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Prevention and Treatment of Problem Gambling Among Older Adults: A Scoping Review

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Abstract

Gambling is a socially acceptable form of recreation for older adults, but excessive gambling can lead to negative financial consequences and mental health problems. The lack of attention given to gambling problems among older adults has been highlighted in the literature for over a decade. The objectives of this review were to examine relevant literature on interventions for prevention and treatment of problem gambling (PG) among older adults and to identify research gaps. To this end, we conducted a scoping review of both quantitative and qualitative research, focusing on adult studies. Because of the lack of PG research specific to older adults, we focused our review on prevention and treatment among adult studies that covered a wide age range. Our literature search, conducted in a range of bibliographic databases, located 7,632 titles. After duplicates were eliminated, 4,268 records remained; 2,321 were excluded based on title and 1,247 remained after abstract review. Three independent assessors reviewed the full text of 700 articles and found 247 that met our inclusion/exclusion criteria. We identified a paucity of research on prevention and treatment of problem gambling specific to older adults, with the gaps in evidence even greater for prevention. We found only six studies specific to adults aged 55 years and older. Studies on older women are severely lacking. We conclude with some suggestions for future research.

Keywords: older adults, seniors, gambling, prevention, treatment

Résumé

Le jeu est une forme de loisir socialement acceptable pour les personnes en âge avancé, mais le jeu excessif peut entraîner des conséquences financières graves et des problèmes de santé mentale. Depuis plus d'une décennie, le manque d'attention accordée aux problèmes de jeu chez les personnes âgées a été souligné dans la littérature. Cette étude avait pour but d'examiner les ouvrages portant sur les interventions de prévention et le traitement du jeu problématique chez les personnes âgées et de cerner les lacunes dans la recherche. À cette fin, on a entrepris un examen de l'étendue de la recherche quantitative et qualitative axée sur les études sur les adultes. En raison de l'absence de recherche sur le jeu compulsif propre aux adultes âgés, nous avons axé notre examen sur la prévention et le traitement dans les études pour adultes couvrant plusieurs tranches d'âge. Notre revue de la littérature, menée dans diverses bases de données bibliographiques, a permis de répertorier 7 632 titres. Après l'élimination des doublons, il est resté 4268 titres; 2321 ont été exclus sur la base du titre et nous en avons conservé 1247 après la lecture des résumés. Trois évaluateurs indépendants ont examiné le texte intégral de 700 articles et ont repéré 247 articles qui répondaient à nos critères d'inclusion/d'exclusion. Nous avons constaté un manque de recherche sur la prévention et le traitement du jeu problématique propre aux personnes âgées, et des lacunes encore plus évidentes au chapitre de la prévention. Nous avons trouvé seulement six études portant spécifiquement sur les adultes âgés de 55 ans et plus. Les études sur les femmes d'âge mûr font cruellement défaut. Nous avons conclu en donnant quelques suggestions pour de futures recherches.

Introduction

Gambling is a popular social activity among older adults (McNeilly & Burke, 2001), with a 45% increase in their participation between 1975 and 1999 (National Opinion Research Center at the University of Chicago, 1999). Evidence indicates that problem gambling (PG) among older adults is a significant public health issue in developed countries, including the United States, Canada, New Zealand, Australia, and Sweden (Abbott et al., 2013), with 12-month prevalence rates ranging from 0.3% to 10.4% (Tse, Hong, Wang, & Cunningham-Williams, 2012). Although point prevalence may vary, trends in prevalence rates among adults in general are consistent across regions (Sassen, Kraus, & Buhringer, 2011).

In Canada, engagement in past-year gambling activity ranged from 67.8% to almost 80% among older adults (Hirsch, 2000; Wiebe, 2000; Wiebe, Single, Falkowski-Ham, & Mun, 2004), with estimated rates of moderate to severe PG between 1.2% and 2.1% (Philippe & Vallerand, 2007; Wiebe, 2000; Wiebe et al., 2004). These rates are comparable to the general adult population; however, pathways to problematic gambling may be unique to this group (Tira, Jackson, & Tomnay, 2013). Older adults' gambling

behaviours can be grouped into three categories (Tirachaimongkol, Jackson, & Tomnay, 2010): individual (e.g., financial and relational stress, health issues), social and environmental (e.g., lack of alternative leisure options, cultural expectations, erroneous cognitions), and behavioural dysregulation (e.g., changes in behaviour as a result of comorbidities).

Motivations for gambling are similar to those in adults in general and include desire for social interaction, relief from emotional distress, fun and excitement, and the chance to win money (Ariyabuddhiphongs, 2012; Bjelde, Chromy, & Pankow, 2008; Wiebe et al., 2004). Interviews with older women revealed that gambling filled a psychological or social void, with gambling considered a form of entertainment that offered them emotional respite when they felt alone or depressed (Pattinson & Parke, 2017). Older adults may gamble as a coping mechanism, which is a particularly salient risk factor in developing gambling problems (Tira et al., 2013; Tirachaimongkol et al., 2010).

Aside from motivations, older adults' perceptions of gambling may also put them at risk for developing gambling problems. Tira and Jackson (2015) examined what older adults consider to be gambling and found that their definitions of gambling varied depending on intentions, passions, and attitudes. For instance, among some older adults, bingo and lotteries were not considered gambling, but rather social or light-hearted activities, respectively; others considered sport betting as a hobby because of their love of horse racing (Tira & Jackson, 2015).

Some research suggests that that these particular motivations for and perceptions of gambling increase older adults' vulnerability to exploitation by the casino industry, which promotes gambling venues as safe social spaces and offers incentives to play, such as free transportation from rural areas and nursing homes, tokens, meals, and member cards (Baxter, Salmon, Dufresne, Carasco-Lee, & Matheson, 2016; Bjelde et al., 2008; Gosker, 1999; Government of Canada, 2006; Loroz, 2004; McNeilly & Burke, 2002; Wiebe et al., 2004). Patrons are greeted by friendly staff, enhancing their sense of belonging (Tira & Jackson, 2015). Gosker (1999) argued that focused marketing to entice older adults to gambling venues should be accompanied by state and industry policies to control exploitative marketing campaigns.

PG rates among the older adult population might be reduced with appropriate evidence-based responses (i.e., services that are dedicated to responsible gambling) such as education, increased public awareness, and preventive and treatment services (Bjelde et al., 2008). Initiatives that enhance awareness of problematic gambling behaviours among older adults may help to reduce risk of PG (e.g., "Betting on Older Adults: A Problem Gambling Awareness Kit"; Lemay, Bakich, & Fontaine, 2006). The objective should not be to eliminate gambling among older adults, as studies indicate that gambling responsibly can improve older adults' mental and social well-being by offering social integration and social support, a sense of accomplishment and excitement, and knowledge enhancement (Chantal, Vallerand, & Vallieres, 2001; Korn & Shaffer, 1999); rather, it should be to improve knowledge of responsible gambling to reduce harms.

Characteristics of Older Adults Who Gamble and Who Experience PG

Gambling behaviours. Older adults tend to engage in particular forms of gambling, including lottery tickets, raffles, and slots at casinos (Ariyabuddhiphongs, 2012; Bjelde et al., 2008; Wiebe et al., 2004). Some behavioural patterns are specific to older adults who gamble. They are more likely to gravitate to simple rather than complex games and to rely on word of mouth for gambling-related information (Moufakkir, 2012; Tira & Jackson, 2015).

Gambling progression and help seeking. Older adults who are retired or semi-retired have more disposable time, a precipitating factor for gambling and PG (McNeilly & Burke, 2001, 2002). Some research suggests that gambling problems develop more quickly for older adults (telescoping) and that they are more susceptible to relapse during treatment relative to other age groups (Bjelde et al., 2008); yet, they have better overall recovery rates than younger adults do (Bjelde et al., 2008). Older adults are less likely to seek treatment when faced with gambling-related concerns (Petry, 2002a). A recent study by Subramaniam, Chong, Browning, and Thomas (2017) revealed that older adults, aged 60 years and older, reported cognitive distortions that included illusions of control, belief in luck and superstition, and a minimization of losses, which maintained or exacerbated gambling problems (Subramaniam et al., 2017). Petry found that the betting practices of older adults differ from those of younger people; on a monthly basis, older adults placed fewer bets than did those in younger age groups. Research suggests that men represent the majority of people who seek treatment (Ferentzy, Skinner, & Matheson, 2013); yet among older adults, women represent 45% of those who seek treatment (Petry, 2002a). The average age of older women initiated into gambling was 55, whereas older men generally reported a lifelong history of gambling (Petry, 2002a).

Gambling-related harms. The harmful effects of gambling are similar across age (Ariyabuddhiphongs, 2012). A study by Bergh and Kühlhorn (1994) found that negative effects of PG among older adults included depression and/or low self-esteem, physical health problems, financial problems, impaired relationships with family and friends, social isolation, problems at work, and criminality. Psychological issues manifest in the form of comorbid substance abuse/dependence, depression, and anxiety disorders (Ariyabuddhiphongs, 2012). Depression is the most common problem among older adults who gamble to excess (Bjelde et al., 2008). Physical health problems manifest primarily as headaches and gastrointestinal problems (Lorenz & Yaffee, 1988). Social consequences of disordered gambling include isolation (Lorenz & Yaffee, 1988), loss of trust (Dickson-Swift, James, & Kippen, 2005), and feelings of resentment (Hodgins, Shead, & Makarchuk, 2007). Other harmful effects include guilt about gambling, chasing losses, and shame when criticized for gambling behaviours (Wiebe et al., 2004). Older adults often have fixed modest monthly incomes (Lemay et al., 2006) and are thus less capable of replacing funds lost to gambling (Government of Canada, 2006), which may result in higher debt and need for loans (McComb, Lee, & Sprenkle, 2009). Negative social consequences

of PG may include impaired relationships with family and friends (McComb et al., 2009). A large number of people who access PG treatment services are the family members of older adults (Kourgiantakis, Saint-Jacques, & Tremblay, 2013; McComb et al., 2009). This may point to the need for a more holistic approach to PG, such that family members are included in the treatment regime (McComb et al., 2009).

Objectives

Like Canada, many developed countries have an aging population (Anderson & Hussey, 2000; Bohnert, Chagnon, & Dion, 2015). The present scoping review was designed to summarize the literature and available evidence on the prevention and treatment of PG among older adults (55 and older). To our knowledge, gambling research has focused on younger and middle-aged individuals. Although certain studies have examined gambling among older adults, the primary foci were prevalence rates, motivations for gambling, and gambling-related harms. Little is known about prevention and treatment of PG specifically for older adults. The objectives of the scoping review were to identify (a) studies that might inform interventions for prevention and treatment and (b) where gaps in knowledge exist in the literature regarding prevention and treatment of PG among older adults.

Method

Search Strategy

The initial search strategy focused on articles specific to older adults (55 and older). This age range aligns with definitions of older adults used previously in the literature (Tira & Jackson, 2015; Tira et al., 2013; Tirachaimongkol et al., 2010). After finding only six articles specific to adults in this age range, we expanded the search to include all adults (18 years and older). This modification allowed us to explore whether adults 55 and older were included in samples in combination with younger adults and to examine whether knowledge about treatment and prevention for younger adults might be relevant to the prevention and treatment of PG among older adults.

We searched the following databases from January 1994 to January 2015: MEDLINE, Cochrane Central Register of Controlled Trials, Database of Abstracts of Reviews of Effects, Cochrane Database of Systematic Reviews, Embase, PsycINFO, CINAHL, AgeLine, Social Sciences Abstracts, ProQuest (Applied Social Sciences Index and Abstracts, International Bibliography of the Social Sciences, Social Services Abstracts, Sociological Abstracts), and Web of Science (Social Sciences Citation Index, Conference Proceedings Citation Index - Science, Conference Proceedings Citation Index - Social Science & Humanities). The search strategy, including key search terms and eligibility criteria, was initially developed by three team members (SJS, PF, FIM) in close collaboration with an information specialist (CPZ). The search strategies, adapted for each database, used a combination of medical subject headings and keywords for gambling or gamblers, combined by using the Boolean operator AND with a comprehensive range of search terms related to prevention and treatment,

including preventive health services, rehabilitation, therapy, intervention, evidence-based medicine, best practices, guidelines, program evaluation, harm reduction, counseling, psychotherapy, self-help groups, health education, health promotion, social media, self-exclusion, government regulation, public policy, and drug therapies. The full MEDLINE search strategy can be found in the Appendix. We also included grey literature from the Gambling Research Exchange Ontario Knowledge Repository, but focused on the academic literature to develop the synopses and for this review. All citations were managed with EndNote.

Articles were deemed eligible for inclusion if they met the following criteria: written in the English language, conducted between January 1994 and January 2015 (a 20-year period of coverage), focused on either prevention or treatment of PG, and focused on adult populations. Every effort was made to identify the full text of articles. If it was not possible to locate the full text, these articles were not included in the review.

We included qualitative and quantitative study designs, narrative and systematic reviews, and meta-analyses with and without a comparison group. All practices, approaches, and interventions that had the primary aim of preventing or treating PG were included. In this review, pathological and disordered gambling are used interchangeably. We stay true to the terminology used in the papers that were summarized.

Study Selection and Data Extraction

Two team members (PF, SJS) reviewed titles for eligibility. Each reviewer classified the abstracts as include, exclude, or to be discussed. When questions regarding eligibility arose during the title review, PF and SJS discussed inclusion or exclusion with FIM. Any ambiguity regarding eligibility was resolved by discussion. At the start of the title review process, a selection of titles (approximately 10%) was co-reviewed.

PF, SJS, and YL each reviewed a portion of abstracts for eligibility. As with the title review, abstracts were classified by the reviewer as include, exclude, or to be discussed. When questions about eligibility arose PF, SJS, and YL consulted and if agreement could not be reached, FIM was consulted. As a further quality control measure, a 10% random sample of all abstracts and titles reviewed were cross-validated. Overall, the reviewers agreed on the classification of 65% of them. Greatest variation was found with the "to be discussed" titles, which reflected variations in training and background. Ultimately, this did not affect inclusion and exclusion, as there was high agreement and low disagreement on absolute inclusions and exclusions. PF, SJS, and YL reviewed the selected full-text articles, and synopses were completed on articles deemed eligible under full-text review.

Synopses

We used Microsoft Excel to extract the following information (synopses) from each article: rationale and objectives; type of practice (prevention or treatment), participants, theoretical framework/biological rationale, methods, description of practice

(the practice(s) being assessed/described/evaluated), conclusions/findings, limitations (author stated and reviewer stated, where applicable), comments section, abstract, and keywords. We also extracted information on the type of evidence provided: empirical (quantitative, qualitative, evaluation, meta-analysis, systematic review), practice-based (clinical practice), theory-based (abstract issues such as the nature of PG), value-based (normative), and expert opinion narratives wherein experts offer their points of view.

The synopsis form was piloted prior to use and several articles were double reviewed to ensure standard completion of the form. This form was developed by using components of standard data extraction forms used in systematic reviews (i.e., Cochrane templates).

Results

As shown in Figure 1, a total of 7,632 papers were retrieved, 3,364 of these identified as duplicates. Selection criteria followed a standard pattern, with exclusions first based on titles, then on abstracts, and finally on reviews of full papers. After duplicates were eliminated, there were 4,268 records remaining. Of these, 2,321 were excluded based on title and 1,247 were excluded after abstract review. A total of 700 articles underwent full-text review. Eight articles were excluded because the full text was not available (e.g., conference proceedings), and 445 articles that did not meet the inclusion criteria were excluded, resulting in the completion of 247 synopses. One of the articles included an erratum; although the article was cited by using two publication dates (Ladouceur, Jacques, Sevigny, & Cantinotti, 2005, 2006), it was counted only once.

Prevention of PG

Sixty-six papers were located that focused exclusively or partially on the prevention of PG among adults. These papers are discussed under the topics (1) education (27 papers), (2) accessibility (25 papers), and (3) game features as prevention approaches (19 papers). The majority of the articles did not specify the age range or median age of participants. Only four papers specifically focused on older adults (Bjelde et al., 2008, 55 and older; Boutin, Tremblay, & Ladouceur, 2009, 54 and older, 63 and older; Lucke & Wallace, 2006, 65 and older; Tse et al., 2012, 55 and older, 60 and older, 65 and older), and 15 papers examined samples that included older adults but did not differentiate by age or age group.

   Education.   Within the area of prevention of PG, we located 27 papers that included information on education.

   Educating individuals who experience problems with gambling.   A review of the empirical literature by Tse et al. (2012) examined 75 articles about gambling behaviours and problems among older adults. After reviewing risk and protective factors, as well as positive and negative health consequences, the authors argue that more research is required to increase awareness of early help-seeking behaviours and
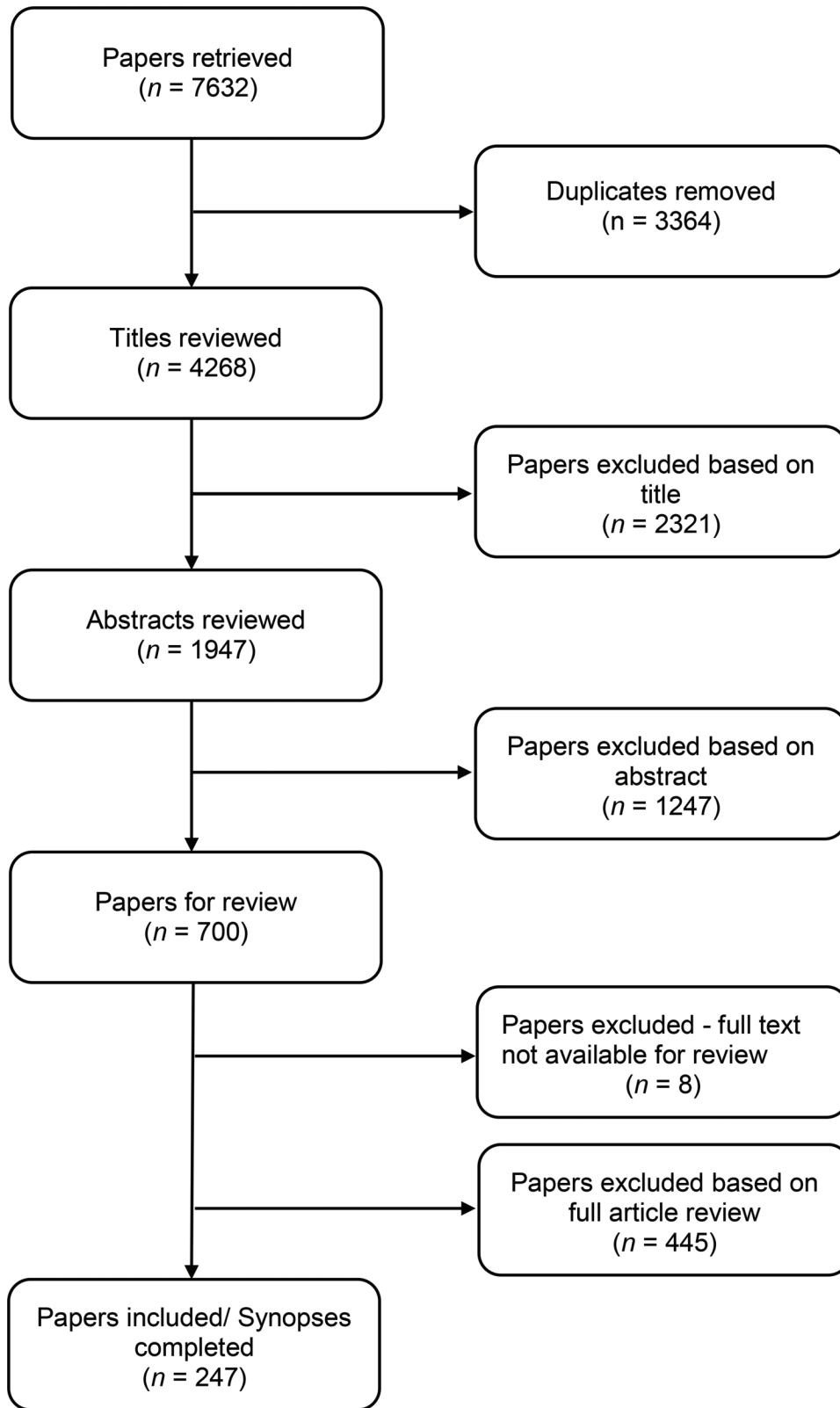
Figure 1. Flow diagram of studies selected for review.

protective factors that would ultimately contribute to better recovery. They suggest that education should be culturally sensitive (Tse et al., 2012).

Several studies examined options to identify individuals who may be at risk of developing PG that could provide useful information for tailoring educational initiatives. For example, Dragicevic, Tsogas, and Kudic (2011) used behavioural analysis to create clusters of player types on the basis of frequency and severity of gambling. Braverman, LaPlante, Nelson, and Shaffer (2013) argued that risk for PG can be predicted by tracking peoples' frequency levels and wager amounts. From these clusters and/or predictions, educational approaches can be designed to train people on how and when their gambling behaviours might indicate risk for PG. J. Lee, Chen, Song, and Lee (2014) found that passion plays a role in online gambling motivations. Responsible gambling strategies aimed at voluntary prevention–self-limits and self-diagnosis– can help individuals reduce excessive gambling behaviours. The authors suggest that educational pop-ups to remind patrons of time spent playing, cognitive distortions, and money spent may promote responsible gambling and prevent progression to PG.

Ladouceur et al. (2001) suggested that two particular elements of cognitive behavioural therapy (CBT) treatment– randomness and erroneous perceptions about odds– could inform educational initiatives to reduce problematic gambling behaviour. In particular, early identification of and education about these cognitive patterns could prevent the onset of problematic gambling behaviours (Ladouceur et al., 2001). However, these suggestions are inconsistent with the findings of Ariyabuddhiphongs (2013), who reported that efforts to educate people about misconceptions and fallacies had little impact on PG behaviour itself. Nevertheless, educational initiatives that promote the understanding of behavioural markers may be essential to create targeted and individualized interventions to prevent more serious problems.

Boutin et al. (2009) evaluated the Onsite Casino Information Centres (OCICs) in Montreal, Canada. They argue that player education may prevent future PG. Simply questioning people about their perceptions and gambling habits promoted attitudinal change. However, a visit to the OCICs did not change gambling behaviours (Boutin et al., 2009). Similarly, Nixon, Leigh, and Nowatzki (2006) evaluated a prison-based gambling awareness and prevention program in the Lethbridge Correctional Facility in Alberta, Canada. Noting that one third of prison inmates meet the criteria for either problem or pathological gambling, Nixon et al. (2006) found that the program changed attitudes towards gambling and knowledge of cognitive distortions and decreased gambling frequencies.

Gordon and Moodie (2009) suggested that social marketing techniques can be applied to PG prevention to promote healthy, socially appropriate behaviours and inform educational initiatives. Social marketing has been applied to other behaviours in the last 2 decades (e.g., smoking), including specifically to PG in New Zealand.

Education, primarily in the form of informational material, has been examined for relapse prevention. Most often categorized as treatment, specific educational

components of relapse prevention may be useful in prevention (Hodgins et al., 2007). Examples of educational topics that might be applied to prevention efforts include management of urges and negative emotions in response to gambling, lifestyle balance, financial management, stages of change, and managing comorbid emotional and addictive concerns.

Bjelde et al. (2008) argued that it is imperative to design educational initiatives that educate older adults about odds and risk factors associated with PG. The program design will need to account for conditions related to aging, including comorbid psychiatric and medical disorders. For example, Pietrzak, Morasco, Blanco, Grant, and Petry (2007) found that in comparison to non-gambling older adults, people who gambled recreationally were more likely to drink and smoke and have higher rates of mood disorders and obesity. Similarly, Zois et al. (2014) found that betting amount was associated with poor decision-making skills and alcohol and nicotine dependencies. Dickson-Gillespie, Rugle, Rosenthal, and Fong (2008) reviewed approaches to prevention and called for more effective educational programs and media campaigns, which would be guided by awareness of risk factors (e.g., isolation and vulnerable groups such as older adults and minorities).

Educating stakeholders who are responsible for gaming venues.   Several studies have evaluated stakeholders' opinions and level of knowledge of PG. In an Australian study, H. Breen, Buultjens, and Hing (2006) investigated gambling providers' awareness of the Queensland Responsible Gambling Code of Practice, its implementation, and opinions about its potential effectiveness in hotels, casinos, and clubs. Semi-structured interviews with managers and staff, representing 12 gaming venues, revealed that implementation was not systematic, awareness of the code was often poor, and faith in the code's potential to yield meaningful results was inconsistent. Still, five venue managers were very committed and even formed a responsible gambling consultative committee (H. Breen et al., 2006). Ladouceur et al. (2004) evaluated "As Luck Would Have It," a 2-hr awareness promotion workshop aimed at informing retailers about excessive gambling; modules included the nature of chance and randomness, the relationship between excessive gambling and misconceptions of chance and randomness, how to recognize PG symptoms, and when and how to intervene. After the training, retailers had a better grasp of PG and were more likely to approach people who appeared to be experiencing PG (Ladouceur et al., 2004).

Davies (2007) discussed the iCare system, designed to monitor gambling behaviour in casinos and alert staff to high-risk play (for comparable initiatives, see also Haefeli, Lischer, & Schwarz, 2011). Giroux, Boutin, Ladouceur, Lachance, and Dufour (2008) found that employee training increased awareness of the role they could play in reducing the risk of PG (see also Dufour, Ladouceur, & Giroux, 2010). Hing and Nuske (2011) found that with PG awareness training, the staff were more knowledgeable and confident in their ability to recognize at-risk players and make appropriate referrals.

Blaszczynski, Ladouceur, and Shaffer (2004) suggested that harm reduction education would be more successful if stakeholders (e.g., industry operators, health service providers, community groups, consumers) worked collaboratively to promote socially responsible gambling and harm minimization. Chan (2010) used neural networks and artificial intelligence to model online gambling behaviour among poker players and found that the patterns of wins and losses in initial games established a pattern of gambling behaviour aligned with the gambler's fallacy. Although online gambling sites may be able to capture "big data" that could inform player education, Khazaal et al. (2013) found little in the way of preventive educational initiatives on online poker sites and identified this absence as a priority for PG prevention efforts.

The aging process brings with it emotional, physical, and financial difficulties, reflected in higher use of health care resources. Lucke and Wallace (2006) reviewed theoretical frameworks and literature on gambling incidence, prevalence, behaviour, diagnostic tools, and interventional strategies for older adults and nursing assessment and management of PG among geriatric patients. They maintained that, with training to improve awareness of and diagnosis of PG, nurses can play a crucial role in its prevention among older adults.

Accessibility. In the area of prevention of PG, we located 25 papers that included information about controlling access to gaming venues, which includes self-exclusion programs and pre-commitment strategies.

The abundance of gaming venues may increase the propensity to gamble, especially in places such as Las Vegas, where the temptation to gamble can be overwhelming, particularly for those recovering from PG (Schull, 2006). Of similar concern is the placement of automated teller machines in close proximity to gaming venues (H. Breen et al., 2006). S. Gainsbury, Blankers, Wilkinson, Schelleman-Offermans, and Cousijn (2014) suggested that limiting the opening hours for casinos reduced PG. Specific types of controlled access have been explored in the literature such as self-exclusion and other self-limiting practices.

Self-exclusion. According to S. M. Gainsbury (2014), evidence for effectiveness of self-exclusion is limited, yet self-reports suggest that this strategy can reduce gambling behaviour and improve psychological well-being and overall functioning. Suurvali, Hodgins, and Cunningham (2010) indicated that motivation for self-exclusion can include harms caused by excessive gaming, an increased cognitive grasp of one's condition, and a desire to regain control either of gambling or of one's life. Often, the decision to self-exclude is motivated by a specific event with negative consequences (Suurvali et al., 2010).

Several studies have explored the effectiveness of land-based self-exclusion programs. Ladouceur, Sylvain, and Gosselin (2007) noted that casino-based self-exclusion programs in Canada and Australia produced positive outcomes (e.g., reduction in urge to gamble, increased perception of control, reduced intensity of negative consequences) that were maintained for 6 months. In a study from the United States,

Nelson, Kleschinsky, LaBrie, Kaplan, and Shaffer (2010) found that positive outcomes from self-exclusion were maintained 4 to 10 years later. In Europe, Hayer and Meyer (2011b) found that self-exclusion had financial and health benefits.

Some argue that little evidence exists for the effectiveness of online-based self-exclusion (see also Hayer & Meyer, 2011b; Ladouceur et al., 2007; Nelson et al., 2010). Xuan and Shaffer (2009) found that monetary loss was a key motivator for self-exclusion. Prior to account closures, players increased the bet size and made more conservative wagers (e.g., short odds). Other researchers identified behavioural markers that predicted who would eventually close their accounts, for example, those who placed more bets, who made larger bets more frequently, and who bet intensively early after enrolment (LaBrie & Shaffer, 2011; Nelson et al., 2008). These markers offer an opportunity to identify players at risk and to promote responsible gambling before problems emerge. Research with players indicated that there were strong general benefits to self-exclusion that extended over a 12-month study period (Hayer & Meyer, 2011a).

Pre-commitment.   Pre-commitment involves efforts to limit one's gambling, including money limits or time limits (see Currie, Hodgins, Wang, El-Guebaly, & Wynne, 2008; Monaghan, 2008). Ladouceur, Blaszczynski, and Lalande (2012) reviewed the literature on pre-commitment and found that the evidence was inconsistent with methodological flaws, such as low participation rates and compromised data integrity. Suurvali et al. (2010) indicated that pre-commitment motivates individuals with PG to seek help and make behavioural changes. Pre-commitment itself is motivated by knowledge of gambling-related harms, increased awareness that one has a problem, and a desire to regain control (Suurvali et al., 2010). Rockloff and Greer (2011) argued that pre-commitment should explore individual psychology and social context. For example, they found that electronic gambling machine players made smaller bets when they had an audience.

Nelson et al. (2008) studied players who set limits on monetary deposits at an online betting site (see also Auer & Griffiths, 2013). Results suggested that although self-limiters were able to reduce their overall gambling, the amount spent per bet remained constant. They claimed that time spent on gambling is, in itself, an indicator of PG and that prevention efforts that focus on ways to limit time spent gambling would be beneficial. Dragicevic et al. (2011) analysed online gambling data for behavioural risk markers and found that many who gamble (including those experiencing PG) try to self-regulate by remaining cognizant of self-imposed spending limits. This suggests that gambling-related harms might be prevented through education about the risks associated with gambling and the importance of internal self-imposed limits (see also Currie et al., 2008; Peller, LaPlante, & Shaffer, 2008). Robson, Edwards, Smith, and Colman (2002) suggested that approaches that enhance people's ability to control their gambling are more viable for people in the early stages of PG as a way to prevent more serious gambling problems.

A number of papers examined pre-commitment in the context of controlled gambling. Robson et al. (2002) examined whether controlled gambling is a viable option

for people in the early stages of PG. They analysed a decisional program that focused on consequences and limits of gambling. Findings indicated that there was a reduction in financial losses after program completion, from an average of $608 over a 4-week period prior to the program to $113 immediately after program completion and $73 at 12 months after completion (Robson et al., 2002). Their findings suggested that prevention efforts such as controlled gambling or self-imposed limits may curtail the development of more severe problems. Ladouceur (2005) argued that controlled gambling may provide an alternative approach to abstinence. Dowling, Smith, and Thomas (2009) found that abstinence and control yielded comparable results: Of 25 participants who chose abstinence and 16 who chose control, 89% of those opting for abstinence and 82% opting for control no longer met PG criteria at the 6-month follow-up. Like Ladouceur (2005), Dowling et al. (2009) argued for person-specific goal setting and claimed that allowing clients to choose their goals yields the best results. Auer and Griffiths (2013) found that setting voluntary limits helped to reduce money losses and time spent on gambling (see also H. S. Kim, Wohl, Stewart, Sztainert, & Gainsbury, 2014).

Game features as prevention approaches. Nineteen papers included information about alteration of game features, none specific to older adults. This section includes information on these alterations (visual, structural, audiovisual, etc.) and on the prevalence of gambling among individuals who use electronic gaming machines (EGMs), video lottery terminal (VLTs), and electronic gaming machines outside casinos (EGMOCs).

Warning messages. Monaghan and Blaszczynski (2010a) argued that the effectiveness of warning messages on EGMs to prevent excessive gambling is contingent on the content of the messages. They argued that traditional messages on the odds of winning, negative outcomes, and gambling within affordable limits have not been effective. A better option was to encourage players to reflect on, evaluate, and self-regulate their actions. Monaghan and Blaszczynski (2010a) argued that warning signs should encourage reflection rather than simply offering information about odds and probabilities (see also Monaghan, 2008, 2009).

Munoz, Chebat, and Borges (2013) examined the preventive impact of fear-focused warning messages. Among VLT players, fear-based warnings enhanced both cognition and fear. This, combined with financial and family-related difficulties, promoted responsible gambling (see also Munoz et al., 2013; Munoz, Chebat, & Suissa, 2010). Gallagher, Nicki, Otteson, and Elliott (2011) found that informational messages regarding the randomness of VLT outcomes reduced hours spent gambling. Warning messages targeting erroneous beliefs were more successful than were messages about taking a break from playing (Cloutier, Ladouceur, & Sevigny, 2006). Jardin (2011) argued that, to influence behaviour, these messages must be accurate (e.g., showing that one has no control over the outcome). They found that participants who received accurate messages gambled less than did those who received inaccurate or neutral messages (Jardin, 2011). In another study, Monaghan, Blaszczynski, and Nower (2009) found that static informative messages did not improve irrational cognitions,

but had a positive impact on the estimations of the chances of winning, which became more accurate after viewing the messages. According to Monaghan and Blaszczynski (2010b), pop-up messages in comparison with static messages had more impact on PG-related behaviour (finishing the gambling session earlier, reflecting on actions, betting more slowly, etc.). A study in Scotland found low compliance with social responsibility codes of practice among gambling operators. Messages were non-existent or hard to read (Moodie & Reith, 2009).

Machine features or location. Ladouceur et al. (2005) evaluated the format, arrangement, and availability of EGMOCs on gambling behaviour and perceptions. Although format had little influence on gambling behaviour, arrangement of EGMOCs proved influential; players who were isolated from others were more likely to play excessively. Participants in this study agreed that EGMOCs should be restricted to a few locations (Ladouceur et al., 2005; Ladouceur, Jacques, et al., 2006). This is consistent with the results of a study by Delfabbro (2008), who found evidence of an association between the frequency and intensity of gambling behaviour and the accessibility of EGMs. Policy initiatives aimed at prevention might consider reducing the number of EGMs, specifically those that are most profitable (Delfabbro, 2008).

Sharpe, Walker, Coughlan, Enersen, and Blaszczynski (2005) examined structural changes to EGMs such as reduced bet size, reduced reel spin, and elimination of large bill acceptors. Observing 779 participants in real club and hotel settings, these authors studied the differences between play on modified and unmodified machines. Results revealed that the only modification with a harm minimization effect was the reduction of maximum bet levels. This complements the findings of Braverman et al. (2013), who found that bet size is a good predictor of disordered gambling, notably increases in bet size.

Blaszczynski, Gainsbury, and Karlov (2014) evaluated the impact of five responsible gaming features: "responsible gaming messages; a bank meter quarantining winnings until termination of play; alarm clock facilitating setting time-reminders; demo mode allowing play without money; and a charity donation feature where residual amounts could be donated rather than played to zero credits" (p. 697). Of the 300 participants who had played the machines, 25% believed that the features would help ward off PG among people who engaged in recreational gambling, and 50% had some faith in the usefulness of the features. The majority of participants (61.4%, $n = 180$) were did not aware of the bank meter, and only 25% said that they understood this feature. Ladouceur and Sevigny (2006, 2009) explored the impact of VLT game speed on people who gamble, hypothesizing that it might affect concentration, motivation to play, number of games played, and loss of control. Randomly assigning 43 participants (occasional VLT players) to both high- and low-speed conditions, these authors found that higher speed was associated with more games played, along with personal underestimation of games played. Speed seemed to have no effect on loss of control over time or money, motivation to play, or concentration. Ladouceur and Sevigny (2006) concluded that game speed has a limited effect on occasional

VLT players, whereas a cash display feature was more beneficial in controlling their gambling activities (Ladouceur & Sevigny, 2009).

Peller et al. (2008) reviewed empirical evidence on whether and to what extent certain gaming technologies could exacerbate or alleviate gambling-related harm. Using a public health paradigm involving concepts such as host, vector, agent, and environment, these authors identified the technology itself as the agent and the player as the host. Peller et al. (2008) suggested that safety features of new gambling technologies, such as self-limiting technologies offered by online gambling sites, may help people who experience PG.

Recommendations for the Prevention of Problem Gambling in Older Adults

- Education for seniors should consider cultural differences, comorbidities, stigma associated with help seeking, and family supports.

- While the current generation of older adults may not be heavily involved in online gambling, their involvement will increase as technology-savvy generations move into middle and late life. Messages for older adults may take a different form, with more focus on negative consequences related to their mental and physical health and vulnerability to food insecurity and housing instability.

- Tracking risk among older adults should consider stage-of-life concerns, such as disposable income, social networks and support, and isolation and loneliness.

- Any educational curriculum for older adults should include awareness of the potential risks of gambling, self-diagnosis, cognitive distortions, and odds delivered in various formats to accommodate cognitive ability (e.g., dementia). This aligns with the development of social marketing campaigns to create awareness of risky gambling behaviour. These should be designed to appeal to older adults and may differ on the basis of relative age (again focused on issues most relevant to stage of life).

- Prevention training for the gambling industry should provide information on risk factors specific to older adults (e.g., comorbid mental health concerns, little disposable income, loneliness).

- Education in prevention for primary care professionals is imperative to ensure that older adults who access health care services with gambling concerns are identified quickly. The curriculum should include risk factors specific to older adults, diagnosis, and prevention and treatment/referral options.

- Given that older adults engage in gambling as a social activity, it may be necessary to monitor accessibility to venues and frequency of patronage. Training of staff at gambling venues, family, primary care staff, and staff working at senior residences is crucial. Educational messages could be made available for older adults when they travel free to gambling venues by bus.

- Warning messages for older adults may take a different form that considers social determinants of health specific to their lives, for example, less disposable income and food insecurity. This is an important avenue for future research.

Treatment of PG

The team identified 188 papers on the treatment of PG among adults. This part is divided into four major sections with a focus on (1) psychosocial treatments and therapies (91 papers), (2) mutual aid (20 papers), (3) pharmacological treatments (56 papers), and (4) women-focused treatment, assessment, and effectiveness issues (46 papers). Only three studies exclusively focused on older adults (Grant & Grosz, 2004, 60 and older; Lucke & Wallace, 2006, 65 and older; Pietrzak et al., 2007, 60 and older) and 56 studies included older adults in their samples but did not differentiate findings by age.

   Psychosocial treatment.   We identified 91 studies on psychosocial treatment, including cognitive and behavioural therapies, mindfulness, motivational interviewing (MI), exercise, social support, and group and online treatment.

   Cognitive and behavioural treatments.   Although there are a number of recommended treatments for PG (see K. M. Lee et al., 2011), as far back as 1994, Bujold, Ladouceur, Sylvain, and Boisvert (1994) offered findings that supported the efficacy of CBTs, as did Sylvain, Ladouceur, and Boisvert (1997). In a meta-analysis of psychological treatments for PG, Pallesen, Mitsem, Kvale, Johnsen, and Molde (2005) concluded that, overall, CBT yielded favourable short-term and long-term outcomes. Although there is considerable support for CBT, a review of controlled treatment studies conducted by Toneatto and Ladoceur (2003) found noteworthy weaknesses in study design that undermined the veracity of the findings.

Sharpe (1998) suggested that CBT should follow a series of steps: stabilization of the problem, plans for alternative behaviours for enjoyment and relaxation, awareness promotion, relaxation therapy, problem-solving skill enhancement, and exposure therapy. This would then be followed up with treatment that focused on cognitive distortions and relapse prevention (Sharpe, 1998).

R. B. Breen, Kruedelbach, and Walker (2001) argued that cognitive changes can be achieved through CBT, a sentiment shared by Toneatto (2002) and Ladouceur et al. (2001). Coman, Evans, and Burrows (2005) suggested that treatment approaches should encompass education on erroneous beliefs and misconceptions and the true financial repercussions of gambling. For example, Ladouceur, Sylvain, Letarte, Giroux, and Jacques (1998) described a cognitive treatment approach to PG that focused on misconceptions about randomness and that resulted in clinically significant decreased urges to gamble and increased perceptions of control. After treatment, participants no longer met the *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed.; *DSM-III*; American Psychiatric Association, 1980) criteria for pathological gambling. Toneatto and Ladoceur (2003) criticized these approaches, as they failed to address gambling behaviour itself. also claimed that it is not clear whether improvements in cognition lead to behaviour modification. Rizeanu (2012) argued for greater emphasis on the cognitive in CBT-based interventions.

In a home-based study that used a prerecorded audiocassette version of an imaginal desensitization procedure, Blaszczynski, Drobny, and Steel (2005) noted reductions in visual analogue ratings of urge, preoccupation, and perceived self-control over gambling behaviour. Tolchard, Thomas, and Battersby (2006) explored exposure therapy with a 50-year-old woman and found that a single session led to a reduction in gambling behaviour and urges to gamble. Nastally (2010) found that a brief acceptance and commitment therapy helped to reduce the near-miss effect–a type of loss that appears to be close to a win in gaming–by altering cognitions while gambling.

CBT seems to have efficacy across age groups, cultures, and contexts. In a study by Guo et al. (2014), Asian participants with PG were offered a CBT-based treatment. Many participants showed satisfaction with treatment and reduced PG severity. Poorer outcomes were associated with lower satisfaction, fewer sessions, unemployment, and higher debts. Okuda, Balan, Petry, Oquendo, and Blanco (2009) found that, for an American woman who had emigrated from Haiti, cognitive distortions were strongly linked to dream and number interpretations. Through CBT, she learned skills that enabled her to abstain from gambling.

Rash and Petry (2014) noted CBT's popularity, but questioned its superiority to other approaches, including brief interviewing and MI. Wulfert, Blanchard, and Martell (2003) suggested that greater emphasis on motivation in CBT would be most promising. Pasche et al. (2013) explored a treatment based on CBT, MI, and imaginal exposure directed to low- and middle-income countries. This hybrid treatment approach showed positive results (see also multimodal treatment; Lim, 2001), with participants reporting reduced gambling urges and obsession.

Comorbid health conditions are more prevalent among older adults with PG (Pietrzak et al., 2007). In a review, Petry (2009) found that CBT is effective for PG and comorbid conditions, yet benefits are often short-lived. Battersby, Oakes, Tolchard, Forbes, and Pols (2008) and Echeburua and Fernandez-Montalvo (2002) discussed CBT approaches that accommodated specific client characteristics. For example, PG can be comorbid with substance misuse and so treatment that addresses both conditions may be appropriate. Korman, Cripps, and Toneatto (2008) and Korman, Collins, et al. (2008) found that 50% of individuals with PG and anger management concerns had substance use disorders (SUDs). These participants were randomly assigned either to an experimental anger and addiction treatment (A&A) group or to a treatment-as-usual (TAU) group. Participants in the A&A condition showed significant reductions in anger, gambling, and substance use in comparison to those in the TAU group. In a study of treatment compliance, Milton, Crino, Hunt, and Prosser (2002) found that problem drinking and drug use predicted poor compliance with gambling treatment. In a comparative study of inpatient versus outpatient characteristics, Ladouceur, Sylvain, et al. (2006) found that inpatients scored higher on anxiety, depression, alcohol consumption, and comorbidity.

Petry (2002b) and Jazaeri and Habil (2012) argued that PG treatment can be informed by SUD interventions. In an overview of psychosocial treatments for PG, Petry (2002c) discussed the shift from aversion techniques to the more popular CBT approaches for gambling, a parallel to the evolution of SUD treatments. Among people experiencing SUD, decision-making ability did not differ between those with and without PG, although the SUD group exhibited riskier decision making (Zois et al., 2014).

Champine and Petry (2010) found that participants experiencing PG with and without co-occurring psychiatric concerns responded similarly to CBT. These authors also found that the severity of gambling problems was not associated with accompanying psychiatric issues (Champine & Petry, 2010). Similarly, Echeburua, Gomez, and Freixa (2011) found that individuals with PG and chronic schizophrenia responded well to CBT as an alternative to standard drug therapy (see also Shonin, Van Gordon, & Griffiths, 2014). Persons with PG and acquired brain injury also responded positively to CBT (Guercio, Johnson, & Dixon, 2012).

Soberay, Faragher, Barbash, Brookover, and Grimsley (2014) found that a combined treatment regimen of CBT, time-limited dynamic psychotherapy, and solution-focused brief therapy improved psychosocial functioning and client satisfaction with the therapeutic process among individuals with co-occurring PG and psychiatric disorders; however, co-occurring disorders were associated with greater severity of gambling at the outset of treatment (Soberay et al., 2014). Boutin, Dumont, Ladouceur, and Montecalvo (2003) found that a 53-year-old male client no longer met the criteria for pathological gambling, but that PG was replaced by a drug disorder after 6 months of CBT that targeted erroneous beliefs.

"Seeking Safety," a CBT-based approach for people experiencing PG and post-traumatic stress disorder (Najavits et al., 2013), significantly reduced symptoms of the disorder and reduced erroneous gambling beliefs (e.g., illusion of control). Erroneous beliefs may promote and prolong relapse, but certain protective factors such as the use of cognitive strategies (e.g., reappraisal, distraction technique), social support, and management of the temptation to gamble seem to enhance abstinence from gambling (Oakes et al., 2012a, 2012b).

Kennedy, Cook, Poole, Brunson, and Jones (2005) examined gambling treatment for military personnel comprising an initial meeting with a psychologist, followed by individual and group counselling and the opportunity to attend weekly Gamblers Anonymous (GA) meetings. This multifaceted program was effective in preventing suicides among participants and promoted retention of participants with gambling problems.

Pelletier, Ladouceur, and Rheaume (2008) studied the effects of personality disorders on CBT dropout. Poor treatment results and early dropout were associated with antisocial, borderline, narcissistic, or histrionic personality disorders. Dropout was not a concern among individuals with paranoid, schizoid, avoidant,

or obsessive-compulsive personality disorder. In a study of psychological treatments for slot-machine pathological gambling, Echeburua and Fernandez-Montalvo (2005) pointed out that the favoured responses are CBT and relapse prevention and that their own application of these interventions produced positive results. Ladouceur (2005) suggested that controlled gambling should also be offered in CBT as an alternative to abstinence-based treatment.

Hodgins et al. (2007) examined the effectiveness of a series of relapse prevention booklets among people who had recently quit gambling. They developed two types of information packages and assigned participants to receive either (a) a series of booklets with detailed information on eight topic areas (e.g., lifestyle balance, relapse recovery) or (b) an overview relapse booklet that summarized the eight topics. Although they found that educational materials did not improve outcomes, they suggested that an educational booklet could be a low-cost and easily accessible alternative to help people maintain positive behaviours.

Oakes, Gardiner, McLaughlin, and Battersby (2012a) explored the effectiveness of CBT for older adults with PG who lived in rural areas. After 12 months, the treatment led to reduced PG-related problems and decreased urges to gamble (average age = 51 years). Jimenez-Murcia et al. (2012) examined treatment of PG among older adults with Parkinson's disease. The average age at onset of PG was 41.0 years (SD = 15.9), and the mean duration was 5.0 years (SD = 3.9). All patients with PG and Parkinson's disease were taking at least one dopamine agonist; of these, 14 patients started gambling after the onset of Parkinson's disease and the initiation of pharmacotherapy. The average age at onset of pharmacotherapy for Parkinson's disease was 55.6 years (SD = 10.3). Among patients with and without Parkinson's, there were no significant differences in psychopathology, except for lower measures of hostility in the PG and Parkinson's disease group. Participants were also treated for PG by using CBT. No statistical differences were detected between groups in response to treatment, suggesting that comorbid Parkinson's disease does not negatively affect the efficacy of CBT for PG (Jimenez-Murcia et al., 2012).

Mindfulness, MI, and exercise. In a review of the literature on mindfulness and PG, de Lisle, Dowling, and Allen (2012) argued that CBT is not effective for everyone experiencing PG and so innovation is important to enhance treatment effectiveness. Mindfulness-based interventions bring Eastern approaches to the mind and body within a cognitive-behavioural framework (de Lisle et al., 2012). According to Wynn, Hudyma, Hauptman, Houston, and Faragher (2014), mindfulness-based interventions and online treatment are key to PG research and treatment innovation. Christensen et al. (2013) examined the use of group dialectical behavl therapy among PG clients regarded as treatment resistant. Their findings indicated that 83% of the clients reached abstinence, but there were no changes in the number of gambling sessions or spending. The therapy improved mindfulness, distress tolerance, emotion dysregulation, and negative relationships.

There has been a plethora of research examining the efficacy of MI. In randomized control trials, Hodgins, Currie, Currie, and Fick (2009) and Diskin and Hodgins (2009) found that participants who received MI spent less money per month on gambling, spent fewer days per month gambling, and were less distressed than control group participants in the 12 months after the intervention. Similarly, Hodgins, Currie, and el-Guebaly (2001) found that a single motivational telephone call lasting 20 to 45 min was sufficient to reduce gambling behaviour. Examining longer episodes of MI, Grant et al. (2009) found that six sessions of MI (coupled with imaginal desensitization) were sufficient to generate significant benefits (see also Grant, Donahue, Odlaug, & Kim, 2011). Ledgerwood et al. (2013) and Hodgins, Currie, el-Guebaly, and Peden (2004) found that counselling with motivational techniques improved PG treatment engagement.

In a pilot study that examined the use of a personalized feedback intervention for people experiencing PG, results revealed that normative feedback contributed to a reduction in financial expenditure on gambling (Cunningham, Hodgins, Toneatto, Rai, & Cordingley, 2009). Larimer et al. (2012) found that, among college students, personalized feedback and a cognitive behavioural intervention reduced negative consequences of gambling, frequency of gambling, and *DSM-IV* criteria for problem gambling (assessed with the National Opinion Research Center DSM-IV Screen).

Suurvali et al. (2010) and Suurvali, Hodgins, Toneatto, and Cunningham (2012) examined motivation to seek treatment, which may help to form the basis of MI with clients. They found that financial problems, relationship issues, and negative emotions were key motivators for PG help seeking. According to findings from a study by S. Gainsbury, Hing, and Suhonen (2014), financial difficulties and fear that one's gambling problem might worsen inhibited help seeking. Hodgins, Ching, and McEwen (2009) found that a strong commitment to change during MI was associated with reduced gambling activity, increased self-efficacy, and increased likelihood of personal goal attainment (see also Wulfert, Blanchard, Freidenberg, & Martell, 2006). Ledgerwood and Petry (2006) argued that more emphasis on how to instil motivation to enact change may reduce relapse and treatment dropout rates (see also Wulfert et al., 2006). In a study conducted by Angelo, Tavares, and Zilberman (2013), group physical exercise was associated with reduced cravings to gamble, depression, and anxiety. These authors were not able to explore the influence of group dynamics (e.g., social support) on outcomes. According to de Lisle et al. (2012), mindfulness therapy enhances cognitive flexibility in counteracting gambling-related fallacies associated with PG.

Treatment that integrates support from and for family and loved ones.   Several studies argued that gambling is not an individual disorder, but rather affects the entire family unit. Spousal gambling can be life changing, marked by financial loss, relationship/family dysfunction, and distress. Alternatively, family conflict and financial insecurity may contribute to the development of disordered gambling behaviour (McComb et al., 2009). Bertrand, Dufour, Wright, and Lasnier (2008)

argued that adapted couple therapy, an adaptation of cognitive behavioural couples therapy, is integral to the therapeutic process, offering an approach that recognizes relationship quality as an important factor in treatment success. Lucke and Wallace (2006) argued that treatment should enhance family members' capabilities of managing the gambling of older adults and developing coping strategies to manage their own stress. They suggested that family-based intervention should incorporate psycho-education, community resources, counselling services, and family member involvement. Supporting this notion of family at the heart of treatment, Ingle, Marotta, McMillan, and Wisdom (2008) found that involvement of a family member in treatment increased the odds of successful recovery from PG among middle-aged participants. Petry and Weiss (2009) found that social support from family and friends was an important aspect of recovery, with higher social support associated with more favourable outcomes.

According to Grant, Kim, and Kuskowski (2004), people leave treatment for two primary reasons: They miss the thrill of gambling, and they hope that gambling might eliminate financial difficulties. They found that social support was the primary predictor of treatment retention and thus encouraged the participation of family/friends in the treatment process (Grant et al., 2004). Similarly, Gonzalez-Ibanez, Rosel, and Moreno (2005) found that involvement of family members in treatment reduced the risk of relapse. Jackson, Francis, Byrne, and Christensen (2013) identified isolation and loneliness as risk factors for gambling. They found that support from peers (others with gambling concerns) enabled study participants to maintain therapeutic accomplishments.

Group therapy.   There are mixed findings on the efficacy of group-based therapy to treat PG. Echeburua, Baez, and Fernandez-Montalvo (1996) found that individual treatment was associated with better results than group treatment was. Echeburua, Fernandez-Montalvo, and Baez (2000) found that relapse prevention was an important addition to both individual and group treatment. They concluded that the best choice for treatment is a combination of stimulus control–in vivo exposure with response prevention–followed by a cognitive-behavioural approach to relapse prevention. Some findings suggest that group approaches may work well for MI (Carlbring, Jonsson, Josephson, & Forsberg, 2010), node-link mapping (Melville, Davis, Matzenbacher, & Clayborne, 2004), and dialectical behaviour therapy (Christensen et al., 2013).

In their evaluation of the "Re(making) Meaning Project," Jackson et al. (2013) found that altering clients' lifestyles by adding leisure can significantly improve psychosocial functioning, thereby reducing PG (see also Walters, 1994). Coman, Evans, and Burrows (2002) argued that group counselling has the power to improve social skills and provide opportunities to practice new behaviours in anticipation of real-life application. Walters (2005) examined the effect of a 20-week gambling lifestyle group for men in prison in comparison to a group of men who had volunteered for a life-skills change program but were transferred prior to the first session. Findings suggested that there was a reduction in disciplinary reports

(and gambling disciplinary reports, although this was non-significant due to sample size) among men in the gambling lifestyle group relative to the men who did not receive treatment. In a systematic review and meta-analysis that examined the effectiveness of individual and group CBT, Gooding and Tarrier (2009) found that all modes of CBT offered significant reduction in gambling behaviours at 3 months after treatment. They found some evidence that the positive effect of group therapy was longer lasting than individual-based therapy.

Online treatment options. Griffiths and Cooper (2003) were among the first to consider online treatments for PG. They argued that telehealth offers an opportunity for professionals and clients to interact in real time through online communication (Griffiths & Cooper, 2003). Options for telehealth included information dissemination and peer-delivered advice and support. Advantages included convenience, cost-effectiveness, and reduced stigma and embarrassment. Disadvantages included legal and privacy concerns inherent to transnational interaction (e.g., client confidentially rules can differ from one region to another), the fact that the severity of disorder among some clients may preclude online support, and lack of evidence for the effectiveness of online therapies (Griffiths & Cooper, 2003).

S. Gainsbury and Blaszczynski (2011) argued that few people experiencing PG access formal treatment and that the reasons for this "include geographical and time constraints, a desire to self-manage problems, shame, denial and concerns over privacy/confidentiality" (p. 289). They suggested that online therapy may appeal to people experiencing PG who are concerned with stigma (S. Gainsbury & Blaszczynski, 2011). Similarly, Myrseth, Brunborg, Eidem, and Pallesen (2013) noted that few persons with PG seek formal treatment and that online options should be explored as an alternative. An evaluation of an online intervention with 112 participants with PG produced encouraging results at the 3-month follow-up: PG symptoms were reduced, as were cognitive distortions and stress levels (S. Gainsbury & Blaszczynski, 2011).

In a study of online therapy for PG, Wood and Griffiths (2007) surveyed 80 people who accessed GamAid (age range = 14 to 64 years), a peer- and expert-assisted advisory website. Advisors and peers communicated with clients to provide reassurance and give advice, rather than offering direct counselling services. Results suggested that people who used online therapy for PG were satisfied with the advice, information, and interaction stemming from GamAid (Wood & Griffiths, 2007).

In a randomized control trial, Carlbring and Smit (2008) assessed the effectiveness of an online CBT intervention for PG. A wait-list control group was compared with persons who participated in an 8-week online CBT therapy program. This program reduced levels of PG, anxiety, and depression and improved quality of life among the CBT group. Carlbring, Degerman, Jonsson, and Andersson (2012) conducted a 3-year follow-up study and found that online CBT was effective, with sustained effects at the 6-, 18-, and 36-month follow-up. Castren et al. (2013)

evaluated an 8-week online CBT intervention. The results indicated significant reductions from baseline to post-intervention in gambling symptoms, gambling-related social consequences, gambling-related erroneous cognitions, and urges to gamble. Impaired control of gambling also improved from baseline to the post-treatment phase (Castren et al., 2013).

Myrseth et al. (2013), who investigated the effectiveness of an online treatment, concluded that client-therapist meetings worked well and many of those who completed online treatment showed a reduction in symptoms of pathological gambling, cognitive distortions and psychopathology, and psychological distress.

Mutual aid. Within the area of treatment of PG, we located 20 papers that included information on mutual aid.

Mutual aid therapy for gambling problems is typically rooted in GA and 12-Step treatment modalities. Examining the structures that make GA unique, Ferentzy, Skinner, and Antze (2009) discussed the ways in which GA has altered its recovery program to suit people experiencing PG. GA was founded on a 12-Step process of recovery used in Alcoholics Anonymous (AA) and other substance use fellowships such as Narcotics Anonymous (NA). There are two key features of GA that are not used in AA or NA. First, GA members are encouraged to develop moral (typical of AA and NA) and financial inventories, the latter embedded to assist GA members address financial crises related to gambling activities. Second, GA members are encouraged to share their thoughts and insights with members who are providing testimonials (Straus, 2006) and this is deemed beneficial for recovery. Binde (2012) found that the group environment allows members the opportunity to engage in discussions, offer emotional support, motivate each other, and give practical advice.

Oei and Gordon (2008) examined psychosocial factors that predicted the achievement of abstinence among GA members. Results suggested that attendance and social support were the best predictors of abstinence. GA reinforces abstinence socially (Petry and Roll (2001), with group praise for people who maintain their abstinence. In a study of recovery from PG and other addictive behaviours, Koski-Jannes and Turner (1999) found that 12-Step participation was itself a change factor. Similarly, Gomes and Pascual-Leone (2009) found that GA involvement (in combination with depressed affect and emotional involvement) improves readiness to change.

Stea and Hodgins (2011) observed that there are few evidence-based studies on GA. Petry (2005a) suggested that the anonymous nature of the GA fellowship inhibits evidence-based research. Petry (2005a) and Jazaeri and Habil (2012) found that GA and CBT are the two most commonly available approaches for recovery from PG (see also Ledgerwood & Petry, 2005). In a paper on effective strategies for PG treatment, Denure, Ford, Hillyard, Moore, and Scherer (2006) devoted far more attention to GA than to any other intervention. Petry (2005a) argued that, even if no single approach has yet proven to be superior, perhaps CBT in combination with GA would be beneficial (Petry, 2002c, 2009). Her approach involved greater emphasis on

CBT for cognitive bias issues, augmented by GA participation (Petry, 2005a). In a controlled study of coping skills, Petry, Litt, Kadden, and Ledgerwood (2007) found that a group assigned both to GA and to CBT achieved better results (i.e., reduced PG) than did a group referred only to GA.

Linardatou, Parios, Varvogli, Chrousos, and Darviri (2014) conducted a randomized controlled trial and found that GA coupled with stress management therapy reduced depression and anxiety and improved the life satisfaction of members relative to those assigned to GA only. Grant et al. (2009) found that a group of people experiencing PG assigned to combined imaginal desensitization and MI performed better on gambling measures than did those assigned to imaginal desensitization and GA.

Stinchfield and Winters (2001) noted that four gambling treatment programs in Minnesota applied GA principles, including abstinence-focused recovery. McGowan (2003) discussed an online PG support group for women wherein the narratives often reflected GA slogans and terminology. This online group process supported their recovery, increased their sense of community, and improved the self-expression of thoughts and feelings (McGowan, 2003). Cooper (2004) found that stigma inhibited help seeking; people who had not engaged with GA or professional treatment were significantly more concerned about stigma than were those who had some form of engagement. He also noted that online GA treatment (GAweb) was commonly used and easily accessible, providing opportunities for social support and a comfortable setting (not face to face) to disclose personal information.

Pharmacological treatments. Fifty-six studies were identified that focused on pharmacological treatment.

Schreiber, Odlaug, and Grant (2011) and Rizeanu (2012) found that antidepressants, mood stabilizers, opioid agonists, atypical neuroleptics, and glutamatergic agents have been used to treat PG within the context of impulse control and obsessive-compulsive disorders. Grant and Grosz (2004) studied 14 older patients (average age = 65 years) who were treated either with an antidepressant or naltrexone as monotherapy, followed by possible augmentation with a mood stabilizer or an atypical antipsychotic. Eight patients (57.1%) were considered "responders" to the treatments, meaning that gambling symptoms had improved.

Parkinson's disease is often considered an illness of the aged. It is most commonly diagnosed in persons over the age of 60, with 5% of cases diagnosed before age 60 (Bower, Maraganore, McDonnell, & Rocca, 1999; Hofman, Collette, & Bartelds, 1989; Mayeux et al., 1995; Morens et al., 1996; Van Den Eeden et al., 2003). Several papers document the prevalence of PG among patients taking medications for Parkinson's disease (Dodd et al., 2005; Lu, Bharmal, & Suchowersky, 2006; Voon et al., 2006).

In a short communication, Imamura, Uitti, and Wszolek (2006) discuss seven papers dealing with dopamine agonist therapy for persons with PG and Parkinson's disease

(*n* =39, mean age = 57). The authors found that dopamine agonist therapy, especially when combined with other medications (most notably levodopa/carbidopa), could just as easily aggravate or even generate PG symptoms as it could ameliorate them. Ardouin et al. (2006) examined seven patients (mean age = 54, +/- 9) with Parkinson's disease who were treated with dopaminergics. They found that PG symptoms could be alleviated by using subthalamic nucleus stimulation (Ardouin et al., 2006). Raja and Bentivoglio (2012) found that many impulse control disorders such as PG could be triggered in patients with Parkinson's disease through dopamine agonist therapy. Bharmal, Lu, Quickfall, Crockford, and Suchowersky (2010) found that dopamine agonists in combination with levodopa could lead to PG among people with Parkinson's disease who had previously engaged in recreational gambling. Bosco et al. (2012) examined case studies of three patients with Parkinson's disease who had developed PG after dopamine agonist treatment. These patients responded poorly to serotonin reuptake inhibitors, whereas treatment with the opioid antagonist naltrexone resulted in remission of PG (see also Dannon, Lowengrub, Musin, Gonopolski, & Kotler, 2005). Low-dosage risperidone reduced gambling behaviour for a 59-year-old client participant with Parkinson's disease (Stein & Grant, 2005).

For the most part, trials and overviews of pharmacological treatments suggest hope and promise but little definitive evidence (see, for example, Berlin et al., 2011; Grant & Kim, 2002a; Roncero, Rodriguez-Urrutia, Grau-Lopez, & Casas, 2009). Grant, Kim, and Potenza (2003) offered some hope for naltrexone in reducing urges to gamble. In a study that included older adults, S. W. Kim and Grant (2001) found that naltrexone decreased PG symptoms, working equally well for males and females. S. W. Kim, Grant, Adson, and Shin (2001) found that naltrexone reduced symptoms associated with pathological gambling. In an overview of pharmacological interventions for behavioural addictions, Marazziti, Presta, Baroni, Silvestri, and Dell'Osso (2014) suggested that nefazodone, bupropion, and paroxetine showed promise, but that all pharmacological treatments required further study. Pallanti, Quercioli, Sood, and Hollander (2002) found that lithium and valproate (mood stabilizers) reduced PG among 50% of patients. Ravindran, da Silva, Ravindran, Richter, and Rector (2009) also found evidence for naltrexone in the alleviation of obsessions and compulsions. In a review of PG and impulsivity, Pallanti (2005) concluded that more evidence is required to confirm that tricyclic antidepressants, selective serotonin reuptake inhibitors (SSRIs), opioid antagonists, and mood stabilizers are effective in reducing gambling behaviours. Zakeri and Potenza (2012) reviewed the neurobiology of PG and suggested that adrenergic and dopaminergic systems have relevance for aspects of impulse control, but they still maintain that more study is required. Hollander, Sood, Pallanti, Baldini-Rossi, and Baker (2005) observed that pharmacotherapy for PG is an emerging field, and Brewer, Grant, and Potenza (2008) agreed, stating that longitudinal studies are needed. Sood, Pallanti, and Hollander (2003) reiterated that most of the evidence for pharmacological therapies has been from studies of short duration.

George and Murali (2005) claimed that SSRIs, the opiate antagonist naltrexone, and mood stabilizers are all effective for managing gambling behaviour, with none

demonstrating superiority (see also Dannon, Lowengrub, Musin, et al., 2005; Grant, Kim, Hollander, & Potenza, 2008; S. W. Kim & Grant, 2001; Porchet et al., 2013). Achab and Khazaal (2011) found preliminary evidence that N-acetyl cysteine, memantine, and topiramate are beneficial in PG treatment (see also Grant, Chamberlain, Odlaug, Potenza, & Kim, 2010). In a study based on client experiences and structured interviews, Potenza (2005) argued that pharmacological therapy in conjunction with behavioural treatment requires further examination. In a review of PG treatment approaches, Stea and Hodgins (2011) claimed that pharmacotherapy showed some effectiveness and efficacy, with particularly strong support for opioid antagonists, but that results are still mixed.

SSRIs have received a fair bit of attention in PG studies, with fluvoxamine showing some promise (see, for example, Blanco, Petkova, Ibanez, & Saiz-Ruiz, 2002; Dannon, Lowengrub, Musin, Gonopolsky, & Kotler, 2007; Grant & Kim, 2002b; Hollander, Begaz, & Decaria, 1998; Hollander, DeCaria, et al., 1998). Hollander et al. (2000) found that fluvoxamine outperformed a placebo sample. Findings from a study conducted by Dannon, Lowengrub, Gonopolski, Musin, and Kotler (2005) supported the use of fluvoxamine in PG treatment. Saiz-Ruiz et al. (2005) found that sertraline was not significantly superior to placebo. Grant, Kim, Potenza, et al. (2003) and S. W. Kim, Grant, Adson, Shin, and Zaninelli (2002) found that paroxetine demonstrated advantages in treating PG in comparison to placebo. Pallanti, Baldini Rossi, Sood, and Hollander (2002) found that nefazodone helped with PG, though this was not a controlled study. Zimmerman, Breen, and Posternak (2002) found preliminary evidence for the effectiveness of citalopram in PG treatment.

Preliminary findings from studies of opioid agonist therapy as a treatment for PG suggest that this drug has promise (see, for example, Brewer et al., 2008; Sood et al., 2003). Zakeri and Potenza (2012) identified opioid neuro-circuit pathways as being linked to PG. Grant and Kim (2002b) suggested that naltrexone shows promise for reducing PG-related behaviours. More recently, Bosco et al. (2012) reached similar conclusions (see also Grant et al., 2008). Yet, a more recent study by Di Nicola et al. (2014) revealed that even though the effectiveness of naltrexone has been established in many previous studies, more research needs to be done to examine its effect on people with bipolar disorders who experience PG.

Particular pharmacological therapies may be more effective for specific subtypes with PG (e.g., compulsive, impulsive, addictive), given that the majority of clients with PG also present with comorbid health concerns (Brewer et al., 2008; Dannon, Lowengrub, Gonopolski, Musin, & Kotler, 2006; Daughters, Lejuez, Lesieur, Strong, & Zvolensky, 2003; Grant, Williams, & Kim, 2006; Labuzek et al., 2014; Pallanti, 2005; Stea & Hodgins, 2011; Thomas, 2014). Grant, Odlaug, Potenza, Hollander, and Kim (2010) found preliminary evidence for the effectiveness of naltrexone and nalmefene, but individual responses differed. They suggested that more research is needed to understand the relationship between client characteristics and responses to these drugs. Dell'Osso and Hollander (2005) provided lithium treatment to a woman with PG and cyclothymia. After 10 weeks, she reported increased

control over her gambling with no gambling episodes during the last week of treatment (see also Dell'Osso, Allen, & Hollander, 2005; Grant & Potenza, 2006; Hollander, Sood, et al., 2005). Hollander, Pallanti, Allen, Sood, and Baldini Rossi (2005) found that sustained-release lithium reduced PG and instability in people with bipolar disorders. Furthermore, Zack and Poulos (2009) examined the use of modafinil for PG among individuals with high and low impulsivity. They found that modafinil decreased desire to gamble, salience of gambling words, disinhibition, and risky decision making among high-impulse subjects, whereas the drug had the opposite effect among low-impulse subjects. Finally, Grant et al. (2014) used N-acetylcysteine along with imaginal desensitization among patients with nicotine dependence and pathological gambling. This combined treatment reduced both problem gambling and nicotine severity after cessation of the medication and therapy (3 months after treatment).

Women-focused treatment, assessment, and effectiveness issues.   We identified 46 papers that included information on treatment for women, assessment, and lack of rigorous knowledge of effective treatment approaches for PG.

Treatment for women.   Nine case studies focused on women, with samples ranging in age from 30 to 65 and older (Battersby et al., 2008; Dell'Osso & Hollander, 2005; Echeburua & Fernandez-Montalvo, 2002; Lim, 2001; Lucke & Wallace, 2006; Okuda et al., 2009; Shonin et al., 2014; Stein & Grant, 2005; Tolchard et al., 2006). These studies explored a variety of treatment modalities (e.g., CBT, pharmacology, relapse prevention, exposure therapy, multimodal) among women with comorbid health concerns (e.g., depression, schizophrenia, Parkinson's disease) and without them. A case study described how an older woman (65 and older) with PG was identified and treated by a young nurse. This article stressed the importance of training for nurses on assessment and treatment of PG for older patients (Lucke & Wallace, 2006). Results from the case studies revealed that single-session exposure therapy (Tolchard et al., 2006) and pharmacological treatments such as low-dosage risperidone (while on other medication for Parkinson's disease; Stein & Grant, 2005) and sustained-released lithium therapy (Dell'Osso & Hollander, 2005) were effective at reducing PG symptoms and related behaviours.

Several studies examined the efficacy of CBT treatment for women (Gonzalez-Ibanez et al., 2005; Pallesen et al., 2005; Toneatto & Ladoceur, 2003). Dowling, Smith, and Thomas (2006) examined CBT among 19 women. Following treatment completion (6 months), 89% no longer met the diagnostic criteria for PG. A follow-up study by the same authors compared individual to group CBT and found that individual CBT produced superior outcomes to group CBT; 92% of women in individual compared with 60% in group CBT no longer met the criteria for PG (Dowling, Smith, & Thomas, 2007). Dowling et al. (2009) compared CBT treatment by preferred goal (abstinence vs. controlled gambling) among women. There were no differences across treatment groups, with 89% of women striving for abstinence and 82% striving for controlled gambling no longer meeting the criteria for PG after treatment and follow-up. Those opting for controlled gambling were almost 10 years older

(average age = 51.3) than were those choosing abstinence (average age = 43.8). Their findings also indicated that women with more rather than less severe gambling problems reported poorer outcomes with respect to controlled gambling and abstinence (Dowling et al., 2009). Results of these CBT studies suggest that individualized, abstinence-based CBT may be most beneficial for women, especially if gambling problems are severe (see also Dowling, 2009; Okuda et al., 2009).

Dwyer, Piquette, Buckle, and McCaslin (2013) examined journaling as a means of qualitative data collection and as a therapeutic technique among women. Women, including older adult women (26 – 76 years), received journals to capture their thoughts about gambling and related issues. After 6 months, 7 women submitted journals; of those who did, five found the process helpful for anger release and that it enhanced understanding of their gambling-related problems. This study also involved group therapy with the same women. Women-only groups were helpful because of their non-judgmental atmosphere (Dwyer et al., 2013; McGowan, 2003).

Four case studies examined multimodal treatment options that may prove beneficial for women who experience comorbid disorders. A 40-year-old woman who was initially being treated for depression received exposure therapy and CBT to combat her excessive gambling (Battersby et al., 2008). In another study, a 32-year-old woman with schizophrenia was treated with CBT and meditation awareness training to reduce PG (Shonin et al., 2014). In both cases, the women showed reduced urges to gamble, which led to better psychological functioning. In a study that used combined stimulus control, exposure therapy, and relapse prevention treatment, a 47-year-old woman (Echeburua & Fernandez-Montalvo, 2002) maintained abstinence 1 year after treatment. A 32-year-old woman, experiencing PG and alexithymia, who received combined psychotherapeutic (cognitive therapy, education, and relapse prevention) and pharmacological (fluvoxamine) therapy was able to maintain abstinence with noted improvement in psychosocial functioning (Lim, 2001). We did not find any studies that examined multimodal treatment options for older adult women.

Assessment. In a description of a residential treatment program, Griffiths, Bellringer, Farrell-Roberts, and Freestone (2001) stated that the assessment process should establish the "context" of someone's gambling problem.

Assessment is important, as treatment outcomes may differ depending on the severity of PG. Shaffer, LaBrie, LaPlante, Kidman, and Donato (2005) suggested that gambling treatment programs can "(a) have no effect; (b) change knowledge about PG but not gambling behaviours; (c) decrease PG as planned; (d) inadvertently increase PG; or (e) have a range of other outcomes" (p. 62). For example, Symes and Nicki (1997) examined cue-exposure response prevention as a treatment option. Considering environmental, cognitive, behavioural, and physiological cues relevant to the individual context of gambling facilitated person-specific treatment, eliminating gambling urges and weakening the association between triggers and gambling behaviour.

S. A. Smith, Thomas, and Jackson (2004) argued that clients should engage in self-assessment to enhance motivation and improve the positive impact of the therapeutic alliance. Part of this self-assessment might also include assessment of the relationship between client and therapist. Coman, Evans, and Burrows (2003) argued that assessment should be collaborative and ongoing, using a humanistic, person-centred approach designed to elicit a strong rapport between client and practitioner.

The literature on PG treatment and related assessment is vast. Tolchard and Battersby (2000) described a nurse-led PG treatment program designed to provide screening, assessment, and therapy for women with gambling problems. They found that the dropout rate was high during the initial assessment period. Jackson, Holt, Thomas, and Crisp (2003) developed and validated a specialized assessment tool to assist PG counsellors in documenting and examining therapeutic activities against treatment goals. Turner, Littman-Sharp, Toneatto, Liu, and Ferentzy (2013) developed an Inventory of Gambling Situations to determine patterns of behaviour, thoughts, and feelings that might trigger disordered gambling.

Several validated assessment scales exist to screen for PG and to examine treatment outcome. S. W. Kim, Grant, Potenza, Blanco, and Hollander (2009) discussed the Gambling Symptom Assessment Scale, a self-rated scale that encompasses gambling urges, thoughts, behaviours, and interpersonal function. The Victorian Gambling Screen was designed to identify the most severe cases of PG (Tolchard & Battersby, 2010). The Gambling Treatment Outcome Monitoring System was designed to assess treatment outcomes (Stinchfield, Winters, Botzet, Jerstad, & Breyer, 2007). The Gambling Urge Scale explores situations and triggers that increase the tendency to gamble (D. P. Smith, Pols, Battersby, & Harvey, 2013). The University of Rhode Island Change Assessment scale was designed to assess readiness to change (Petry, 2005b).

Weiss and Petry (2008) examined differences between younger and older people who were experiencing pathological gambling with the goal of developing an inventory of gambling situations (see also a shorter version of the inventory in C. Smith, Stewart, O'Connor, Collins, & Katz, 2011). Results suggested that age was significantly associated with these scores and that younger people who were experiencing pathological gambling were more likely than older people with PG to endorse gambling in response to items regarding feeling lucky and testing one's gambling limits. This suggests that older adults may not have the same cognitive distortions as younger people who gamble, and thus treatments that focus on these cognitive distortions might be less effective with older adults. Assessment requires sensitivity to differences in client characteristics, including co-occurring health conditions (Pietrzak et al., 2007).

Treatment effectiveness. Ladouceur and Shaffer (2005) questioned the reliability of current knowledge on best approaches to PG treatment. Fong (2005) claims that no single approach has proven to be most effective in treating PG. Westphal (2007) argued that attrition (11% to 83%) affects the viability of findings from efficacy

studies and may lead to overestimation of treatment effect. He also argued that neglecting to consider intention to treat can lead to overestimation of treatment effects (Westphal, 2007).

Individual factors may play a role in treatment success and recovery. Gomes and Pascual-Leone (2009) distinguish between motivation for change and readiness for change. The latter involves a decisional process, and the former involves desire. These authors found that emotional support was a positive predictor of motivation and that emotional awareness was a positive predictor of readiness for change. Dunn, Delfabbro, and Harvey (2012) identified three factors that inhibit readiness to change: (1) gambling for pleasure or social interaction, (2) gambling as a strategy to avoid personal issues or dysphoric mood, and (3) high levels of guilt and shame. Gomes and Pascual-Leone (2009) found that what a client brings to treatment (personal features) is often more important than the choice of modality. For example, they found that life stress predicted relapse from treatment, and depression was associated with dropout; older groups (46 years or older) who experienced more depressive mood were more likely to drop out of treatment than were younger groups (45 years or younger; Gomes, 2012).

McMillan et al. (2004) compared demographics, gambling behaviours, and therapeutic and psychological measures across three client groups: long-term continuous (<12 consecutive months), readmitted (episodic), and brief therapy. They found that group cohesion was attainable in both short-term (e.g., six sessions at a time) and long-term open-ended approaches. A good rapport between client and therapist (positive therapeutic relationship) was associated with treatment success (Dowling & Cosic, 2011), and this may be more important than the quantity of treatment (e.g., number of sessions; Crisp et al., 2001). Jackson et al. (2003) developed the Counselor Task Analysis (Problem Gambling) to ensure that PG counsellors remain on task. The instrument allows treatment providers to document their practice and theories in their interaction with clients who are experiencing PG and to improve the therapeutic relationship. Slutske (2006) found natural recovery to be far more common with PG than recovery assisted by treatment or mutual aid. Petry (2009) reported that it is possible that one third of the sample recovers naturally (see also Slutske, 2006).

Reflections on Treatment of Problem Gambling for Older Adults

- Multimorbidity and polypharmacy are prevalent among older adults. Although pharmacological treatment for PG may be beneficial, practitioners who treat problematic gambling behaviour will need to acquire knowledge of potential toxic/lethal interactions between medications prescribed for PG and age-related illnesses and disabilities. Geriatricians could play a vital role in bridging psychiatry and geriatrics. Assessment tools will require sensitivity to differences in client characteristics.

- Although our findings suggest that people do better when family and friends are engaged in gambling treatment, networks shrink for older adults with loss

of family and friends. Social isolation, loneliness, disability, and bereavement can increase risk of PG. Finding meaning in later life may prove difficult. When families are still intact, their engagement can bolster positive PG treatment outcomes and reduce the stress associated with gambling for all family members.

- Relational approaches to therapy may offer older adults a support network that promotes well-being and involvement in social activities as alternatives to gambling. Women especially seem to respond to relational therapy. Group-based therapy may provide a substitute support network for older adults who have lost loved ones. Providing leisure activities for older adults that brings them together with peers could offer healthy alternatives to gambling.

- Because older adults use more health services for conditions related to aging, expanding treatment of PG into the realms of geriatrics, gynecology, and family practice (physicians and allied health professionals) could enhance early identification and treatment for older adults with gambling problems. These practitioners will also need to consider pharmacological treatments, such as those for Parkinson's disease, which may increase the risk of PG.

- The literature suggests that PG can be successfully treated with a number of treatment modalities, regardless of comorbidity. This is promising, as older adults with PG tend to have other health conditions. Engagement in treatment may be difficult for older adults with cognitive decline such as dementia, acquired brain injury, and Alzheimer's disease. Treatment initiatives aimed at older adults need to examine PG holistically, as there may be other disorders that contribute to the development of PG that might confound treatment.

- Older adults may see gambling as a social activity that allows them to interact with their peers and cope with loss of family members and friends through death. Their gambling may be hidden if family and friends are not aware that gambling problems can emerge later in life and spiral into financial and asset losses.

- It is possible that mindfulness, MI, and exercise offer treatment approaches that reduce PG. Clinicians who use these therapies among older adults need to consider their ability to engage, given the potential cognitive decline and mobility concerns. Physiotherapy may offer solutions. Given the reality of declining cognitive capacity that can come with age, mindfulness may help to protect older adults from PG behaviour.

Conclusions and Directions for Future Research

In this review, we examined the available evidence on prevention and treatment approaches for PG that might be pertinent to older adults. We reviewed a broad array of literature that included reviews, expert opinion essays, and papers that assessed evidence on the effectiveness of prevention and treatment, a purposeful decision to enable the research team to assess knowledge gaps. This scoping review informed two sister papers on best practices for prevention and treatment of PG among older adults (Turner, Weibe et al., this issue; Skinner et al., this issue).

Our review suggests that there are more studies focused on treatment, with a striking lack of evidence on prevention. This gap may exist because prevention efforts are overwhelmingly directed at youth gambling (Ferentzy, Turner, & Skinner, 2006). On a larger scale, there is a gap in the literature that specifically addresses treatment and prevention for adults in general, and specifically those aged 55 and over, and little that examines subgroups within this age range. We identified only three papers on treatment and four papers on prevention of PG for people of this age range (one paper pertains to both treatment and prevention). There is also a noticeable gap in evidence on treatment ($n = 15$) and prevention ($n = 1$) of PG for women, older women in particular ($n = 2$).

Retirement and loss of a loved one represent major transition points in the life course. Many older adults find it difficult to manage the shift from meaningful work to an abundance of leisure time, or the loss of a partner and the disruption in support and routine that accompanies this loss (McNeilly & Burke, 2002). O'Connell, Chin, Cunningham, and Lawlor (2003) provide some lessons from the field of substance addictions to help us understand why addiction may not be detected by health providers. Like alcohol misuse, gambling may be under-detected and misdiagnosed among older adults because providers do not suspect such problems in this population and may not be aware of the life transition risk factors that put older adults at risk of problematic gambling behaviours. Older adults may not disclose a gambling problem for fear of stigma. Multimorbidity among older adults means that they are seen more frequently in the health care setting. Primary care, thus, is an obvious setting to screen, diagnose, and treat both gambling problems and substance use, along with comorbid physical and mental health concerns (Goodyear-Smith et al., 2006; Levens, Dyer, Zubritsky, Knott, & Oslin, 2005), yet those in this profession have yet to embrace the detection of gambling problems. Health specialities such as gerontology and gynecology offer alternative settings for screening, treating, and referring older adults with gambling problems. Given that some studies link dementia to problematic gambling (Manes et al., 2010), it is essential that health care providers who see older adults with such conditions are aware and screen accordingly.

The social isolation and lack of meaning that can accompany later life can thrust people towards maladaptive coping strategies, including gambling and substance misuse. Older adults new to gambling may be at greater risk of harm. Research suggested that these older adults were easily impressed by incentives to gamble, equated good customer service with personal likeability, and blinded themselves to their activities being gambling if this did not align with their own visions of a gambler (Tira & Jackson, 2015; Tira et al., 2013). For older adults, the gambling venue was viewed as a second home and gambling activities occurred with promotions or other entertainment (Tira & Jackson, 2015).

Tira and Jackson (2015) recently asked older adults what could be done to prevent problematic gambling in their peers. Respondents provided practical strategies to enhance self-esteem and reduce social isolation. These strategies reflected the broader societal attitude towards older adults that devalues their skills and wisdom.

Some examples, relatively simple to implement, included programs that allowed older adults to mentor youth, free university courses for older adults, and senior-friendly neighbourhoods. The latter are emerging as ways to keep seniors at home longer with services available in the neighbourhood (Buffel et al., 2016; Lui, Everingham, Warburton, Cuthill, & Bartlett, 2009).

Further, studies that explore experiences of later life transition might elucidate ways to intervene before people choose gambling as a way to cope. Men and women may experience these transitions very differently; thus, it would be beneficial to explore gender/sex differences in coping styles, options for meaningful activities, and alternative types of support for men and women. There is room for a broad line of inquiry on the needs of older women who gamble and what might constitute appropriate and effective prevention and treatment strategies for them. There is scant research on this demographic. We know, for example, that gambling problems often start at a later age for women, but the progression of gambling problems is much faster, a phenomenon called telescoping (Ferentzy et al., 2013; Tavares, Zilberman, Beites, & Gentil, 2001). We know little about how gambling problems evolve among women who start at later ages.

Given that there is evidence that support from families and friends enhances interventions for problematic gambling behaviour (Skinner, this issue), it would be useful to explore this within the context of the lives of older adults who may have lost many family members and friends. Exploring alternative options of support from the perspectives of older adults (e.g., ask for their advice) would help us to understand their unique needs. For example, peer support or volunteer programs that provide long-term fulfilling connections with others may be helpful in reducing the risks associated with gambling. The literature on social support is vast, and certainly useful, but we need more on this topic that is specific to gambling and older adults.

More information is needed to better understand how prevention and treatment strategies used in other contexts might translate into a comprehensive PG prevention and treatment program for older adults. In particular, further inquiries into brief interventions, mindfulness, MI, and exercise would be helpful, as would future studies on how these approaches might work in conjunction as a treatment regime, for example, with CBT (Yakovenko & Hodgins, 2016). In addition, gambling prevention and treatment for older adults should aim to take advantage of what is known in substance use treatment and rehabilitation about older adults (see Benshoff, Harrawood, & Koch, 2003). For example, Health Canada (2002) outlines 23 best practices for the treatment and rehabilitation of seniors with substance use problems. Relevant considerations include the need for educational programs for treatment professionals and those working with older adults, a holistic health screening approach, specialized treatment options, and considerations related to engagement and communication.

Issues such as the lack of baseline data for case-control comparisons and insufficient information to assess concerns related to intention to treat suggest that much of the

previous research may be methodologically flawed. Above all, longitudinal studies are needed to understand the short- and long-term efficacy of prevention and treatment initiatives. There is already some confidence in short-term efficacy of many interventions, and so the real question involves whether and to what extent early gains can be sustained.

Older adults often experience ongoing cognitive deficiencies (e.g., memory problems due to conditions such as dementia and Alzheimer's disease; Government of Canada, 2006). Future research might explore whether and how cognitive health concerns among older adults exacerbate gambling-related cognitive distortions, as well as inhibit possible insight into their problematic gambling behaviour. Methods for improving executive functioning among the general population may be helpful for designing and tailoring treatment and prevention initiatives for older adults.

This review highlights a substantial gap in our knowledge about prevention and treatment approaches for PG that might be effective for older adults, with a specific dearth of evidence on prevention. More specifically, there is little research on the senior population despite our knowledge that gambling is a leisure activity of interest to them. The lack of studies with older adults, especially older women, is most concerning. Thus, our knowledge on how to develop effective treatment and prevention practices for older adults is severely lacking. Studies that explore different prevention and treatment modalities borrowed from the broader field of addiction could move practice forward, especially if there is rigorous evaluation of these interventions.

References

Abbott, M., Binde, P., Hodgins, D., Korn, D., Pereira, A., Volberg, R., & Williams, R. (2013). *Conceptual framework of harmful gambling: An international collaboration revised edition*. Retrieved from http://www.greo.ca/en/topics/resources/Documents/Working-Conceptual-Framework-of-Harmful-Gambling_Feb-2016.pdf

Achab, S., & Khazaal, Y. (2011). Psychopharmacological treatment in pathological gambling: A critical review. *Current Pharmaceutical Design*, *17*, 1389–1395.

American Psychiatric Association (1980). *The diagnostic and statistical manual of mental disorders* (3rd ed.). Washington, DC: Author.

Anderson, G. F., & Hussey, P. S. (2000). Population aging: A comparison among industrialized countries. *Health Affairs*, *19*, 191–203.

Angelo, D. L., Tavares, H., & Zilberman, M. L. (2013). Evaluation of a physical activity program for pathological gamblers in treatment. *Journal of Gambling Studies*, *29*, 589–599.

Ardouin, C., Voon, V., Worbe, Y., Abouazar, N., Czernecki, V., Hosseini, H., . . . Krack, P. (2006). Pathological gambling in Parkinson's disease improves on chronic subthalamic nucleus stimulation. *Movement Disorders*, *21*, 1941–1946.

Ariyabuddhiphongs, V. (2012). Older adults and gambling: A review. *International Journal of Mental Health and Addiction*, *10*, 297–308.

Ariyabuddhiphongs, V. (2013). Problem gambling prevention: Before, during, and after measures. *International Journal of Mental Health and Addiction*, *11*, 568–582.

Auer, M., & Griffiths, M. D. (2013). Voluntary limit setting and player choice in most intense online gamblers: An empirical study of gambling behaviour. *Journal of Gambling Studies*, *29*, 647–660.

Battersby, M., Oakes, J., Tolchard, B., Forbes, A., & Pols, R. (2008). Cognitive behavioral therapy for problem gamblers. In M. Zangeneh, N. E. Turner, & A. Blaszczynski (Eds.), *In the pursuit of winning: Problem gambling theory, research and treatment* (pp.179–197). Boston, MA: Springer.

Baxter, A., Salmon, C., Dufresne, K., Carasco-Lee, A., & Matheson, F. I. (2016). Gender differences in felt stigma and barriers to help-seeking for problem gambling. *Addictive Behaviors Reports*, *3*, 1–8. doi:10.1016/j.abrep.2015.10.001

Benshoff, J. J., Harrawood, L., & Koch, D. S. (2003). Substance abuse and the elderly: Unique issues and concerns. *Journal of Rehabilitation*, *69*, 43–48.

Bergh, C., & Kühlhorn, E. (1994). Social, psychological and physical consequences of pathological gambling in Sweden. *Journal of Gambling Studies*, *10*, 275–285.

Berlin, H. A., Braun, A., Simeon, D., Koran, L. M., Potenza, M. N., McElroy, S. L., . . . Hollander, E. (2011). A double-blind, placebo-controlled trial of topiramate for pathological gambling. *Neuropsychopharmacology*, *36*, S342–S343.

Bertrand, K., Dufour, M., Wright, J., & Lasnier, B. (2008). Adapted Couple Therapy (ACT) for pathological gamblers: A promising avenue. *Journal of Gambling Studies*, *24*, 393–409.

Bharmal, A., Lu, C., Quickfall, J., Crockford, D., & Suchowersky, O. (2010). Outcomes of patients with Parkinson disease and pathological gambling. *Canadian Journal of Neurological Sciences*, *37*, 473–477.

Binde, P. (2012). A Swedish mutual support society of problem gamblers. *International Journal of Mental Health and Addiction*, *10*, 512–523.

Bjelde, K., Chromy, B., & Pankow, D. (2008). Casino gambling among older adults in North Dakota: A policy analysis. *Journal of Gambling Studies*, *24*, 423–440.

Blanco, C., Petkova, E., Ibanez, A., & Saiz-Ruiz, J. (2002). A pilot placebo-controlled study of fluvoxamine for pathological gambling. *Annals of Clinical Psychiatry*, *14*, 9–15.

Blaszczynski, A., Drobny, J., & Steel, Z. (2005). Home-based imaginal desensitisation in pathological gambling: Short-term outcomes. *Behaviour Change*, *22*, 13–21.

Blaszczynski, A., Gainsbury, S., & Karlov, L. (2014). Blue gum gaming machine: An evaluation of responsible gambling features. *Journal of Gambling Studies*, *30*, 697–712.

Blaszczynski, A., Ladouceur, R., & Shaffer, H. J. (2004). A science-based framework for responsible gambling: The Reno model. *Journal of Gambling Studies*, *20*, 301–317.

Bohnert, N., Chagnon, J., & Dion, P. (2015). *Population projections for Canada (2013 to 2063), provinces and territories (2013 to 2038)*. Retrieved from Statistics Canada website: http://www.statcan.gc.ca/pub/91-520-x/2014001/section02-eng.htm.

Bosco, D., Plastino, M., Colica, C., Bosco, F., Arianna, S., Vecchio, A., . . . Consoli, D. (2012). Opioid antagonist naltrexone for the treatment of pathological gambling in Parkinson disease. *Clinical Neuropharmacology*, *35*, 118–120.

Boutin, C., Dumont, M., Ladouceur, R., & Montecalvo, P. (2003). Excessive gambling and cognitive therapy: How to address ambivalence. *Clinical Case Studies*, *2*, 259–269.

Boutin, C., Tremblay, N., & Ladouceur, R. (2009). Impact of visiting an Onsite Casino information centre on perceptions about randomness and gambling behaviours. *Journal of Gambling Studies*, *25*, 317–330.

Bower, J. H., Maraganore, D. M., McDonnell, S. K., & Rocca, W. A. (1999). Incidence and distribution of parkinsonism in Olmsted County, Minnesota, 1976–1990. *Neurology*, *52*, 1214.

Braverman, J., LaPlante, D. A., Nelson, S. E., & Shaffer, H. J. (2013). Using cross-game behavioral markers for early identification of high-risk internet gamblers. *Psychology of Addictive Behaviors*, *27*, 868–877.

Breen, H., Buultjens, J., & Hing, N. (2006). Implementing responsible gambling practices in a regional area. *Journal of Hospitality and Tourism Management*, *13*, 23–43.

Breen, R. B., Kruedelbach, N. G., & Walker, H. I. (2001). Cognitive changes in pathological gamblers following a 28-day inpatient program. *Psychology of Addictive Behaviors*, *15*, 246–248.

Brewer, J. A., Grant, J. E., & Potenza, M. N. (2008). The treatment of pathologic gambling. *Addictive Disorders and their Treatment*, *7*, 1–13.

Buffel, T., McGarry, P., Phillipson, C., De Donder, L., Dury, S., De Witte, N., . . . Verté, D. (2016). Developing age-friendly cities: Case studies from Brussels and Manchester and implications for policy and practice. In D. Sánchez-González & V. Rodríguez-Rodríguez(Eds.), *Environmental gerontology in Europe and Latin America: Policies and perspectives on environment and aging* (pp.277–296). Cham, Switzerland: Springer International Publishing.

Bujold, A., Ladouceur, R., Sylvain, C., & Boisvert, J. M. (1994). Treatment of pathological gamblers: An experimental study. *Journal of Behavior Therapy & Experimental Psychiatry*, *25*, 275–282.

Carlbring, P., Degerman, N., Jonsson, J., & Andersson, G. (2012). Internet-based treatment of pathological gambling with a three-year follow-up. *Cognitive Behaviour Therapy*, *41*, 321–334.

Carlbring, P., Jonsson, J., Josephson, H., & Forsberg, L. (2010). Motivational interviewing versus cognitive behavioral group therapy in the treatment of problem and pathological gambling: A randomized controlled trial. *Cognitive Behaviour Therapy*, *39*, 92–103.

Carlbring, P., & Smit, F. (2008). Randomized trial of Internet-delivered self-help with telephone support for pathological gamblers. *Journal of Consulting & Clinical Psychology*, *76*, 1090–1094.

Castren, S., Pankakoski, M., Tamminen, M., Lipsanen, J., Ladouceur, R., & Lahti, T. (2013). Internet-based CBT intervention for gamblers in Finland: Experiences from the field. *Scandinavian Journal of Psychology*, *54*, 230–235.

Champine, R. B., & Petry, N. M. (2010). Pathological gamblers respond equally well to cognitive-behavioral therapy regardless of other mental health treatment status. *American Journal on Addictions*, *19*, 550–556.

Chan, V. K. (2010). Using neural networks to model the behavior and decisions of gamblers, in particular, cyber-gamblers. *Journal of Gambling Studies*, *26*, 35–52.

Chantal, Y., Vallerand, R. J., & Vallieres, E. F. (2001). Motivation and Gambling Involvement. *The Journal of Social Psychology*, *135*, 755–763.

Christensen, D. R., Dowling, N. A., Jackson, A. C., Brown, M., Russo, J., Francis, K. L., & Umemoto, A. (2013). A proof of concept for using brief dialectical behavior therapy as a treatment for problem gambling. *Behaviour Change*, *30*, 117–137.

Cloutier, M., Ladouceur, R., & Sevigny, S. (2006). Responsible gambling tools: Pop-up messages and pauses on video lottery terminals. *Journal of Psychology*, *140*, 434–438.

Coman, G. J., Evans, B. J., & Burrows, G. D. (2002). Group counselling for problem gambling. *British Journal of Guidance & Counselling*, *30*, 145–158.

Coman, G. J., Evans, B. J., & Burrows, G. D. (2003). Gambling counselling in Australia: Focus on cognitive counselling techniques. *British Journal of Guidance & Counselling*, *31*, 163–175.

Coman, G. J., Evans, B. J., & Burrows, G. D. (2005). An innovative cognitive strategy to assist problem gamblers. *British Journal of Guidance & Counselling*, *33*, 129–140.

Cooper, G. (2004). Exploring and understanding online assistance for problem gamblers: The Pathways Disclosure Model. *eCommunity: International Journal of Mental Health & Addiction*, Vol. *1, No. 2*, pp. 32–38.

Crisp, B. R., Jackson, A. C., Thomas, S. A., Thomason, N., Smith, S., Borrell, J., . . . Holt, T. A. (2001). Is more better? The relationship between outcomes achieved by problem gamblers and the number of counselling sessions attended. *Australian Social Work*, *54*, 83–92.

Cunningham, J. A., Hodgins, D. C., Toneatto, T., Rai, A., & Cordingley, J. (2009). Pilot study of a personalized feedback intervention for problem gamblers. *Behavior Therapy*, *40*, 219–224.

Currie, S. R., Hodgins, D. C., Wang, J., El-Guebaly, N., & Wynne, H. (2008). In pursuit of empirically based responsible gambling limits. *International Gambling Studies*, *8*, 207–227.

Dannon, P. N., Lowengrub, K., Gonopolski, Y., Musin, E., & Kotler, M. (2005). Topiramate versus fluvoxamine in the treatment of pathological gambling: A randomized, blind-rater comparison study. *Clinical Neuropharmacology*, *28*, 6–10.

Dannon, P. N., Lowengrub, K., Gonopolski, Y., Musin, E., & Kotler, M. (2006). Pathological gambling: A review of phenomenological models and treatment modalities for an underrecognized psychiatric disorder. *Primary Care Companion to the Journal of Clinical Psychiatry*, *8*, 334–339.

Dannon, P. N., Lowengrub, K., Musin, E., Gonopolski, Y., & Kotler, M. (2005). Sustained-release bupropion versus naltrexone in the treatment of pathological gambling: A preliminary blind-rater study. *Journal of Clinical Psychopharmacology*, *25*, 593–596.

Dannon, P. N., Lowengrub, K., Musin, E., Gonopolsky, Y., & Kotler, M. (2007). 12-month follow-up study of drug treatment in pathological gamblers—A primary outcome study. *Journal of Clinical Psychopharmacology*, *27*, 620–624. doi:10.1097/jcp.0b013e31815a4400

Daughters, S. B., Lejuez, C. W., Lesieur, H. R., Strong, D. R., & Zvolensky, M. J. (2003). Towards a better understanding of gambling treatment failure: Implications of translational research. *Clinical Psychology Review*, *23*, 573–586.

Davies, B. (2007). iCare: Integrating responsible gaming into casino operation. *International Journal of Mental Health and Addiction*, *5*, 307–310.

Delfabbro, P. (2008). Evaluating the effectiveness of a limited reduction in electronic gaming machine availability on perceived gambling behaviour and objective expenditure. *International Gambling Studies*, *8*, 151–165.

de Lisle, S. M., Dowling, N. A., & Allen, J. S. (2012). Mindfulness and problem gambling: A review of the literature. *Journal of Gambling Studies*, *28*, 719–739.

Dell'Osso, B., Allen, A., & Hollander, E. (2005). Comorbidity issues in the pharmacological treatment of Pathological Gambling: A critical review. *Clinical Practice & Epidemiology in Mental Health*, *1*, 21.

Dell'Osso, B., & Hollander, E. (2005). The impact of comorbidity on the management of pathological gambling. *CNS Spectrums*, *10*, 619–621.

Denure, B., Ford, J., Hillyard, P., Moore, C., & Scherer, P. (2006). Effective strategies for treating those with the illness of pathological gambling. *Journal of Groups in Addiction & Recovery*, *1*(3–4),31–57.

Dickson-Gillespie, L., Rugle, L., Rosenthal, R., & Fong, T. (2008). Preventing the incidence and harm of gambling problems. *Journal of Primary Prevention*, *29*(1), 37–55.

Dickson-Swift, V., James, E., & Kippen, S. (2005). The experience of living with a problem gambler: Spouses and partners speak out. *Journal of Gambling Issues*, *13*, 1–22.

Di Nicola, M., De Risio, L., Pettorruso, M., Caselli, G., De Crescenzo, F., Swierkosz-Lenart, K., . . . Janiri, L. (2014). Bipolar disorder and gambling disorder comorbidity: Current evidence and implications for pharmacological treatment. *Journal of Affective Disorders*, *167*, 285–298.

Diskin, K. M., & Hodgins, D. C. (2009). A randomized controlled trial of a single session motivational intervention for concerned gamblers. *Behaviour Research & Therapy*, *47*, 382–388.

Dodd, M., Klos, K. J., Bower, J. H., Geda, Y. E., Josephs, K. A., & Ahlskog, J. (2005). Pathological gambling caused by drugs used to treat Parkinson disease. *Archives of Neurology*, *62*, 1377–1381. doi:10.1001/archneur.62.9.noc50009

Dowling, N. A. (2009). Client characteristics associated with treatment attrition and outcome in female pathological gambling. *Addiction Research & Theory*, *17*, 205–219.

Dowling, N. A., & Cosic, S. (2011). Client engagement characteristics associated with problem gambling treatment outcomes. *International Journal of Mental Health and Addiction*, *9*, 656–671.

Dowling, N. A., Smith, D., & Thomas, T. (2006). Treatment of female pathological gambling: The efficacy of a cognitive-behavioural approach. *Journal of Gambling Studies*, *22*, 355–372.

Dowling, N. A., Smith, D., & Thomas, T. (2007). A comparison of individual and group cognitive-behavioural treatment for female pathological gambling. *Behaviour Research & Therapy*, *45*, 2192–2202.

Dowling, N. A., Smith, D., & Thomas, T. (2009). A preliminary investigation of abstinence and controlled gambling as self-selected goals of treatment for female pathological gambling. *Journal of Gambling Studies*, *25*, 201–214.

Dragicevic, S., Tsogas, G., & Kudic, A. (2011). Analysis of casino online gambling data in relation to behavioural risk markers for high-risk gambling and player protection. *International Gambling Studies*, *11*, 377–391.

Dufour, J., Ladouceur, R., & Giroux, I. (2010). Training program on responsible gambling among video lottery employees. *International Gambling Studies*, *10*, 61–80.

Dunn, K., Delfabbro, P., & Harvey, P. (2012). A preliminary, qualitative exploration of the influences associated with drop-out from cognitive-behavioural therapy for problem gambling: An Australian perspective. *Journal of Gambling Studies*, *28*, 253–272.

Dwyer, S. C., Piquette, N., Buckle, J. L., & McCaslin, E. (2013). Women gamblers write a voice: Exploring journaling as an effective counseling and research tool. *Journal of Groups in Addiction & Recovery*, *8*, 36–50.

Echeburua, E., Baez, C., & Fernandez-Montalvo, J. (1996). Comparative effectiveness of three therapeutic modalities in the psychological treatment of pathological gambling: Long-term outcome. *Behavioural and Cognitive Psychotherapy*, *24*, 51–72.

Echeburua, E., & Fernandez-Montalvo, J. (2002). Psychological treatment of slot machine pathological gambling: A case study. *Clinical Case Studies*, *1*, 240–253.

Echeburua, E., & Fernandez-Montalvo, J. (2005). Psychological treatment of slot-machine pathological gambling: New perspectives. *Journal of Gambling Studies*, *21*, 21–26.

Echeburua, E., Fernandez-Montalvo, J., & Baez, C. (2000). Relapse prevention in the treatment of slot-machine pathological gambling: Long-term outcome. *Behavior Therapy*, *31*, 351–364.

Echeburua, E., Gomez, M., & Freixa, M. (2011). Cognitive-behavioural treatment of pathological gambling in individuals with chronic schizophrenia: A pilot study. *Behaviour Research & Therapy*, *49*, 808–814.

Ferentzy, P., Skinner, W., & Antze, P. (2009). Gamblers Anonymous and the 12 steps: How an informal society has altered a recovery process in accordance with the special needs of problem gamblers. *Journal of Gambling Issues*, *23*, 42–65.

Ferentzy, P., Skinner, W., & Matheson, F. (2013). Illicit drug use and problem gambling. *ISRN Addiction, 2013*. doi:10.1155/2013/342392

Ferentzy, P., Turner, N. E., & Skinner, W. (2006). The prevention of pathological gambling: An annotated bibliography. *Journal of Gambling Issues*, *17*.

Fong, T. W. (2005). Types of psychotherapy for pathological gamblers. *Psychiatry*, *2*, 32–39.

Gainsbury, S. M. (2014). Review of self-exclusion from gambling venues as an intervention for problem gambling. *Journal of Gambling Studies*, *30*, 229–251.

Gainsbury, S., Blankers, M., Wilkinson, C., Schelleman-Offermans, K., & Cousijn, J. (2014). Recommendations for international gambling harm-minimisation guidelines: Comparison with effective public health policy. *Journal of Gambling Studies*, *30*, 771–788.

Gainsbury, S., & Blaszczynski, A. (2011). Online self-guided interventions for the treatment of problem gambling. *International Gambling Studies*, *11*(3), 289–308.

Gainsbury, S., Hing, N., & Suhonen, N. (2014). Professional help-seeking for gambling problems: Awareness, barriers and motivators for treatment. *Journal of Gambling Studies*, *30*, 503–519.

Gallagher, T., Nicki, R., Otteson, A., & Elliott, H. (2011). Effects of a video lottery terminal (VLT) banner on gambling: A field study. *International Journal of Mental Health and Addiction*, *9*, 126–133.

George, S., & Murali, V. (2005). Pathological gambling: An overview of assessment and treatment. *Advances in Psychiatric Treatment*, *11*, 450–456.

Giroux, I., Boutin, C., Ladouceur, R., Lachance, S., & Dufour, M. (2008). Awareness training program on responsible gambling for casino employees. *International Journal of Mental Health and Addiction*, *6*, 594–601.

Gomes, K. (2012). Client factors that influence outcome in problem gambling treatment. *Dissertation Abstracts International: Section B: Sciences and Engineering*, *73*(6-B),3950.

Gomes, K., & Pascual-Leone, A. (2009). Primed for change: Facilitating factors in problem gambling treatment. *Journal of Gambling Studies*, *25*, 1–17.

Gonzalez-Ibanez, A., Rosel, P., & Moreno, I. (2005). Evaluation and treatment of pathological gambling. *Journal of Gambling Studies*, *21*, 35–42.

Gooding, P., & Tarrier, N. (2009). A systematic review and meta-analysis of cognitive-behavioural interventions to reduce problem gambling: Hedging our bets? *Behaviour Research & Therapy*, *47*, 592–607.

Goodyear-Smith, F., Arroll, B., Kerse, N., Sullivan, S., Coupe, N., Tse, S., . . . Perese, L. (2006). Primary care patients reporting concerns about their gambling frequently have other co-occurring lifestyle and mental health issues. *BMC Family Practice*, *7*, 25.

Gordon, R., & Moodie, C. (2009). Dead cert or long shot: The utility of social marketing in tackling problem gambling in the UK? *International Journal of Nonprofit and Voluntary Sector Marketing*, *14*, 243–253.

Gosker, E. (1999). Marketing of gambling to the elderly. *Elder Law Journal*, *7*, 185–216.

Government of Canada. (2006). *The human face of mental health and mental illness in Canada*. Retrieved from http://www.phac-aspc.gc.ca/publicat/human-humain06/index-eng.php

Grant, J. E., Chamberlain, S. R., Odlaug, B. L., Potenza, M. N., & Kim, S. W. (2010). Memantine shows promise in reducing gambling severity and cognitive inflexibility in pathological gambling: A pilot study. *Psychopharmacology*, *212*, 603–612.

Grant, J. E., Donahue, C. B., Odlaug, B. L., & Kim, S. W. (2011). A 6-month follow-up of imaginal desensitization plus motivational interviewing in the treatment of pathological gambling. *Annals of Clinical Psychiatry*, *23*, 3–10.

Grant, J. E., Donahue, C. B., Odlaug, B. L., Kim, S. W., Miller, M. J., & Petry, N. M. (2009). Imaginal desensitisation plus motivational interviewing for pathological gambling: Randomised controlled trial. *British Journal of Psychiatry*, *195*, 266–267.

Grant, J. E., & Grosz, R. (2004). Pharmacotherapy outcome in older pathological gamblers: A preliminary investigation. *Journal of Geriatric Psychiatry & Neurology*, *17*, 9–12.

Grant, J. E., & Kim, S. W. (2002a). Effectiveness of pharmacotherapy for pathological gambling: A chart review. *Annals of Clinical Psychiatry*, *14*, 155–161.

Grant, J. E., & Kim, S. W. (2002b). Pharmacotherapy of pathological gambling. *Psychiatric Annals*, *32*, 186–191.

Grant, J. E., Kim, S. W., Hollander, E., & Potenza, M. N. (2008). Predicting response to opiate antagonists and placebo in the treatment of pathological gambling. *Psychopharmacology*, *200*, 521–527.

Grant, J. E., Kim, S. W., & Kuskowski, M. (2004). Retrospective review of treatment retention in pathological gambling. *Comprehensive Psychiatry*, *45*, 83–87.

Grant, J. E., Kim, S. W., & Potenza, M. N. (2003). Advances in the pharmacological treatment of pathological gambling. *Journal of Gambling Studies*, *19*, 85–109.

Grant, J. E., Kim, S. W., Potenza, M. N., Blanco, C., Ibanez, A., Stevens, L., . . . Zaninelli, R. (2003). Paroxetine treatment of pathological gambling: A multi-centre randomized controlled trial. *International Clinical Psychopharmacology*, *18*, 243–249.

Grant, J. E., Odlaug, B. L., Chamberlain, S. R., Potenza, M. N., Schreiber, L. R., Donahue, C. B., & Kim, S. W. (2014). A randomized, placebo-controlled trial of N-acetylcysteine plus imaginal desensitization for nicotine-dependent pathological gamblers. *Journal of Clinical Psychiatry*, *75*, 39–45.

Grant, J. E., Odlaug, B. L., Potenza, M. N., Hollander, E., & Kim, S. W. (2010). Nalmefene in the treatment of pathological gambling: Multicentre, double-blind, placebo-controlled study. *British Journal of Psychiatry*, *197*, 330–331. (Erratum published 2001, *British Journal of Psychiatry, 198,* p. 75).

Grant, J. E., & Potenza, M. N. (2006). Escitalopram treatment of pathological gambling with co-occurring anxiety: An open-label pilot study with double-blind discontinuation. *International Clinical Psychopharmacology*, *21*, 203–209.

Grant, J. E., Williams, K. A., & Kim, S. W. (2006). Update on pathological gambling. *Current Psychiatry Reports*, *8*, 53–58.

Griffiths, M., Bellringer, P., Farrell-Roberts, K., & Freestone, F. (2001). Treating problem gamblers: A residential therapy approach. *Journal of Gambling Studies*, *17*, 161–169.

Griffiths, M., & Cooper, G. (2003). Online therapy: Implications for problem gamblers and clinicians. *British Journal of Guidance & Counselling*, *31*, 113–135.

Guercio, J. M., Johnson, T., & Dixon, M. R. (2012). Behavioral treatment for pathological gambling in persons with acquired brain injury. *Journal of Applied Behavior Analysis*, *45*, 485–495.

Guo, S., Manning, V., Thane, K. K., Ng, A., Abdin, E., & Wong, K. E. (2014). Predictors of treatment outcome among Asian pathological gamblers (PGs): Clinical, behavioural, demographic, and treatment process factors. *Journal of Gambling Studies*, *30*, 89–103.

Haefeli, J., Lischer, S., & Schwarz, J. (2011). Early detection items and responsible gambling features for online gambling. *International Gambling Studies*, *11*, 273–288.

Hayer, T., & Meyer, G. (2011a). Internet self-exclusion: Characteristics of self-excluded gamblers and preliminary evidence for its effectiveness. *International Journal of Mental Health and Addiction*, *9*, 296–307.

Hayer, T., & Meyer, G. (2011b). Self-exclusion as a harm minimization strategy: Evidence for the casino sector from selected European countries. *Journal of Gambling Studies*, *27*, 685–700.

Health Canada. (2002). *Best practices: Treatment and rehabilitation for seniors with substance use problems*. Retrieved from http://publications.gc.ca/collections/ Collection/H46-2-03-295E.pdf

Hing, N., & Nuske, E. (2011). Assisting problem gamblers in the gaming venue: A counsellor perspective. *International Journal of Mental Health and Addiction*, *9*, 696–708.

Hirsch, P. (2000). *Seniors and gambling: Exploring the issues*. Edmonton, AB: Alberta Alcohol and Drug Abuse Commission.

Hodgins, D. C., Ching, L. E., & McEwen, J. (2009). Strength of commitment language in motivational interviewing and gambling outcomes. *Psychology of Addictive Behaviors*, *23*, 122–130.

Hodgins, D. C., Currie, S. R., Currie, G., & Fick, G. H. (2009). Randomized trial of brief motivational treatments for pathological gamblers: More is not necessarily better. *Journal of Consulting & Clinical Psychology*, *77*, 950–960.

Hodgins, D. C., Currie, S. R., & el-Guebaly, N. (2001). Motivational enhancement and self-help treatments for problem gambling. *Journal of Consulting & Clinical Psychology*, *69*, 50–57.

Hodgins, D. C., Currie, S., el-Guebaly, N., & Peden, N. (2004). Brief motivational treatment for problem gambling: A 24-month follow-up. *Psychology of Addictive Behaviors*, *18*, 293–296.

Hodgins, D. C., Shead, N. W., & Makarchuk, K. (2007). Relationship satisfaction and psychological distress among concerned significant others of pathological gamblers. *Journal of Nervous & Mental Disease*, *195*, 65–71.

Hofman, A., Collette, H. J. A., & Bartelds, A. I. M. (1989). Incidence and risk factors of Parkinson's disease in The Netherlands. *Neuroepidemiology*, *8*, 296–299.

Hollander, E., Begaz, T., & Decaria, C. M. (1998). Pharmacologic approaches in the treatment of pathological gambling. *CNS Spectrums*, *3*, 72–80.

Hollander, E., DeCaria, C. M., Finkell, J. N., Begaz, T., Wong, C. M., & Cartwright, C. (2000). A randomized double-blind fluvoxamine/placebo crossover trial in pathologic gambling. *Biological Psychiatry*, *47*, 813–817.

Hollander, E., DeCaria, C. M., Mari, E., Wong, C. M., Mosovich, S., Grossman, R., & Begaz, T. (1998). Short-term single-blind fluvoxamine treatment of pathological gambling. *American Journal of Psychiatry*, *155*, 1781–1783.

Hollander, E., Pallanti, S., Allen, A., Sood, E., & Baldini Rossi, N. (2005). Does sustained-release lithium reduce impulsive gambling and affective instability versus placebo in pathological gamblers with bipolar spectrum disorders? *American Journal of Psychiatry*, *162*, 137–145.

Hollander, E., Sood, E., Pallanti, S., Baldini-Rossi, N., & Baker, B. (2005). Pharmacological treatments of pathological gambling. *Journal of Gambling Studies*, *21*, 99–110.

Imamura, A., Uitti, R. J., & Wszolek, Z. K. (2006). Dopamine agonist therapy for Parkinson disease and pathological gambling. *Parkinsonism & Related Disorders*, *12*, 506–508.

Ingle, P. J., Marotta, J., McMillan, G., & Wisdom, J. P. (2008). Significant others and gambling treatment outcomes. *Journal of Gambling Studies*, *24*, 381–392.

Jackson, A. C., Francis, K., Byrne, G., & Christensen, D. (2013). Leisure substitution and problem gambling: Report of a proof of concept group intervention. *International Journal of Mental Health and Addiction*, *11*, 64–74.

Jackson, A. C., Holt, T. A., Thomas, S. A., & Crisp, B. R. (2003). Development of an instrument for the analysis of problem gambling counselling practice. *International Gambling Studies*, *3*, 67–87.

Jardin, B. (2011). The use of messages in altering risky gambling behavior in experienced gamblers. *Dissertation Abstracts International: Section B: Sciences and Engineering*, *71*(8-B),5128.

Jazaeri, S. A., & Habil, M. H. (2012). Reviewing two types of addiction—Pathological gambling and substance use. *Indian Journal of Psychological Medicine*, *34*, 5–11.

Jimenez-Murcia, S., Bove, F. I., Israel, M., Steiger, H., Fernandez-Aranda, F., Alvarez- Moya, E., . . . Menchon, J. M. (2012). Cognitive-behavioral therapy for pathological gambling in Parkinson's disease: A pilot controlled study. *European Addiction Research*, *18*, 265–274.

Kennedy, C. H., Cook, J. H., Poole, D. R., Brunson, C. L., & Jones, D. E. (2005). Review of the first year of an overseas military gambling treatment program. *Military Medicine*, *170*, 683–687.

Khazaal, Y., Chatton, A., Bouvard, A., Khiari, H., Achab, S., & Zullino, D. (2013). Internet poker websites and pathological gambling prevention policy. *Journal of Gambling Studies*, *29*, 51–59.

Kim, H. S., Wohl, M. J., Stewart, M. J., Sztainert, T., & Gainsbury, S. M. (2014). Limit your time, gamble responsibly: Setting a time limit (via pop-up message) on an electronic gaming machine reduces time on device. *International Gambling Studies*, *14*, 266–278.

Kim, S. W., & Grant, J. E. (2001). An open naltrexone treatment study in pathological gambling disorder. *International Clinical Psychopharmacology*, *16*, 285–289.

Kim, S. W., Grant, J. E., Adson, D. E., & Shin, Y. C. (2001). Double-blind naltrexone and placebo comparison study in the treatment of pathological gambling. *Biological Psychiatry*, *49*, 914–921.

Kim, S. W., Grant, J. E., Adson, D. E., Shin, Y. C., & Zaninelli, R. (2002). A double-blind placebo-controlled study of the efficacy and safety of paroxetine in the treatment of pathological gambling. *Journal of Clinical Psychiatry*, *63*, 501–507.

Kim, S. W., Grant, J. E., Potenza, M. N., Blanco, C., & Hollander, E. (2009). The Gambling Symptom Assessment Scale (G-SAS): A reliability and validity study. *Psychiatry Research*, *166*, 76–84.

Korman, L. M., Collins, J., Littman-Sharp, N., Skinner, W., McMain, S., & Mercado, V. (2008). Randomized control trial of an integrated therapy for comorbid anger and gambling. *Psychotherapy Research*, *18*, 454–465.

Korman, L. M., Cripps, E., & Toneatto, T. (2008). Problem gambling and anger: Integrated assessment and treatment. In M. Zangeneh, N. E. Turner, & A. Blaszczynski (Eds.), *In the pursuit of winning: Problem gambling theory, research and treatment* (pp.251–269). Boston, MA: Springer.

Korn, D. A., & Shaffer, H. J. (1999). Gambling and the health of the public: Adopting a public health perspective. *Journal of Gambling Studies*, *15*, 289–365.

Koski-Jannes, A., & Turner, N. (1999). Factors influencing recovery from different addictions. *Addiction Research*, *7*, 469–492.

Kourgiantakis, T., Saint-Jacques, M.-C., & Tremblay, J. (2013). Problem gambling and families: A systematic review. *Journal of Social Work Practice in the Addictions*, *13*, 353–372.

LaBrie, R., & Shaffer, H. J. (2011). Identifying behavioral markers of disordered Internet sports gambling. *Addiction Research & Theory*, *19*, 56–65.

Labuzek, K., Beil, S., Beil-Gawelczyk, J., Gabryel, B., Franik, G., & Okopien, B. (2014). The latest achievements in the pharmacotherapy of gambling disorder. *Pharmacological Reports*, *66*, 811–820.

Ladouceur, R. (2005). Controlled gambling for pathological gamblers. *Journal of Gambling Studies*, *21*, 49–59.

Ladouceur, R., Blaszczynski, A., & Lalande, D. (2012). Pre-commitment in gambling: A review of the empirical evidence. *International Gambling Studies*, *12*, 215–230.

Ladouceur, R., Boutin, C., Doucet, C., Dumont, M., Provencher, M., Giroux, I., & Boucher, C. (2004). Awareness promotion about excessive gambling among video lottery retailers. *Journal of Gambling Studies*, *20*, 181–185.

Ladouceur, R., Jacques, C., Sevigny, S., & Cantinotti, M. (2005). Impact of the format, arrangement and availability of electronic gaming machines outside casinos on gambling. *International Gambling Studies*, *5*, 139–154.

Ladouceur, R., Jacques, C., Sevigny, S., & Cantinotti, M. (2006). "Impact on the format, arrangement and availability of electronic gaming machines outside casinos on gambling": Erratum. *International Gambling Studies*, *6*, 107.

Ladouceur, R., & Sevigny, S. (2006). The impact of video lottery game speed on gamblers. *Journal of Gambling Issues*, *17*.

Ladouceur, R., & Sevigny, S. (2009). Electronic gambling machines: Influence of a clock, a cash display, and a precommitment on gambling time. *Journal of Gambling Issues*, *23*, 31–41.

Ladouceur, R., & Shaffer, H. J. (2005). Treating problem gamblers: Working towards empirically supported treatment. *Journal of Gambling Studies*, *21*, 1–4.

Ladouceur, R., Sylvain, C., Boutin, C., Lachance, S., Doucet, C., Leblond, J., & Jacques, C. (2001). Cognitive treatment of pathological gambling. *Journal of Nervous & Mental Disease*, *189*, 774–780.

Ladouceur, R., Sylvain, C., & Gosselin, P. (2007). Self-exclusion program: A longitudinal evaluation study. *Journal of Gambling Studies*, *23*, 85–94.

Ladouceur, R., Sylvain, C., Letarte, H., Giroux, I., & Jacques, C. (1998). Cognitive treatment of pathological gamblers. *Behaviour Research & Therapy*, *36*, 1111–1119.

Ladouceur, R., Sylvain, C., Sevigny, S., Poirier, L., Brisson, L., Dias, C., . . . Pilote, P. (2006). Pathological gamblers: Inpatients' versus outpatients' characteristics. *Journal of Gambling Studies*, *22*, 443–450.

Larimer, M. E., Neighbors, C., Lostutter, T. W., Whiteside, U., Cronce, J. M., Kaysen, D., & Walker, D. D. (2012). Brief motivational feedback and cognitive behavioral interventions for prevention of disordered gambling: A randomized clinical trial. *Addiction*, *107*, 1148–1158.

Ledgerwood, D. M., Arfken, C. L., Wiedemann, A., Bates, K. E., Holmes, D., & Jones, L. (2013). Who goes to treatment? Predictors of treatment initiation among gambling help-line callers. *American Journal on Addictions*, *22*, 33–38.

Ledgerwood, D. M., & Petry, N. M. (2005). Current trends and future directions in the study of psychosocial treatments for pathological gambling. *Current Directions in Psychological Science*, *14*, 89–94.

Ledgerwood, D. M., & Petry, N. M. (2006). What do we know about relapse in pathological gambling? *Clinical Psychology Review*, *26*, 216–228.

Lee, J., Chen, C. C., Song, H. J., & Lee, C. K. (2014). The role of responsible gambling strategy and gambling passion in the online gamblers' decision-making process: Revising the theory of planned behavior. *Journal of Gambling Studies*, *30*, 403–422.

Lee, K. M., Chan, H. N., Cheah, B., Gentica, G. F., Guo, S., Lim, H. K., . . . Yeo, H. N. (2011). Ministry of Health clinical practice guidelines: Management of gambling disorders. *Singapore Medical Journal*, *52*, 456–458.

Lemay, A., Bakich, E., & Fontaine, A. (2006). *Betting on older adults: A problem gambling prevention clinical manual for service providers*. Toronto, ON: Ministry of Health and Long-Term Care.

Levens, S., Dyer, A.-M., Zubritsky, C., Knott, K., & Oslin, D. W. (2005). Gambling among older, primary-care patients: An important public health concern. *The American Journal of Geriatric Psychiatry*, *13*, 69–76.

Lim, K. D. (2001). A case of pathological gambling—Its features and management. *Singapore Medical Journal*, *42*, 217–219.

Linardatou, C., Parios, A., Varvogli, L., Chrousos, G., & Darviri, C. (2014). An 8-week stress management program in pathological gamblers: A pilot randomized controlled trial. *Journal of Psychiatric Research*, *56*, 137–143.

Lorenz, V. C., & Yaffee, R. A. (1988). Pathological gambling: Psychosomatic, emotional and marital difficulties as reported by the spouse. *Journal of Gambling Behavior*, *4*, 13–26.

Loroz, P. S. (2004). Golden-age gambling: Psychological benefits and self-concept dynamics in aging consumers' consumption experiences. *Psychology and Marketing*, *21*, 323–349.

Lu, C., Bharmal, A., & Suchowersky, O. (2006). Gambling and Parkinson disease. *Archives of Neurology*, *63*, 298–298. doi:10.1001/archneur.63.2.298-a

Lucke, S., & Wallace, M. (2006). Assessment and management of pathological and problem gambling among older adults. *Geriatric Nursing*, *27*, 51–57.

Lui, C.-W., Everingham, J.-A., Warburton, J., Cuthill, M., & Bartlett, H. (2009). What makes a community age-friendly: A review of international literature. *Australasian Journal on Ageing*, *28*, 116–121. doi:10.1111/j.1741-6612.2009.00355.x

Manes, F. F., Torralva, T., Roca, M., Gleichgerrcht, E., Bekinschtein, T. A., & Hodges, J. R. (2010). Frontotemporal dementia presenting as pathological gambling. *Nature Reviews Neurology*, *6*, 347–352.

Marazziti, D., Presta, S., Baroni, S., Silvestri, S., & Dell'Osso, L. (2014). Behavioral addictions: A novel challenge for psychopharmacology. *CNS Spectrums*, *19*, 486–495.

Mayeux, R., Marder, K., Cote, L. J., Denaro, J., Hemenegildo, N., Mejia, H., . . . Hauser, A. (1995). The frequency of idiopathic Parkinson's disease by age, ethnic group, and sex in northern Manhattan, 1988–1993. *American Journal of Epidemiology*, *142*, 820–827. doi:10.1093/oxfordjournals.aje.a117721

McComb, J. L., Lee, B. K., & Sprenkle, D. H. (2009). Conceptualizing and treating problem gambling as a family issue. *Journal of Marital & Family Therapy*, *35*, 415–431.

McGowan, V. (2003). Counter-story, resistance and reconciliation in online narratives of women in recovery from problem gambling. *International Gambling Studies*, *3*, 115–131.

McMillan, L. M., Bellringer, M. E., Tse, S., Brown, R., Rossen, F., & Adams, P. (2004). Long-term continuous clients and their needs: A New Zealand analysis. *International Gambling Studies*, *4*, 17–32.

McNeilly, D. P., & Burke, W. J. (2001). Gambling as a social activity of older adults. *International Journal of Aging and Human Development*, *52*, 19–28.

McNeilly, D. P., & Burke, W. J. (2002). Disposable time and disposable income: Problem casino gambling behavior in older adults. *Journal of Clinical Geropsychology*, *8*, 75–85.

Melville, C. L., Davis, C. S., Matzenbacher, D. L., & Clayborne, J. (2004). Node-link-mapping-enhanced group treatment for pathological gambling. *Addictive Behaviors*, *29*, 73–87.

Milton, S., Crino, R., Hunt, C., & Prosser, E. (2002). The effect of compliance-improving interventions on the cognitive-behavioural treatment of pathological gambling. *Journal of Gambling Studies*, *18*, 207–229.

Monaghan, S. (2008). Review of pop-up messages on electronic gaming machines as a proposed responsible gambling strategy. *International Journal of Mental Health and Addiction*, *6*, 214–222.

Monaghan, S. (2009). Responsible gambling strategies for Internet gambling: The theoretical and empirical base of using pop-up messages to encourage self-awareness. *Computers in Human Behavior*, *25*, 202–207.

Monaghan, S., & Blaszczynski, A. (2010a). Electronic gaming machine warning messages: Information versus self-evaluation. *Journal of Psychology*, *144*, 83–96.

Monaghan, S., & Blaszczynski, A. (2010b). Impact of mode of display and message content of responsible gambling signs for electronic gaming machines on regular gamblers. *Journal of Gambling Studies*, *26*, 67–88.

Monaghan, S., Blaszczynski, A., & Nower, L. (2009). Do warning signs on electronic gaming machines influence irrational cognitions? *Psychological Reports*, *105*, 173–187.

Moodie, C., & Reith, G. (2009). Responsible gambling signage on electronic gaming machines, before and after the implementation of the United Kingdom Gambling Act: An observational study. *International Gambling Studies*, *9*, 5–17.

Morens, D. M., Davis, J. W., Grandinetti, A., Ross, G. W., Popper, J. S., & White, L. R. (1996). Epidemiologic observations on Parkinson's disease: Incidence and mortality in a prospective study of middle-aged men. *Neurology*, *46*, 1044–1050.

Moufakkir, O. (2012). An analysis of elderly gamers' trip characteristics and gambling behavior: Comparing the elderly with their younger counterparts. *UNLV Gaming Research & Review Journal*, *10*, 5.

Munoz, Y., Chebat, J. C., & Borges, A. (2013). Graphic gambling warnings: How they affect emotions, cognitive responses and attitude change. *Journal of Gambling Studies*, *29*, 507–524.

Munoz, Y., Chebat, J. C., & Suissa, J. A. (2010). Using fear appeals in warning labels to promote responsible gambling among VLT players: The key role of depth of information processing. *Journal of Gambling Studies*, *26*, 593–609.

Myrseth, H., Brunborg, G. S., Eidem, M., & Pallesen, S. (2013). Description and pre-post evaluation of a telephone and Internet based treatment programme for pathological gambling in Norway: A pilot study. *International Gambling Studies*, *13*, 205–220.

Najavits, L. M., Smylie, D., Johnson, K., Lung, J., Gallop, R. J., & Classen, C. C. (2013). Seeking safety therapy for pathological gambling and PTSD: A pilot outcome study. *Journal of Psychoactive Drugs*, *45*, 10–16.

Nastally, B. L. (2010). Functional investigation of and treatment strategies for the near miss effect in gamblers. *Dissertation Abstracts International: Section B: Sciences and Engineering*, *71*(12-B),7710.

National Opinion Research Center at the University of Chicago. (1999). *Overview of national survey and community database research on gambling behavior: Report to the National Gambling Impact Study Commission*. Chicago, IL: Author.

Nelson, S. E., Kleschinsky, J. H., LaBrie, R. A., Kaplan, S., & Shaffer, H. J. (2010). One decade of self exclusion: Missouri casino self-excluders four to ten years after enrollment. *Journal of Gambling Studies*, *26*, 129–144.

Nelson, S. E., LaPlante, D. A., Peller, A. J., Schumann, A., LaBrie, R. A., & Shaffer, H. J. (2008). Real limits in the virtual world: Self-limiting behavior of Internet gamblers. *Journal of Gambling Studies*, *24*, 463–477.

Nixon, G., Leigh, G., & Nowatzki, N. (2006). Impacting attitudes towards gambling: A prison gambling awareness and prevention program. *Journal of Gambling Issues*, *17*.

Oakes, J., Pols, R., Battersby, M., Lawn, S., Pulvirenti, M., & Smith, D. (2012a). A focus group study of predictors of relapse in electronic gaming machine problem gambling, part 1: Factors that 'push' towards relapse. *Journal of Gambling Studies*, *28*, 451–464.

Oakes, J., Pols, R., Battersby, M., Lawn, S., Pulvirenti, M., & Smith, D. (2012b). A focus group study of predictors of relapse in electronic gaming machine problem gambling, part 2: Factors that 'pull' the gambler away from relapse. *Journal of Gambling Studies*, *28*, 465–479.

O'Connell, H., Chin, A.-V., Cunningham, C., & Lawlor, B. (2003). Alcohol use disorders in elderly people—Redefining an age old problem in old age. *British Medical Journal*, *327*, 664–667.

Oei, T. P., & Gordon, L. M. (2008). Psychosocial factors related to gambling abstinence and relapse in members of Gamblers Anonymous. *Journal of Gambling Studies*, *24*, 91–105.

Okuda, M., Balan, I., Petry, N. M., Oquendo, M., & Blanco, C. (2009). Cognitive-behavioral therapy for pathological gambling: Cultural considerations. *American Journal of Psychiatry*, *166*, 1325–1330.

Pallanti, S. (2005). New treatments in gambling addiction: Toward a subtype based on different sources of impulsivity. *Psychiatric Times*, *22*, 30–32.

Pallanti, S., Baldini Rossi, N., Sood, E., & Hollander, E. (2002). Nefazodone treatment of pathological gambling: A prospective open-label controlled trial. *Journal of Clinical Psychiatry*, *63*, 1034–1039.

Pallanti, S., Quercioli, L., Sood, E., & Hollander, E. (2002). Lithium and valproate treatment of pathological gambling: A randomized single-blind study. *Journal of Clinical Psychiatry*, *63*, 559–564.

Pallesen, S., Mitsem, M., Kvale, G., Johnsen, B. H., & Molde, H. (2005). Outcome of psychological treatments of pathological gambling: A review and meta-analysis. *Addiction*, *100*, 1412–1422.

Pasche, S. C., Sinclair, H., Collins, P., Pretorius, A., Grant, J. E., & Stein, D. J. (2013). The effectiveness of a cognitive-behavioral intervention for pathological gambling: A country-wide study. *Annals of Clinical Psychiatry*, *25*, 250–256.

Pattinson, J., & Parke, A. (2017). The experience of high-frequency gambling behavior of older adult females in the United Kingdom: An interpretative phenomenological analysis. *Journal of Women & Aging*, *29*, 243–253.

Peller, A. J., LaPlante, D. A., & Shaffer, H. J. (2008). Parameters for safer gambling behavior: Examining the empirical research. *Journal of Gambling Studies*, *24*, 519–534.

Pelletier, O., Ladouceur, R., & Rheaume, J. (2008). Personality disorders and pathological gambling: Comorbidity and treatment dropout predictors. *International Gambling Studies*, *8*, 299–313.

Petry, N. M. (2002a). A comparison of young, middle-aged, and older adult treatment-seeking pathological gamblers. *Gerontologist*, *42*, 92–99.

Petry, N. M. (2002b). How treatments for pathological gambling can be informed by treatments for substance use disorders. *Experimental & Clinical Psychopharmacology*, *10*, 184–192.

Petry, N. M. (2002c). Psychosocial treatments for pathological gambling: Current status and future directions. *Psychiatric Annals*, *32*, 192–196.

Petry, N. M. (2005a). Gamblers Anonymous and cognitive-behavioral therapies for pathological gamblers. *Journal of Gambling Studies*, *21*, 27–33.

Petry, N. M. (2005b). Stages of change in treatment-seeking pathological gamblers. *Journal of Consulting & Clinical Psychology*, *73*, 312–322.

Petry, N. M. (2009). Disordered gambling and its treatment. *Cognitive and Behavioral Practice*, *16*, 457–467.

Petry, N. M., Litt, M. D., Kadden, R., & Ledgerwood, D. M. (2007). Do coping skills mediate the relationship between cognitive-behavioral therapy and reductions in gambling in pathological gamblers? *Addiction*, *102*, 1280–1291.

Petry, N. M., & Roll, J. M. (2001). A behavioral approach to understanding and treating pathological gambling. *Seminars in Clinical Neuropsychiatry*, *6*, 177–183.

Petry, N. M., & Weiss, L. (2009). Social support is associated with gambling treatment outcomes in pathological gamblers. *American Journal on Addictions*, *18*(5),402–408.

Philippe, F., & Vallerand, R. J. (2007). Prevalence rates of gambling problems in Montreal, Canada: A look at old adults and the role of passion. *Journal of Gambling Studies*, *23*, 275–283.

Pietrzak, R. H., Morasco, B. J., Blanco, C., Grant, B. F., & Petry, N. M. (2007). Gambling level and psychiatric and medical disorders in older adults: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *American Journal of Geriatric Psychiatry*, *15*, 301–313.

Porchet, R. I., Boekhoudt, L., Studer, B., Gandamaneni, P. K., Rani, N., Binnamangala, S., . . . Clark, L. (2013). Opioidergic and dopaminergic manipulation of gambling tendencies: A preliminary study in male recreational gamblers. *Frontiers in Behavioral Neuroscience*, *7*, 138.

Potenza, M. N. (2005). Advancing treatment strategies for pathological gambling. *Journal of Gambling Studies*, *21*, 91–100.

Raja, M., & Bentivoglio, A. R. (2012). Impulsive and compulsive behaviors during dopamine replacement treatment in Parkinson's disease and other disorders. *Current Drug Safety*, *7*, 63–75.

Rash, C. J., & Petry, N. M. (2014). Psychological treatments for gambling disorder. *Psychology Research & Behavior Management*, *7*, 285–295.

Ravindran, A. V., da Silva, T. L., Ravindran, L. N., Richter, M. A., & Rector, N. A. (2009). Obsessive-compulsive spectrum disorders: A review of the evidence-based treatments. *Canadian Journal of Psychiatry*, *54*, 331–343.

Rizeanu, S. (2012). Proposal for a cognitive model to the treatment of pathological gambling. *Procedia, Social and Behavioral Sciences*, *33*, 742–746. doi:10.1016/j.sbspro.2012.01.220

Robson, E., Edwards, J., Smith, G., & Colman, I. (2002). Gambling decisions: An early intervention program for problem gamblers. *Journal of Gambling Studies*, *18*, 235–255.

Rockloff, M. J., & Greer, N. (2011). Audience influence on EGM gambling: The protective effects of having others watch you play. *Journal of Gambling Studies*, *27*, 443–451.

Roncero, C., Rodriguez-Urrutia, A., Grau-Lopez, L., & Casas, M. (2009). Antiepileptic drugs in the control of the impulses disorders. *Actas Espanolas de Psiquiatria*, *37*, 205–212.

Saiz-Ruiz, J., Blanco, C., Ibanez, A., Masramon, X., Gomez, M. M., Madrigal, M., & Diez, T. (2005). Sertraline treatment of pathological gambling: A pilot study. *Journal of Clinical Psychiatry*, *66*, 28–33.

Sassen, M., Kraus, L., & Buhringer, G. (2011). Differences in pathological gambling prevalence estimates: Facts or artefacts? *International Journal of Methods in Psychiatric Research*, *20*, e83–99.

Schreiber, L., Odlaug, B. L., & Grant, J. E. (2011). Impulse control disorders: Updated review of clinical characteristics and pharmacological management. *Frontiers in Psychiatry*, *2*, 1.

Schull, N. D. (2006). Machines, medication, modulation: Circuits of dependency and self-care in Las Vegas. *Culture, Medicine & Psychiatry*, *30*, 223–247.

Shaffer, H. J., LaBrie, R. A., LaPlante, D. A., Kidman, R. C., & Donato, A. N. (2005). The Iowa Gambling Treatment Program: Treatment outcomes for a follow-up sample. *Journal of Gambling Studies*, *21*, 59–73.

Sharpe, L. (1998). Cognitive-behavioural treatment of problem gambling. In V. E. Caballo (Ed.), *International handbook of cognitive and behavioural treatments for psychological disorders* (pp.393–416). Oxford: UK: Elsevier Science Ltd.

Sharpe, L., Walker, M., Coughlan, M. J., Enersen, K., & Blaszczynski, A. (2005). Structural changes to electronic gaming machines as effective harm minimization strategies for non-problem and problem gamblers. *Journal of Gambling Studies*, *21*, 503–520.

Shonin, E., Van Gordon, W., & Griffiths, M. D. (2014). Cognitive behavioral therapy (CBT) and Meditation Awareness Training (MAT) for the treatment of co-occurring schizophrenia and pathological gambling: A case study. *International Journal of Mental Health and Addiction*, *12*, 181–196.

Skinner, W., Littman-Sharp, N., Leslie, J., Ferentzy, P., Zaheer, S., Smit, . . . , McCready, J. Best practices for the treatment of problem gambling among older adults. *Journal of Gambling Issues (this issue)*.

Slutske, W. S. (2006). Natural recovery and treatment-seeking in pathological gambling: Results of two U.S. national surveys. *American Journal of Psychiatry*, *163*, 297–302.

Smith, D. P., Pols, R. G., Battersby, M. W., & Harvey, P. W. (2013). The Gambling Urge Scale: Reliability and validity in a clinical population. *Addiction Research & Theory*, *21*, 113–122.

Smith, C., Stewart, S. H., O'Connor, R. M., Collins, P., & Katz, J. (2011). Development and psychometric evaluation of a 10-item short form inventory of gambling situations. *Journal of Gambling Studies*, *27*(1),115–128.

Smith, S. A., Thomas, S. A., & Jackson, A. C. (2004). An exploration of the therapeutic relationship and counselling outcomes in a problem gambling counselling service. *Journal of Social Work Practice*, *18*, 99–112.

Soberay, A., Faragher, J. M., Barbash, M., Brookover, A., & Grimsley, P. (2014). Pathological gambling, co-occurring disorders, clinical presentation, and treatment outcomes at a university-based counseling clinic. *Journal of Gambling Studies*, *30*, 61–69.

Sood, E. D., Pallanti, S., & Hollander, E. (2003). Diagnosis and treatment of pathologic gambling. *Current Psychiatry Reports*, *5*, 9–15.

Stea, J. N., & Hodgins, D. C. (2011). A critical review of treatment approaches for gambling disorders. *Current Drug Abuse Reviews*, *4*, 67–80.

Stein, D. J., & Grant, J. E. (2005). Betting on dopamine. *CNS Spectrums*, *10*, 268–270.

Stinchfield, R., & Winters, K. C. (2001). Outcome of Minnesota's gambling treatment programs. *Journal of Gambling Studies*, *17*, 217–245.

Stinchfield, R., Winters, K. C., Botzet, A., Jerstad, S., & Breyer, J. (2007). Development and psychometric evaluation of the gambling treatment outcome monitoring system (GAMTOMS). *Psychology of Addictive Behaviors*, *21*, 174–184.

Straus, B. (2006). Some words about comments: How direct interpersonal communication at Gamblers Anonymous meetings impacts GA members' therapy. *Journal of Groups in Addiction & Recovery*, *1*(3–4), 75–111.

Subramaniam, M., Chong, S. A., Browning, C., & Thomas, S. (2017). Cognitive distortions among older adult gamblers in an Asian context. *PloS one*, *12*(5), e0178036.

Suurvali, H., Hodgins, D. C., & Cunningham, J. A. (2010). Motivators for resolving or seeking help for gambling problems: A review of the empirical literature. *Journal of Gambling Studies*, *26*, 1–33.

Suurvali, H., Hodgins, D. C., Toneatto, T., & Cunningham, J. A. (2012). Motivators for seeking gambling-related treatment among Ontario problem gamblers. *Journal of Gambling Studies*, *28*, 273–296.

Sylvain, C., Ladouceur, R., & Boisvert, J. M. (1997). Cognitive and behavioral treatment of pathological gambling: A controlled study. *Journal of Consulting & Clinical Psychology*, *65*, 727–732.

Symes, B. A., & Nicki, R. M. (1997). A preliminary consideration of cue-exposure, response-prevention treatment for pathological gambling behaviour: Two case studies. *Journal of Gambling Studies*, *13*, 145–157.

Tavares, H., Zilberman, M. L., Beites, F. J., & Gentil, V. (2001). Brief communications: Gender differences in gambling progression. *Journal of Gambling Studies*, *17*, 151–159.

Thomas, S. (2014). Problem gambling. *Australian Family Physician*, *43*, 362–364.

Tira, C., & Jackson, A. C. (2015). Exploring the gray areas: Senior gamblers' perceptions of what is and what isn't gambling. *Journal of Gambling Issues*, *31*, 24–44.

Tira, C., Jackson, A. C., & Tomnay, J. E. (2013). Pathways to late-life problematic gambling in seniors: A grounded theory approach. *The Gerontologist*, *54*, 1035–1048.

Tirachaimongkol, L. C., Jackson, A. C., & Tomnay, J. E. (2010). Pathways to problem gambling in seniors. *Journal of Gerontological Social Work*, *53*, 531–546.

Tolchard, B., & Battersby, M. (2000). Nurse behavioural psychotherapy and pathological gambling: An Australian perspective. *Journal of Psychiatric & Mental Health Nursing*, *7*, 335–342.

Tolchard, B., & Battersby, M. W. (2010). The Victorian Gambling Screen: Reliability and validation in a clinical population. *Journal of Gambling Studies*, *26*, 623–638.

Tolchard, B., Thomas, L., & Battersby, M. (2006). Single-session exposure therapy for problem gambling: A single-case experimental design. *Behaviour Change*, *23*, 148–155.

Toneatto, T. (2002). Cognitive therapy for problem gambling. *Cognitive and Behavioral Practice*, *9*, 191–199.

Toneatto, T., & Ladoceur, R. (2003). Treatment of pathological gambling: A critical review of the literature. *Psychology of Addictive Behaviors*, *17*, 284–292.

Tse, S., Hong, S. I., Wang, C. W., & Cunningham-Williams, R. M. (2012). Gambling behavior and problems among older adults: A systematic review of empirical studies. *Journals of Gerontology Series B, Psychological Sciences & Social Sciences*, *67*, 639–652.

Turner, N. E., Littman-Sharp, N., Toneatto, T., Liu, E., & Ferentzy, P. (2013). Centre for Addiction and Mental Health Inventory of Gambling Situations: Evaluation of the factor structure, reliability, and external correlations. *International Journal of Mental Health and Addiction*, *11*, 526–545.

Turner, N. E., Wiebe, J., Ferentzy, P., Kauffman, N., Zaheer, S., Smit-Quosai, T., . . . Mann, R. E. (2018). Developing a best practices guide for the prevention of problem gambling among older adults. *Journal of Gambling Issues (this issue)*.

Van Den Eeden, S. K., Tanner, C. M., Bernstein, A. L., Fross, R. D., Leimpeter, A., Bloch, D. A., & Nelson, L. M. (2003). Incidence of Parkinson's disease: Variation by age, gender, and race/ethnicity. *American Journal of Epidemiology*, *157*, 1015–1022. doi:10.1093/aje/kwg068

Voon, V., Hassan, K., Zurowski, M., Duff-Canning, S., de Souza, M., Fox, S., . . . Miyasaki, J. (2006). Prospective prevalence of pathologic gambling and medication association in Parkinson disease. *Neurology*, *66*, 1750.

Walters, G. D. (1994). The gambling lifestyle: II. Treatment. *Journal of Gambling Studies*, *10*, 219–235.

Walters, G. D. (2005). The effect of a gambling lifestyle group intervention on subsequent disciplinary adjustment in male prisoners. *Addictive Disorders and their Treatment*, *4*, 21–28.

Westphal, J. R. (2007). Are the effects of gambling treatment overestimated? *International Journal of Mental Health and Addiction*, *5*, 65–79.

Wiebe, J. (2000). *Prevalence of gambling and problem gambling among older adults in Manitoba*. Winnipeg, MB: Addictions Foundation of Manitoba.

Wiebe, J., Single, E., Falkowski-Ham, A., & Mun, P. (2004). *Gambling and problem gambling among older adults in Ontario*. Retrieved from https://www. responsiblegambling.org/docs/research-reports/gambling-and-problem-gambling-among-older-adults-in-ontario.pdf?sfvrsn=a40a154f_10

Weiss, L. M., & Petry, N. M. (2008). Psychometric properties of the inventory of gambling situations with a focus on gender and age differences. *Journal of Nervous & Mental Disease*, *196*(4),321–328.

Wood, R. T., & Griffiths, M. D. (2007). Online guidance, advice, and support for problem gamblers and concerned relatives and friends: An evaluation of the GamAid pilot service. *British Journal of Guidance & Counselling*, *35*, 373–389.

Wulfert, E., Blanchard, E. B., Freidenberg, B. M., & Martell, R. S. (2006). Retaining pathological gamblers in cognitive behavior therapy through motivational enhancement—A pilot study. *Behavior Modification*, *30*, 315–340. doi:10.1177/0145445503262578

Wulfert, E., Blanchard, E. B., & Martell, R. (2003). Conceptualizing and treating pathological gambling: A motivationally enhanced cognitive behavioral approach. *Cognitive and Behavioral Practice*, *10*, 61–72.

Wynn, J., Hudyma, A., Hauptman, E., Houston, T. N., & Faragher, J. M. (2014). Treatment of problem gambling: Development, status, and future. *Drugs & Alcohol Today*, *14*, 42–50. doi:10.1108/dat-10-2013-0044

Xuan, Z., & Shaffer, H. (2009). How do gamblers end gambling: Longitudinal analysis of Internet gambling behaviors prior to account closure due to gambling related problems. *Journal of Gambling Studies*, *25*, 239–252.

Yakovenko, I., & Hodgins, D. C. (2016). Latest developments in treatment for disordered gambling: Review and critical evaluation of outcome studies. *Current Addiction Reports, 3*, 299–306.

Zack, M., & Poulos, C. X. (2009). Effects of the atypical stimulant modafinil on a brief gambling episode in pathological gamblers with high vs. low impulsivity. *Journal of Psychopharmacology, 23*, 660–671.

Zakeri, K., & Potenza, M. N. (2012). The neuropsychopharmacology of pathological gambling. *Current Psychiatry Reviews, 8*, 20–24.

Zimmerman, M., Breen, R. B., & Posternak, M. A. (2002). An open-label study of citalopram in the treatment of pathological gambling. *Journal of Clinical Psychiatry, 63*, 44–48.

Zois, E., Kortlang, N., Vollstadt-Klein, S., Lemenager, T., Beutel, M., Mann, K., & Fauth-Buhler, M. (2014). Decision-making deficits in patients diagnosed with disordered gambling using the Cambridge Gambling task: The effects of substance use disorder comorbidity. *Brain and Behavior, 4*, 484–494.

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Appendix A

MEDLINE Search Strategy

Database: Ovid MEDLINE(R) <1946 to January Week 1 2015>, Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations <January 09, 2015>

Search Strategy:

1. exp Gambling/dt, pc, rh, th [Drug Therapy, Prevention & Control, Rehabilitation, Therapy] (196)
2. Gambling/ (3440)
3. (gambler* or gambling).ti,ab. (4463)
4. sports betting.ti,ab. (34)
5. slot machine*.ti,ab. (203)
6. video lottery terminal*.ti,ab. (37)
7. or/2-6 (5151)
8. Primary Prevention/ (14308)
9. preventive health services/ (10957)
10. prevent*.ti,ab. (975472)
11. (Treatment* or therapy or therapies).ti,ab. (3867047)
12. treatment outcome/ (649278)
13. (intervention or interventions).ti,ab. (547114)
14. intervention studies/ (7093)
15. Evidence-Based Medicine/ (55299)
16. Evidence-Based Practice/ (4669)
17. (effective practice* or best practice* or promising practice* or good practice* or Leading practice* or Benchmark* or prevalent practice* or effectiveness or efficacy or most effective approach* or promising approach* or effectiveness).ti,ab. (795172)
18. exp Guideline Adherence/ or exp Guideline/ or exp Practice Guideline/ (46939)
19. exp Guidelines as Topic/ (116562)
20. exp Practice Guidelines as topic/ (82263)
21. program evaluation/ (46858)
22. program development/ (22967)
23. Harm Reduction/ (1640)
24. (Harm reduction or Harm minimization or Harm minimisation).ti,ab. (2365)
25. Recurrence/ (147602)
26. Counseling/ (28069)
27. Psychotherapy, Group/ (11901)
28. Motivational Interviewing/ (346)
29. psychotherapy/ or behavior therapy/ or aversive therapy/ or biofeedback, psychology/ or cognitive therapy/ or "acceptance and commitment therapy"/ or mindfulness/ or desensitization, psychologic/ or implosive therapy/ or relaxation therapy/ or meditation/ or "imagery (psychotherapy)"/ or psychotherapy, brief/ or Psychoanalytic Therapy/ (105025)
30. Hotlines/ (2257)

31. peer group/ (14323)
32. Self-Help Groups/ (7864)
33. Gamblers Anonymous.ti,ab. (59)
34. health education/ or consumer health information/ or patient education as topic/ (122966)
35. Health Promotion/ (53945)
36. *"Patient Acceptance of Health Care"/ (17375)
37. internet/ or social media/ (51523)
38. Therapy, Computer-Assisted/ (5153)
39. Electroconvulsive Therapy/ (9618)
40. responsible gambling.ti,ab. (33)
41. exp Resilience, Psychological/ (1718)
42. (resilience or resiliency).ti,ab. (9127)
43. natural recovery.ti,ab. (305)
44. "marketing of health services"/ or social marketing/ (16058)
45. Combined Modality Therapy/ (143320)
46. (self exclusion or self exclude*).ti,ab. (72)
47. Government Regulation/ (17876)
48. public policy/ or health policy/ (78516)
49. (hours of operation or opening hours).ti,ab. (1531)
50. exp Naltrexone/ (6653)
51. Drug Therapy/ (28043)
52. exp Psychotropic Drugs/tu [Therapeutic Use] (104442)
53. or/8-52 (5895746)
54. 7 and 53 (2057)
55. limit 2 to (meta analysis or systematic reviews) (82)
56. 1 or 54 or 55 (2101)
57. limit 56 to "all child (0 to 18 years)" (426)
58. limit 57 to "all adult (19 plus years)" (297)
59. 57 not 58 (129)
60. 56 not 59 (1972)
61. limit 60 to animals (46)
62. limit 61 to humans (32)
63. 61 not 62 (14)
64. 60 not 63 (1958)
65. limit 64 to english language (1811)
66. limit 65 to yr="1994 -Current" (1668)
67. remove duplicates from 66 (1662)