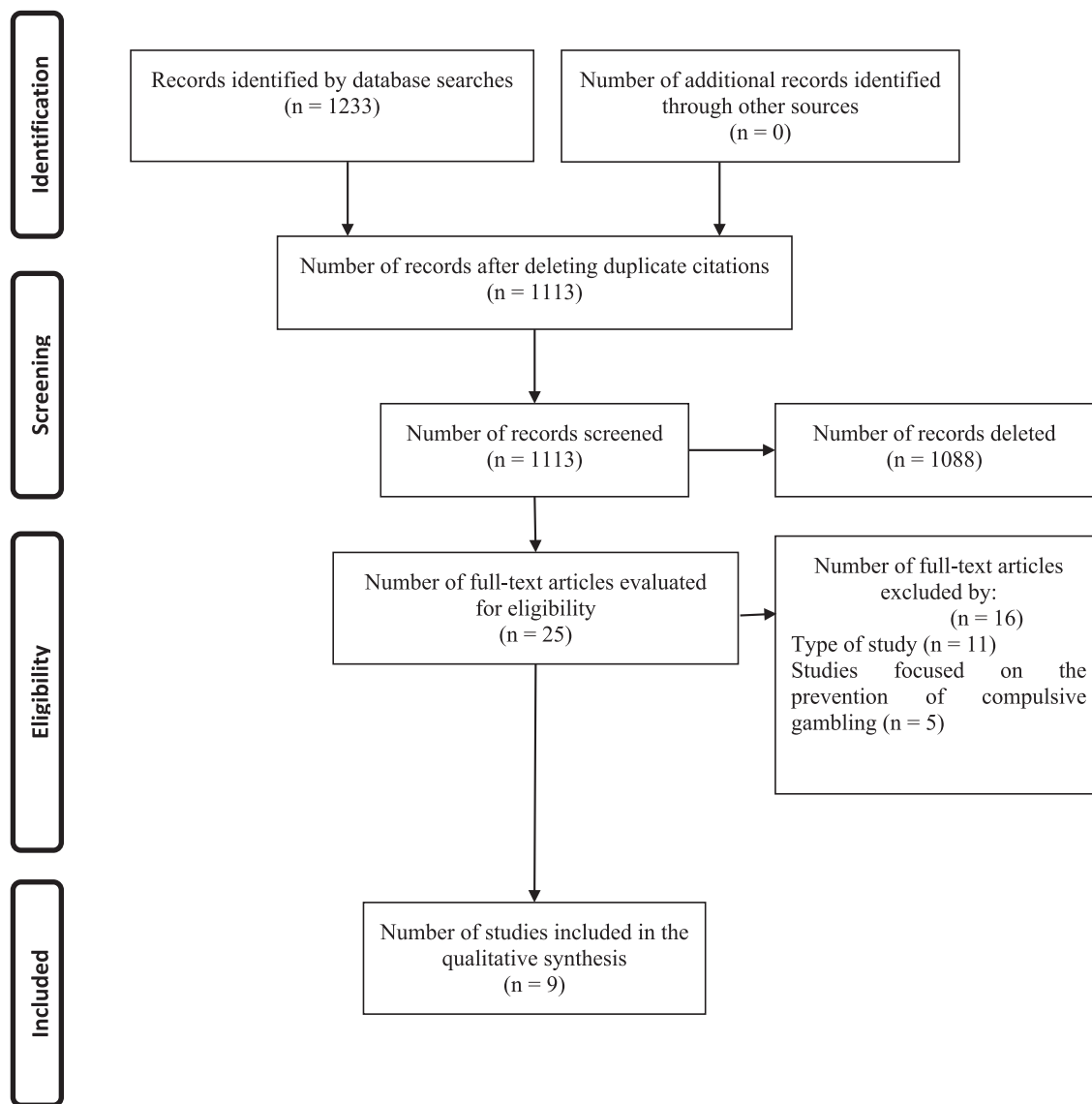


Fig. 1. Search process flow chart.

Synthesis of the results

In all the studies analyzed, cognitive-behavioral therapy was used, with differences in its application. In one of the studies, the participants used a self-help manual, reading the chapters of the manual and doing the activities (Oei et al., 2018). In other studies, this intervention was complemented with Mindfulness (McIntosh et al., 2016) or with mutual help group sessions taught by Gamblers Anonymous (Petry et al., 2006). In another study, the effects of routine intervention (providing participants with motivation, feedback and support) and individual cognitive-behavioral therapy were compared (Casey et al., 2017). Finally, another study compared an intervention based on motivational interviewing with group cognitive-behavioral therapy sessions (Carlbring et al., 2010).

Cognitive-behavioral therapy sessions were taught by individual therapists (Casey et al., 2017; Dowling et al., 2007; Nilsson et al., 2020; Petry et al., 2006), group (Carlbring et al., 2010; Dowling et al., 2007; Harris & Mazmanian, 2016; McIntosh et al., 2016; Myrseth et al., 2009) or as a couple (although in this case, the intervention was online) (Nilsson et al., 2020).

Although one study reported that cognitive-behavioral therapy that included a manual can improved the quality of life of people with

compulsive gambling (Oei et al., 2018), another study did not report significant differences between the control group and the intervention group (Casey et al., 2017). In addition, the intervention that used a crossover design was also effective, combining first the Mindfulness intervention and ending with cognitive-behavioral therapy (McIntosh et al., 2016).

In addition, cognitive-behavioral therapy can helped decrease the frequency of gambling (Casey et al., 2017; Dowling et al., 2007; Harris & Mazmanian, 2016; McIntosh et al., 2016; Oei et al., 2018) and the desire to play in people with compulsive gambling (Harris & Mazmanian, 2016).

While certain studies showed the effectiveness of cognitive-behavioral therapies to decrease the amount of money wagered (Carlbring et al., 2010; Casey et al., 2017; McIntosh et al., 2016; Myrseth et al., 2009), one study found no difference between pre and post-treatment values (Casey et al., 2017), another reported changes three months after the intervention (Myrseth et al., 2009) and another reported improvements at six and twelve months after the intervention (Carlbring et al., 2010). On the other hand, the intervention that combined cognitive-behavioral therapy with Gamblers Anonymous support groups reported a decrease in problem gambling problems and an increase in abstinence from gambling after 12 months of treatment (Petry

Table 3
Results of the evaluation of the quality of the studies with the Jadad Scale.

Authors	Was the study described as randomized? Yes: 1 point. No: 0 points.	Was the method used to generate the randomization sequence described and is this method suitable? Yes: 1 point. No: 0 points.	Was the method used to generate the randomization sequence adequate? Yes: 0 points. No: –1 point.	Was the study described as double blind? Yes: 1 point. No: 0 points.	Was the method of blinding (or double blind) described and was appropriate? Yes: 1 point. No: 0 points.	Was the blinding method appropriate? Yes: 0 points. No: –1 point.	Was there a description of withdrawals and dropouts? Yes: 1 point. No: 0 points.	Classification
Oei, Raylu, Lai [21]	Yes.	Yes.	Yes.	No.	No.	No.	Yes.	2.
Harris, Mazmanian [22]	Yes.	Yes.	Yes.	No.	No.	No.	Yes.	2.
Carlbring, Jonsson, Josephson and Forsberg [23]	Yes.	Yes.	Yes.	No.	No.	No.	Yes.	2.
Dowling, Smith and Thomas [24]	Yes.	Yes.	Yes.	No.	No.	No.	Yes.	2.
Myrseth H, Litre I, Stoylen IJ, Pallesen S [25]	Yes.	Yes.	Yes.	No.	No.	No.	Yes.	2.
Petry NM, Ammerman Y, Bohl J, Doersch A, Gay H, Kadden R, Molina C and Steinberg K [26]	Yes.	Yes.	Yes.	No.	No.	No.	Yes.	2.
Leanne, Casey, Tian, Oei, Raylu, Horrigan, Day, Ireland, Bonnie, Clough [27]	Yes.	Yes.	Yes.	No.	No.	No.	Yes.	2.
Nilsson, Magnusson, Carlbring, Andersson, Hellner [28]	Yes.	Yes.	Yes.	No.	No.	No.	Yes.	2.
McIntosh, Crino, Neill [29]	Yes.	Yes.	Yes.	No.	No.	No.	Yes.	2.

et al., 2006).

A study investigated the effectiveness of cognitive-behavioral therapy in the perception of control over the game, reporting improvements in the group that received cognitive-behavioral therapy compared to the control group (Harris & Mazmanian, 2016).

On the other hand, no significant changes were found in the variables when the online cognitive-behavioral therapy was performed individually or in pairs, although one study reported greater adherence to treatment when the online intervention was performed in pairs (Nilsson et al., 2020). In addition, another study reported lower scores in the diagnostic criteria for gambling at 6 months after individual cognitive-behavioral therapy compared to group cognitive-behavioral therapy (Dowling et al., 2007).

In relation to the effect of the interventions, the study that combined Mindfulness with cognitive-behavioral therapy reported improvements both during treatment and in post-treatment (McIntosh et al., 2016). In addition, other studies showed the efficacy of the interventions after three (Myrseth et al., 2009), six and 12 months of treatment (Carlbring et al., 2010). On the other hand, no significant differences were found in scores for depression, anxiety, gambling frequency, and money spent after cognitive-behavioral therapy and the motivational interview (Carlbring et al., 2010), while the intervention that combined Gamblers Anonymous support groups with individual cognitive-behavioral therapy achieved a higher percentage of gambling abstinent at 12 months, also improving psychiatric variables after the intervention (Petry et al., 2006).

The efficacy of cognitive-behavioral therapy for depression and anxiety was analyzed in a large number of studies (Carlbring et al., 2010; Casey et al., 2017; Dowling et al., 2007; Nilsson et al., 2020; Oei et al., 2018; Sánchez Hervás et al., 2002). Thus, while several studies reported improvements in depression after the intervention (Carlbring et al., 2010; Dowling et al., 2007; Nilsson et al., 2020; Oei et al., 2018), one study reported no significant differences (Casey et al., 2017). Additionally, several studies found improvements in anxiety (Carlbring et al., 2010; Casey et al., 2017; Dowling et al., 2007; Nilsson et al., 2020; Oei et al., 2018) or in the stress after the intervention (Casey et al., 2017; Oei et al., 2018).

We found discrepancies in the efficacy of cognitive-behavioral therapy for reducing alcohol consumption. Thus, two studies found no significant differences (Carlbring et al., 2010; Oei et al., 2018), one study did report significant changes (Casey et al., 2017), while another stated that the decrease in alcohol consumption was not related to any treatment (Petry et al., 2006). On the other hand, there was a considerable decrease in DSM-IV values in five studies (Dowling et al., 2007; McIntosh et al., 2016; Myrseth et al., 2009; Petry et al., 2006) and one study found improvements after 6 months of the individual intervention (Dowling et al., 2007).

Discussion

Summary of the evidence

The results of the analyzed studies show that cognitive-behavioral therapy can improve the quality of life of people with gambling disorder, being the most effective interventions when supported by a self-help manual (Oei et al., 2018) and when cognitive-behavioral therapy is combined with a group Mindfulness intervention (McIntosh et al., 2016).

Cognitive-behavioral therapy also can improve other variables that can affect the quality of life of people with problem gambling, such as depression, anxiety, spending money, frequency of gambling and the score in the diagnosis of gambling (Carlbriing et al., 2010; Casey et al., 2017; Dowling et al., 2007; Harris & Mazmanian, 2016; McIntosh et al., 2016; Nilsson et al., 2020; Oei et al., 2018).

Although adherence to treatment is higher in the case of online interventions for couples (Nilsson et al., 2020), more studies are needed to confirm whether cognitive-behavioral therapy is more effective when applied in groups or individually (Dowling et al., 2007).

Interventions that combine cognitive-behavioral therapy and Mindfulness obtain better results when the Mindfulness program is carried out first and then cognitive-behavioral therapy (McIntosh et al., 2016), results that confirm the findings of previous studies carried out in people with addictions to heroin, cocaine or alcohol and with pathologies such as major depressive disorder, obsessive-compulsive disorder, panic disorder, generalized anxiety disorder, stress disorder post-traumatic, hypochondria, anorexia nervosa and bulimia nervosa (Fullana et al., 2012; Prats et al., 2014; Sánchez Hervás et al., 2002).

The results of this review follow the line of previous studies that indicate that cognitive-behavioral therapy can improve the quality of life in people with addictions, obtaining significant improvements in people with addiction to alcohol, heroin and cocaine (Sánchez Hervás et al., 2002) and with the advantage that this therapy is less expensive than other therapies (Fullana et al., 2012; Sánchez Hervás et al., 2002).

On the other hand, previous studies show the efficacy of group cognitive-behavioral therapy in reducing the symptoms of panic-agoraphobia and in the psychological variables (Prats et al., 2014). In addition, cognitive-behavioral therapy is effective in reducing non-psychotic mental disorders, obtaining greater effects when combined with pharmacological treatment (Fullana et al., 2012). According to the results of this review, it is not possible to confirm the efficacy of the combination of cognitive-behavioral therapy with drug treatment in people with gambling disorder, so future studies should continue to delve into this phenomenon.

Although a previous study indicates that improvements in cognitive-behavioral therapy can be maintained three months after the intervention (Prats et al., 2014). The results of this review show some controversy regarding the duration of the effect of the interventions, finding that it can be maintained three months after the intervention (Myrseth et al., 2009) and after six and twelve months (Carlbriing et al., 2010).

The results of this review (Harris & Mazmanian, 2016) follow the line of a previous study that found significant improvements in the perception of control over the game, in the frequency of the game and in the desire to play after cognitive-behavioral therapy-based interventions (Ladouceur et al., 2001).

Furthermore, based on the results of this review, although Gamblers Anonymous support group-based interventions are not effective as a single treatment for people with gambling disorder, they may increase the effectiveness of other interventions such as cognitive-behavioral therapy (Petry et al., 2006), finding that has already been pointed out in a previous study (Desai et al., 2012).

We know that group cognitive-behavioral therapy can have the same effect as individual interventions, although it has been suggested that the results of group interventions can last six months, compared to three months for individual interventions (Gooding & Tarrier, 2009). The

results of this review show some controversy regarding the duration of the interventions. Thus, in a study found that the effects of group treatment in the short term last three months (Myrseth et al., 2009), while in another, the diagnostic criteria for gambling is lower at six months after individual cognitive-behavioral therapy (Dowling et al., 2007) and in another there is a higher number of gambling abstinent 12 months after the intervention in participants who received individual cognitive-behavioral therapy combined with Gamblers Anonymous support group sessions (Petry et al., 2006).

Limitations and strengths of the review

This systematic review followed the recommendations of the PRISMA Declaration (Page et al., 2021) and the methodological quality of the included studies was assessed with the Jadad scale (Clark et al., 1999).

Regarding the limitations, it is necessary to consider the publication, language, and database biases as only articles in English and Spanish published in the analyzed databases have been included, so it is possible that potential potentials have been excluded. Relevant articles. Furthermore, the bias of the methodological quality of the RCTs analyzed must be taken into account, since none of them used masking techniques. Finally, the heterogeneity in the methodology and in the interventions of the studies analyzed, prevented a meta-analysis from being carried out.

Implications for professional practice

Due to its effectiveness, interventions aimed at improving the quality of life of people with problem gambling should include cognitive-behavioral therapy supported by a manual, combined with Mindfulness or with Gamblers Anonymous support group sessions.

In addition, future studies should investigate the preferences of people with gambling problems regarding the different interventions and the conditions for their application, which will help improve their effectiveness and maintain their results over time. Moreover, more research is needed comparing the efficacy of a larger number of other types of therapy with cognitive-behavioral therapy.

Conclusions

Cognitive-behavioral therapy can improve the quality of life of people with gambling and other influencing factors, such as decreased stress levels, anxiety, depression, the habit of gambling, and money spent on people with gambling, being more effective the interventions that use a manual and those that combine cognitive-behavioral therapy with Mindfulness or with Gamblers Anonymous support group sessions.

The effects of cognitive-behavioral therapy are not immediate, but appear at three, six and 12 months.

Despite the above, these conclusions should be taken into account with caution, due to the low quality of the studies analyzed. More studies are needed that exclusively analyze the quality of life and help to understand what are the best conditions to apply the interventions (optimal number of sessions, group or individual sessions, and online or face-to-face sessions).

CRediT authorship contribution statement

Conceptualization: MHA, FLE, BRM; Data collection: AN, PACA, MHA; Data Analysis: FLE, BRM; Writing- Original Draft Preparation: FLE, AN, MHA, PACA; All authors revised and edited the manuscript.

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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.

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