REVIEW ARTICLE

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Who uses self-exclusion to regulate problem gambling? A systematic literature review

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Background and aims: Self-exclusion programs offer an intervention for individuals with problem gambling behavior. However, these programs are insufficiently used. This review describes sociodemographic features and gambling behavior of self-excluders as well as goals and motives for initiating self-exclusion from terrestrial and online gambling. In addition, use of further professional help and barriers to self-exclusion are examined. *Methods:* Based on systematic literature search and quality assessment, $n = 16$ original studies (13 quantitative, 2 qualitative, and 1 mixed method) published between 1997 and 2017 in English or German language were analyzed. Results are presented for online and terrestrial gambling separately. *Results:* Online self-excluders were on average 10 years younger than terrestrial self-excluders. Self-exclusion was mainly motivated by financial problems, followed by feelings of losing control and problems with significant others. Financial problems and significant others were less important for online than for terrestrial gamblers. Main barriers for self-exclusion were complicated enrollment processes, lack of complete exclusion from all venues, little support from venue staff, and lack of adequate information on self-exclusion programs. Both self-excluders from terrestrial and online gambling had negative attitudes toward the need of professional addiction care. *Conclusion:* To exploit the full potential of self-exclusion as a measure of gambler protection, its acceptance and its utilization need to be increased by target-group-specific information addressing financial issues and the role of significant others, simplifying the administrative processes, facilitating self-exclusion at an early stage of the gambling career, offering self-determined exclusion durations, and promoting additional use of professional addiction care.

Keywords: self-exclusion, systematic reviews, regulations, problem gambling, Internet gambling, terrestrial gambling

INTRODUCTION

Problem and pathological gambling is significantly increasing due to the negative consequences of the affected individual (Gainsbury, 2014), the increasing expansion of the international gambling market (Hayer & Meyer, 2011b), and the growing use of online gambling (Dragicevic, Percy, Kudic, & Parke, 2015; Hayer & Meyer, 2011a). Self-exclusion is considered a particularly restrictive form of gambler protection. Individuals with gambling problems voluntarily exclude themselves from entering one or more gambling venues to prevent further gambling. Gamblers can request an exclusion by, for instance, formally signing an agreement that states a denial of access to all or only particular venues. Moreover, self-exclusion gives gambling providers the opportunity to call gamblers' attention to professional help, such as financial advice, counseling, or other forms of support (Fiedler, 2014; Gainsbury, 2014). There are fundamental differences between features of self-exclusion programs in different countries. These include, for instance, the range of duration of self-exclusion available or whether duration is determined by operators, by law or by gamblers themselves. Besides self-exclusion programs for terrestrial gambling, various gambling platforms provide the opportunity to self-exclude from online gambling on their websites by blocking the account for a specific length of time. Requests for online self-exclusions can be done online using the gamblers' account (for an example, see bwin.com). However, here too, features and principles of online self-exclusion vary between online gambling platforms. While some platforms differ in their selectable length of exclusion (bwin.com and onlinecasino.de/en), other websites do not offer exclusion options at all (palapoker.com).

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Despite great similarities in provided gambling services in terrestrial and online gambling (e.g., slot machines, sports betting, lotteries, roulette, poker, etc.), terrestrial and online gambling differ in some distinctive features. For instance, online gambling is predominantly played at home or on the way using smartphone and is therefore constantly accessible, more anonymous, and more easily concealed from fellows than terrestrial gambling. Moreover, online gambling offers more flexible payment opportunities (Gainsbury, 2015; Gainsbury, Russell, Wood, Hing, & Blaszczynski, 2015; Gainsbury, Wood, Russell, Hing, & Blaszczynski, 2012; Griffiths, 2003; Hing, Cherney, et al., 2015). While online and terrestrial gamblers seem to be well researched, little is known about specific differences between self-excluders from terrestrial and online gambling.

Self-exclusion from terrestrial gambling has become an established measure for reducing negative consequences caused by problem gambling behavior in several provinces of Canada and Australia, in some states in the USA and in European countries, such as Germany, Austria, and Switzerland. To date, self-exclusion programs have been evaluated by several studies (e.g., Hayer & Meyer, 2011b; Hing & Nuske, 2012; Hing, Tolchard, Nuske, Holdsworth, & Tiyce, 2014; Ladouceur, Jacques, Giroux, Ferland, & Leblond, 2000; Ladouceur, Sylvain, & Gosselin, 2007; Nelson, Kleschinsky, LaBrie, Kaplan, & Shaffer, 2010; Tremblay, Boutin, & Ladouceur, 2008), and the results have been summarized in narrative reviews (e.g., Gainsbury, 2014; Kalke, Buth, & Hayer, 2012; Parke, Parke, Harris, Rigbye, & Blaszczynski, 2014). The results indicate that self-exclusion has positive effects on gamblers, such as improving financial problems, reducing gambling frequency, and increasing quality of life (Gainsbury, 2014). However, based on the assumption that pathological gamblers need to be protected in order not to harm themselves or significant others, the current state of knowledge suggests that self-exclusion programs are insufficiently used by gamblers and thus do not effectively prevent excessive gambling (Fiedler, 2014; Gainsbury, 2014; O'Neil et al., 2003). For instance, rates of problem gamblers excluded from terrestrial gambling varied between 0.6% and 17% in Canada and Australia (Gainsbury, 2014). According to an online survey, the utilization rate of online self-exclusion was 5.4% and 11% among all respondents and among respondents classified as at-risk gamblers, respectively (Jonsson, 2008).

Despite growing knowledge concerning the effects and possible benefits of self-exclusion programs, there is a lack of a systematic description of who is using self-exclusion by considering motives as well as barriers for their implementation. Knowledge on particular features of gamblers who exclude themselves from gambling as well as identifying target-groups that are not represented in the group of self-excluders may help improve design and framework of self-exclusion programs as well as enhance acceptance of and access to self-exclusion, and consequently increase its use. In light of growing relevance of online gambling, knowledge on self-exclusion from online gambling and its commonalities as well as differences to self-exclusion from terrestrial gambling may lead to specific strategies promoting the use of self-exclusion within the two domains of terrestrial and online gambling.

The present review aims to address the aforementioned gaps in the current state of research by providing a systematic description of self-excluders of terrestrial and online gambling by focusing (a) on their sociodemographic features, (b) the characteristics of their gambling behavior, and (c) the circumstances surrounding their acceptance of further support. (d) It analyzes their goals and motives as well as (e) barriers for self-exclusion. (f) Differences between self-excluders from online and terrestrial gambling as well as gender or age group differences and differences between self-excluders and non-self-excluders are reported. Finally, essential characteristics and differences between self-excluders of terrestrial and online gambling and suggestions for structural changes within existing self-exclusion programs are discussed.

METHODS

The methodology of this review is based on the proposed framework for systematic reviews by the Centre for Reviews and Dissemination (2009). For quality assessment, the criteria for qualitative and quantitative studies developed by Kmet, Lee, and Cook (2004) were applied. To synthesize the results of the selected studies, the guidelines for a narrative approach were used, recommended by the UK Economic and Social Research Council (Popay et al., 2006).

Search strategy

A literature search was carried out between 18th and 25th of September 2017 in the following five electronic databases: PsycInfo, PubMed, PSYNDEX, Medline, and Embase. The publication period was set from 1997 to 2017. For the databases PsychInfo and PSYNDEX, the search was limited to studies published in academic journals, while this had to be done manually for the databases PubMed, Medline, and Embase. The search term was composed of two elements: (a) gambling and (b) self-exclusion. For both elements, a list of synonyms and alternative terms were developed, which resulted in gambl* for element (a) and self-exclu*, self exclu*, exclu*, self-ban*, self ban* for element (b). All terms in the list for element (b) were combined with "OR," set in parentheses. The combination of both elements resulted in the search term "gambl* AND (self-exclu* OR self exclu* OR exclu* OR self-ban* OR self ban*)". In total, 911 articles were identified through the database search. After removing duplicates, a total of 420 articles were eligible for screening titles and abstracts. Figure 1 shows the results of the search strategy.

Inclusion and exclusion criteria

Study selection was conducted independently by the authors FM and BG. Disagreements were resolved through consensus reached by discussion between both authors. Publications were included, if they fulfilled the following general conditions: original study; written in German- or English-language; using quantitative, qualitative, or mixed methods; and reporting sample size. Relevant studies had to examine a sample of self-excluders, at least as a subgroup, who excluded themselves for terrestrial and/or online gambling.

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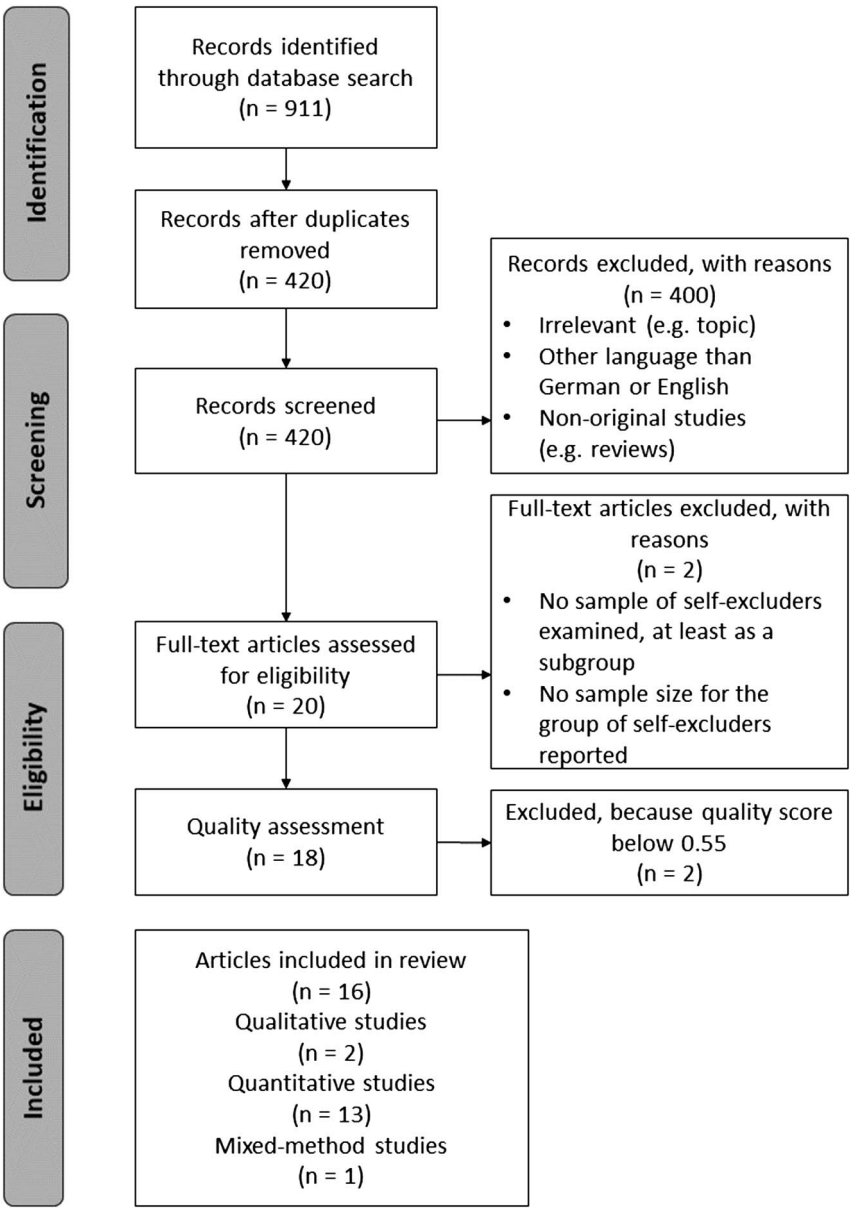


Figure 1. PRISMA flow diagram of literature search (Moher, Liberati, Tetzlaff, & Altman, 2009)

Based on the inclusion and exclusion criteria, a list of 20 articles were generated for a full-text analysis. By analyzing the full-text, two studies were excluded, because they either did not examine self-excluders, at least as a subgroup, or did not report the sample size of examined self-excluders. Figure 1 depicts the flow diagram of the selection process with 18 studies being selected for quality assessment.

Quality assessment

Due to the variety of methods applied in the identified studies, the authors decided to employ the *Standard Quality Assessment Criteria for Evaluating Primary Research Papers from a Variety of Fields* (Kmet et al., 2004). This tool allows comprehensive quality scoring using a checklist for qualitative and quantitative studies. For each study, a summary score was calculated by summing the total score and dividing it by the total possible score for each study. This resulted in 15 articles assessed by the criteria for quantitative studies and three articles assessed by the criteria for qualitative studies. Of the latter ones, one study (Hing & Nuske, 2012) used a mixed method approach.

FM and BG independently assessed the quality of the included studies. The interrater reliability of the summary scores was excellent, with an interclass correlation coefficient of 0.986 ($p < .001$; 95% CI: 0.962, 0.995) (Cicchetti, 1994). For the four differently rated studies, a mean score was calculated. According to the guidelines, studies with a quality score below 0.55 (liberal cut-off point) were excluded ($n = 2$). In total, 16 studies were used for data extraction. All quality scores are displayed in Table 1.

Data extraction and synthesis

A preliminary synthesis was developed using tabulation, vote count of emergent themes, and thematic analysis.

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Table 1. Characteristics and main findings of selected studies of self-excluders

Study	Online/ terrestrial	Target population	*n*	Design	Results	Study quality
Dragicevic et al. (2015)	Online	Online gamblers (76% living in Germany)	$n = 1{,}218$ (IG: $n = 347$; CG: $n = 871$)	Cross-sectional with control group	78% of self-excluders were male 61% self-excluded within the first 15 days, 25% within the same day of opening the gambling account Time between opening account and self-exclusion was shortest among men under 25 years old Average duration of a gambling session was 26 min, with on average 9 gambling sessions per day and about 20 gambling hours per month	0.80
Haefeli et al. (2015)	Online	German- and English-speaking online gamblers	$n = 300$ (IG: $n = 150$; CG: $n = 150$)	Cross-sectional with control group	95% of self-excluders were male Average age of self-excluders: 32 years	0.85
Haeusler (2016)	Online	Online gamblers (bwin.com) (98% living in Europe)	$n = 2{,}696$ (IG: $n = 1{,}348$; CG: $n = 1{,}348$)	Cross-sectional with control group	93% of self-excluders were male Average age of self-excluders: 31 years Self-excluders made withdrawals and deposits more often and used higher amounts than non-self-excluders Self-excluders canceled their withdrawals and deposits more often than non-self-excluders	1.00
Hayer and Meyer (2011a)	Online	Self-excluders (win2day.at)	T0: $n = 259$ T1: $n = 29$ T2: $n = 22$ T3: $n = 20$	Longitudinal	69% of self-excluders were male Average age of self-excluders: 36 years Casino games most often reported as most problematic gambling activity 68% problem online gamblers (Lie–Bet Questionnaire) Decision to self-exclude seen as a rather spontaneous action 60% reported that gambling sessions lasted on average at least 60 min	0.75
Hayer and Meyer (2011b)	Terrestrial	Self-excluders from casinos in Germany, Austria, and Switzerland	T0: $n = 152$ T1: $n = 39$ T2: $n = 32$ T3: $n = 28$	Longitudinal	72% of self-excluders were male Average age of self-excluders: 41 years Almost half of the self-excluders excluded themselves due to gambling on slot machines 51% pathological gamblers (DSM-IV) Decision to self-exclude reported as a rather considered choice On average, first casino visit at the age of 28 years, time between first gambling and appearance of gambling related problems was 8 years 28% reported an average casino visit lasted at least 5 hr, for 13% more than 7 hr 40% reported about an expenditure of at least 1.235 USD per casino visit 54% initiated self-exclusion due to feelings of losing control 13% self-excluded due to problems at work caused by casino gambling	0.85
Hing and Nuske (2012)	Terrestrial	Self-excluders in South Australia	Survey: $n = 36$ (additional phone interview: $n = 23$)	Quantitative and qualitative	56% aimed for abstinence Monetary motives reported as extremely significant Many self-excluded due to advice from family or friends 63% stated that self-exclusion must be better advertised Most self-excluders tried to raise additional funds to continue gambling	0.65

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Hing, Nuske, Tolchard, and Russell (2015)	Terrestrial	Problem gamblers in Queensland (Australia)	$n = 103$ (self-exclusion and counseling: $n = 34$; only self-exclusion: $n = 19$; only counseling: $n = 33$; CG: $n = 17$)	Qualitative	Over 50% of self-excluders receiving counseling aimed for complete abstinence One third of self-excluders not receiving counseling were aiming for abstinence; the majority wanted only to reduce gambling	0.65
Hing, Russell, Tolchard, et al. (2015)	Terrestrial	Self-excluders and gamblers receiving counseling in Queensland (Australia)	T0: $n = 86$ (self-exclusion and counseling: $n = 34$; only self-exclusion: $n = 19$; only counseling: $n = 33$) T1: $n = 64$ (self-exclusion and counseling: $n = 26$; only self-exclusion: $n = 14$; only counseling: $n = 24$) T2: $n = 51$ (self-exclusion and counseling: $n = 23$; only self-exclusion: $n = 6$; only counseling: $n = 22$)	Longitudinal	EGMs most problematic gambling form 1.800 USD monthly gambling expenditure 6 months prior self-exclusion Self-excluders had higher monthly gambling expenditures than non-self-excluders High urge to gamble in the last 6 month preceding self-exclusion (Gambling Urge Scale)	0.90
Hing et al. (2014)	Terrestrial	Regular gamblers in Queensland (Australia)	$n = 103$ (IG: n = 53; CG: n = 50)	Qualitative	EGMs reported as causing the most gambling related problems Over 50% aimed to achieve complete abstinence Motives which concerned financial aspects most frequently reported Impossibility to self-exclude from several gambling venues at the same time as a barrier	0.80
LaBrie et al. (2007)	Terrestrial	Self-excluders from casinos in Missouri (USA)	$n = 6,599$	Cross-sectional	58% of self-excluders were male Average age of self-excluders: 43 years	0.95
Ladouceur et al. (2000)	Terrestrial	Self-excluders from a casino in Quebec	$n = 220$	Cross-sectional	62% of self-excluders were male Average age of self-excluders: 41 years 95% pathological gamblers (SOGS) 39% indicated that, except of the casino staff, nobody got informed about their decision to self-exclude 83% felt unable to stop gambling by their own control 87% reported having lost a large amount of money at the casino overall (Median: 2.000 USD); 17% reported about an overall loss of more than 20.000 USD 66% borrowed money in order to continue gambling	1.00

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Table 1. (Continued)

Study	Online/ terrestrial	Target population	*n*	Design	Results	Study quality
Ladouceur et al. (2007)	Terrestrial	Self-excluders from casinos in Quebec (Canada)	T0: $n = 161$ T1: $n = 117$ T2: $n = 83$ T3: $n = 60$ T4: $n = 53$	Longitudinal	60% of self-excluders were male Average age of self-excluders: 44 years 61% indicated playing on EGMs as their favorite form of gambling 73% pathological gamblers (DSM-V); 88% pathological gamblers (SOGS) 65% reported having very low or no control over their gambling behavior 50% reported about an overall loss of more than 25.000 USD 61% borrowed money in order to continue gambling	0.82
Nelson et al. (2010)	Terrestrial	Self-excluders from casinos in Missouri (USA)	$n = 113$	Longitudinal	45% of self-excluders were male Average age of self-excluders: 45 years Number of gamblers using gambling therapies more than doubled after enrolment to self-exclusion 58% of self-excluders were married	0.95
Nower and Blaszczynski (2006)	Terrestrial	Self-excluders from casinos in Missouri (USA)	$n = 2,670$	Cross-sectional	Women implemented self-exclusions at a significantly older age than men Male self-excluders more likely to be married than female self-excluders Female self-excluders reported an average casino visit expenditure of about 1.091 USD; male self-excluders of about 1.673 USD Male (9%) self-excluders excluded themselves more often in order to save their jobs than female self-excluders (0%)	0.98
Nower and Blaszczynski (2008)	Terrestrial	Self-excluders from casinos in Missouri (USA)	$n = 1,601$ (18- to 35-year-olds: $n = 490$; 36- to 55-year-olds: $n = 950$; over 56-year-olds: $n = 161$)	Cross-sectional	Regaining control as main motive Gambling on slot machines most frequently played Older self-excluders more likely to be married than younger self-excluders Older self-excluders reported the desire to save their marriage less often than younger and middle-aged self-excluders Younger and middle-aged self-excluders excluded themselves more often in order to save their jobs than older self-excluders	1.00
Tremblay et al. (2008)	Terrestrial	Self-excluders who signed for the improved self-exclusion program for a casino in Montreal	Self-excluders who signed for the improved self-exclusion program: $n = 857$; completed the appreciation questionnaire at the mandatory meeting: $n = 116$ (voluntary meeting: $n = 39$; mandatory meeting: $n = 77$)	Longitudinal	15 hr of gambling per week (61 hr per month) 4.000 USD monthly spent for gambling preceding the self-exclusion	0.73

Note. IG: intervention group; CG: control group; EGM: Electronic Gambling Machines; SOGS: South Oaks Gambling Screen.

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General information, study characteristics, and main results were extracted and tabulated. FM and BG independently conducted the thematic analysis. Relevant primary themes for this review had to be reported in at least five different included studies. In order not to miss out on relevant subthemes, the cut-off level was lowered and subthemes had to be reported in at least four different studies. Details on the identification of themes and subthemes and data extraction are presented in "Supplementary Material." The robustness of the synthesis was ensured through the application of quality assessment (see "Quality assessment" section). In case results were prone to lead to biased synthesis, they were excluded from analyses, for example, prevalence rates and data on demographic characteristics from studies with a sample size lower than 100 self-excluders. Gambling behavior characteristics were only considered when collected prior to or during self-exclusion. This constraint was necessary to ensure that the results did not suffer from a biased implementation of self-exclusion as an intervention.

RESULTS

Description of studies

The 16 included studies for data extraction comprised 13 quantitative studies (Dragicevic et al., 2015; Haefeli et al., 2015; Haeusler, 2016; Hayer & Meyer, 2011a, 2011b; Hing, Russell, Tolchard, et al., 2015; LaBrie et al., 2007; Ladouceur et al., 2000, 2007; Nelson et al., 2010; Nower & Blaszczynski, 2006, 2008; Tremblay et al., 2008), 2 qualitative studies (Hing, Nuske, et al., 2015; Hing et al., 2014), and 1 mixed method study (Hing & Nuske, 2012). As shown in Table 1, the quality scores of all included articles ranged between 0.65 and 1.0 (0.0 = poor quality and 1.0 = excellent quality). Overall, quantitative studies scored higher (range: 0.73–1.0) than qualitative studies (range: 0.65–0.80). Qualitative studies most often lacked in describing verification procedures to establish credibility/trustworthiness of the study and in outlining the reflexivity within interpretation processes. Of the 16 included studies, 12 examined self-excluders who self-excluded from terrestrial venues (Hayer & Meyer, 2011b; Hing & Nuske, 2012; Hing, Nuske, et al., 2015; Hing, Russell, Tolchard, et al., 2015; Hing et al., 2014; LaBrie et al., 2007; Ladouceur et al., 2000, 2007; Nelson et al., 2010; Nower & Blaszczynski, 2006, 2008; Tremblay et al., 2008), while four studies examined self-excluders who self-excluded from online gambling websites (Dragicevic et al., 2015; Haefeli et al., 2015; Haeusler, 2016; Hayer & Meyer, 2011a). None of the qualitative studies examined online self-excluders. Studies that referred to self-exclusion from terrestrial gambling (qualitative and quantitative) surveyed self-excluders from venues in Germany, Austria, and Switzerland ($n = 1$), Queensland (Australia) ($n = 3$), South Australia ($n = 1$), Missouri (USA) ($n = 4$), Quebec (Canada) ($n = 2$), and Montreal (Canada) ($n = 1$). Studies on self-exclusion from online gambling included self-excluders primarily from Europe (Table 1).

For German-speaking countries (Germany, Austria, and Switzerland), only fragmentary information on self-exclusion programs from terrestrial gambling was provided. In Germany, exclusions from state-provided gambling are regulated nationwide by the German State Treaty on Gambling, whereas exclusions from commercially provided gambling are organized by each federal state separately (Motka, Grüne, Braun, & Kraus, 2018). Switzerland established a country-wide self-exclusion program based on the nationwide data sharing of excluded gamblers. In Austria, gamblers can choose between cross-venue exclusion and the exclusion from specific casinos. In most of the European countries, entry checks are obligatory in order to identify excluded gamblers (Hayer & Meyer, 2011b). In Queensland (Australia), self-exclusions are implemented for a period of 5 years. Gamblers can choose to be excluded from a venue or from specific gambling activities. Revocations are allowed within 24 hr or after 12 months of enrollment. Patrons and Licensees can be punished for breaches, for example, through financial penalties. Gambling operators have to provide referrals to a gambling counseling service (Hing et al., 2014). Gamblers in South Australia can exclude themselves from one or multiple venues by requesting an interview, either by telephone or by going to an office of the Independent Gambling Authority. During this interview, additional health care support and contacting for follow-ups will be offered (Hing & Nuske, 2012). In Quebec (Canada), gamblers must approach a security agent who will take them to a private office for enrollment. Gamblers can exclude themselves for at least 6 months; the maximum duration was 5 years in the first study (Ladouceur et al., 2000) and 2 years in the second one (Ladouceur et al., 2007). Advertisement for the self-exclusion program is implemented by pamphlets at different areas in casinos. In Montreal (Canada), self-exclusion is implemented within a contact to an information agent. Self-excluders can choose between an exclusion period of 3 months to 5 years. Since 2005, they can also choose to participate in a regular or an improved self-exclusion program. In the improved program, self-excluders contact a self-exclusion counselor for an evaluation meeting at the beginning and a mandatory meeting at the end of the self-exclusion period. If self-excluders do not attend the mandatory meeting, the self-exclusion period will automatically be continued (Tremblay et al., 2008). In Missouri (USA), gamblers who enroll in the statewide self-exclusion program exclude themselves from any Missouri casino for lifetime (Nelson et al., 2010). The self-exclusion application can be carried out in state-administered offices or at the venues itself. Self-excluders who breach their exclusion can be arrested or charged with trespassing (Nelson et al., 2010; Nower & Blaszczynski, 2006, 2008). Information on self-exclusion from online gambling is comparatively rare. In an Austrian gambling website, online gamblers could choose between an exclusion period of 1, 3, 6, or 12 months (Hayer & Meyer, 2011a).

Two studies investigated differences between self-excluders and groups of gamblers, which used counseling as treatment or no intervention at all (Hing, Nuske, et al., 2015; Hing, Russell, Tolchard, et al., 2015). Other studies compared different subgroups of self-excluders, including

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gender (Nower & Blaszczynski, 2006), age groups (Nower & Blaszczynski, 2008), or self-excluders with and without additional use of counseling (Hing, Nuske, et al., 2015; Hing, Russell, Tolchard, et al., 2015). The key parameters and the main findings of the studies included in the review are outlined in Table 1.

Sociodemographic features

Terrestrial self-excluders. Between 45% and 72% of gamblers who excluded themselves from terrestrial gambling were male (Hayer & Meyer, 2011b; LaBrie et al., 2007; Ladouceur et al., 2000, 2007; Nelson et al., 2010; Nower & Blaszczynski, 2006). While the gender ratio was largely balanced in American studies (LaBrie et al., 2007; Nelson et al., 2010; Nower & Blaszczynski, 2006, 2008), the proportion of male self-excluders in German-speaking countries was 72% (Hayer & Meyer, 2011b). The average age was between 41 and 45 years (Hayer & Meyer, 2011b; LaBrie et al., 2007; Ladouceur et al., 2000, 2007; Nelson et al., 2010; Nower & Blaszczynski, 2006). Between 42% and 67% of the self-excluders were married or lived with their spouse or partner (Ladouceur et al., 2000, 2007; Nelson et al., 2010; Nower & Blaszczynski, 2006, 2008). The majority of self-excluders (73%–90%) were employed (full-time or part-time) (Ladouceur et al., 2007; Nelson et al., 2010; Nower & Blaszczynski, 2006, 2008).

Online self-excluders. Between 69% and 95% of gamblers who excluded themselves from online platforms were male (Dragicevic et al., 2015; Haefeli et al., 2015; Haeusler, 2016; Hayer & Meyer, 2011a). The average age ranged between 31 and 36 years (Haefeli et al., 2015; Haeusler, 2016; Hayer & Meyer, 2011a). Younger online gamblers were more likely to self-exclude than older online gamblers (Dragicevic et al., 2015; Haeusler, 2016). Furthermore, Haeusler (2016) specified the relationship between age and self-exclusion and found a higher likelihood of self-exclusion among gamblers below the average age and among gamblers in the older age groups.

Characteristics of gambling behavior

Terrestrial self-excluders. Among individuals who self-excluded from terrestrial gambling, between 51% and 95% were classified as (probable) pathological gamblers (Hayer & Meyer, 2011b; Ladouceur et al., 2000, 2007; Nelson et al., 2010). Based on psychometric scales (Hayer & Meyer, 2011b; Hing, Russell, Tolchard, et al., 2015) or self-ratings (Hing & Nuske, 2012; Ladouceur et al., 2007), high levels of urge to gamble prior to self-exclusion were reported. Electronic gambling machines (EGMs), including slot machines, were the favored gambling type, most frequently played and mostly perceived as problematic or seen as the reason for self-exclusion (Hayer & Meyer, 2011b; Hing & Nuske, 2012; Hing, Russell, Tolchard, et al., 2015; Hing et al., 2014; Ladouceur et al., 2007; Nower & Blaszczynski, 2006, 2008). Compared to male self-excluders, female self-excluders started gambling at a later age (Hayer & Meyer, 2011b; Nower & Blaszczynski, 2006, 2008).

Studies that examine gambling expenditures of self-excluders from terrestrial venues reported high spendings prior to self-exclusion. Monthly expenditure ranged on average between 1.800 USD and 4.000 USD (Hing, Russell, Tolchard, et al., 2015; Tremblay et al., 2008). Female self-excluders' average loss on a casino visit (1.091 USD) was significantly lower than male self-excluders' (1.673 USD) (Nower & Blaszczynski, 2006). It has also been shown that self-excluders showed higher monthly gambling expenditures than non-self-excluders (Hing, Russell, Tolchard, et al., 2015).

Online self-excluders. Based on the Lie–Bet Questionnaire adapted for Internet gambling, 68% of online self-excluders scored above the threshold for problem gambling. Younger self-excluded online gamblers were more often found to fulfill the criteria for problem online gambling than their older counterparts (Hayer & Meyer, 2011a). According to Dragicevic et al. (2015), online self-excluders most commonly played casino games (e.g., roulette and blackjack), which were also most frequently perceived as problematic gambling activity (Hayer & Meyer, 2011a).

In the study of Hayer and Meyer (2011a), nearly a quarter of online self-excluders (22%) reported spending more than 595 USD on gambling per week. Self-excluders made greater monthly losses (962 USD on average) than non-self-excluders (693 USD on average) and also experienced greater variation in monthly losses (Dragicevic et al., 2015). Self-excluded online gamblers also made higher and more frequently withdrawals and deposits and also canceled them more often than non-self-excluders (Haeusler, 2016).

Additional health care support

Terrestrial self-excluders. Across studies, utilization of additional health care support was diverse. Studies surveying the prevalence rate during enrollment to self-exclusion reported that around 10% of self-excluders had any previous or current experience of individual professional support (Hayer & Meyer, 2011b; Ladouceur et al., 2000). Longitudinal studies surveying the prevalence rate after a few months of self-exclusion found percentages around 20%–30% (Hayer & Meyer, 2011b; Nelson et al., 2010; Nower & Blaszczynski, 2006). In line with this, Nelson et al. (2010) reported that the number of gamblers utilizing gambling therapies more than doubled after self-exclusion. There was no significant difference in seeking gambling counseling between females and males (Nower & Blaszczysnki, 2006). Furthermore, professional help was more often used by gamblers with the primary goal of abstinence, a higher problem severity, as well as specific psychological features, such as lower levels of independence and pride in resolving problems (Hing, Nuske, et al., 2015).

Studies showed inconsistencies in the attitude toward the combination of self-exclusion and health care support among self-excluders (Hayer & Meyer, 2011b; Hing & Nuske, 2012; Hing, Nuske, et al., 2015). For instance, Hayer and Meyer (2011b) reported an overall disagreement among self-excluders to the necessity to combine self-exclusion with counseling (Hayer & Meyer, 2011b). Hing, Nuske, et al. (2015) found that the opinion about additional use of counseling varied according to treatment status. Self-excluders without additional use of counseling expressed more negative attitudes toward counseling.

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Online self-excluders. The prevalence of additional health care support of online self-excluders was solely surveyed by Hayer and Meyer (2011a). About 1% of self-excluders reported that they decided to exclude as part of their gambling counseling. Similar to terrestrial self-excluders, online self-excluders strongly disagreed with the necessity to combine self-exclusion with counseling or therapy.

Goals and motives

Terrestrial self-excluders. Achieving abstinence was the main goal behind self-exclusion for the majority of gamblers, and reducing gambling behavior was rated second (Hing & Nuske, 2012; Hing et al., 2014). However, goals differed by treatment status. While for the majority of self-excluders who additionally made use of counseling services, the main goal was to reach abstinence, the majority of self-excluders without using counseling services wanted to reduce gambling by restricting access to their regularly visited venues (Hing, Nuske, et al., 2015).

Most self-excluders involved others (e.g., counselor, family, or friends) in their decision to self-exclude. Only a small percentage reported that nobody else knew about their self-exclusion (Hing & Nuske, 2012; Ladouceur et al., 2000). The involvement of others varied by treatment status. While only a small proportion of self-excluders without use of counseling made their decision along with others, the majority of self-excluders who made additional use of counseling involved people close to them (Hing, Nuske, et al., 2015; Hing et al., 2014). Gamblers using self-exclusion and counseling generally considered their counselor important for their decision to self-exclude (Hayer & Meyer, 2011b; Hing & Nuske, 2012, Hing, Nuske, et al., 2015; Hing et al., 2014; Nower & Blaszczynski, 2006).

The most important or most frequently named reasons for self-exclusion were financial motives (Hing & Nuske, 2012; Hing et al., 2014; Ladouceur et al., 2007). According to Hayer and Meyer (2011b), 76% of the self-excluders stated that they had lost too much money, 44% reported financial problems due to casino gambling, 37% mentioned to have placed bets that were in no relation to their income level or wealth, and 29% reported to be in debts because of their casino gambling. A further frequently named motive for self-exclusion was regaining control (Hayer & Meyer, 2011b, Nelson et al., 2010; Nower & Blaszczynski, 2008). Women (55%) slightly more often than men (49%) mentioned the wish to gain control as motive for self-exclusion (Nower & Blaszczynski, 2006).

Significant others (e.g., family members or friends) played a key role in the decision for self-exclusion (Hing & Nuske, 2012; Hing, Nuske, et al., 2015; Hing et al., 2014). Family members or the partner were considered more important for the decision to self-exclude than friends and colleagues (Hing & Nuske, 2012). About 20% of self-excluders initiated to be banned on the advice, request, or pressure of their partners, family members, or friends (Hayer & Meyer, 2011b; Ladouceur et al., 2000; Nelson et al., 2010; Nower & Blaszczynski, 2006). One third of self-excluders reported that they self-excluded due to family or relationship problems caused by casino gambling (Hayer & Meyer, 2011b). In line with this, the wish to protect their marriage was named by about 20% of self-excluders (Nower & Blaszczynski, 2006).

Health and psychological problems of self-excluders were frequently reported as important reason for self-exclusion (Hing & Nuske, 2012; Hing et al., 2014). Women as well as older self-excluders were more likely to report prevention of suicide as motive for self-exclusion than their respective counterparts (Nower & Blaszczynski, 2006, 2008). Motives related to work were rated as rather unimportant (Hayer & Meyer, 2011b; Hing & Nuske, 2012; Nower & Blaszczynski, 2006, 2008).

Online self-excluders. Only one study surveyed goals and reasons for self-exclusion of online self-excluders (Hayer & Meyer 2011a). About one quarter (24%) of online self-excluders wanted to abstain from all forms of gambling. Nearly the same proportion (22%) wanted to abstain only from online gambling and 13% only wanted to stop gambling on a specific gambling platform. The most commonly named reasons for self-exclusion were financial problems. About half (52%) of the online self-excluders mentioned an excessive loss of money, about one quarter (26%) placing bets that were in no relation to their income level or wealth and almost one fifth (19%) reported general financial problems. Debts were a decisive motive for 12% and loss of control for 30% of online self-excluded gamblers. Motives related to the gambler's social environment were reported comparatively rarely. Merely 15% stated that they had excluded themselves due to family or relationship problems and 5% on the advice of family or friends. Problems at work were reported by 3% as motive for self-exclusion (Hayer & Meyer, 2011a).

Barriers for self-exclusion

Barriers for self-exclusion were only investigated among terrestrial gamblers. The self-exclusion enrollment was commonly seen as time-consuming and embarrassing, especially when simultaneous exclusion from multiple venues was impossible. During the process of enrollment, privacy and confidentiality were an important concern (Hing, Nuske, et al., 2015; Hing et al., 2014). Venue staffs' attitude was also frequently criticized: staff members were perceived as not sufficiently briefed on the process and did not provide reasonable sensitivity, encouragement, or support. Self-excluders also reported that they were not given adequate information on the self-exclusion program (e.g., penalties for breaches and additional counseling services) (Hing & Nuske, 2012; Hing et al., 2014; Nelson et al., 2010). Moreover, self-excluders were not confident about the detection of breaches against exclusion (Hing & Nuske, 2012; Hing, Nuske, et al., 2015; Hing et al., 2014; Ladouceur et al., 2000). Frequently, it was also criticized that self-exclusion programs were not sufficiently advertised (Hing & Nuske, 2012; Hing et al., 2014; Ladouceur et al., 2000).

The impossibility of excluding from several venues at the same time, resulting in opportunities for gambling at alternative venues, was negatively evaluated in studies without the possibility of simultaneous multivenue exclusion (Hing, Nuske, et al., 2015; Hing et al., 2014). Self-excluders

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without using additional counseling were less concerned about excluding individually from multiple venues due to their primary goal of reducing their gambling behavior (Hing, Nuske, et al., 2015). Opinions on the length of the ban varied with some self-excluders preferring short time and others preferring lifetime ban (Hing et al., 2014; Nelson et al., 2010). Self-excluders in a Canadian study criticized the absence of a follow-up process during self-exclusion and the lack of additional clinical support. They were also critical about the organization of renewing exclusion, which had to be made personally at the venue (Ladouceur et al., 2000).

DISCUSSION

Our review provides the first systematic description of individuals who have self-excluded from terrestrial and online gambling. The description included basic sociodemographic features, gambling behavior characteristics, the use of additional help, goals, and motives as well as barriers for self-exclusion.

With regard to sociodemographic characteristics, individuals who self-excluded from terrestrial gambling were generally men in their early to mid-40s. Gamblers who had excluded themselves from online gambling were on average 10 years younger than self-excluders from terrestrial gambling. These results are in line with studies showing a higher prevalence of problem gambling among men compared to women as well as a younger average age of online gamblers compared to terrestrial gamblers (Dowling et al., 2017; Johansson, Grant, Kim, Odlaug, & Götestam, 2009; Hing, Russell, Gainsbury, & Blaszczynski, 2015; Wardle, Moody, Griffiths, Orford, & Volberg, 2011; Wood & Williams, 2011). Moreover, the results show an uneven gender ratio between self-excluders from terrestrial and online gambling with a higher proportion of men among self-excluders from online gambling than from terrestrial gambling. This observation is consistent with the results of previous studies (Blaszczynski, Russell, Gainsbury, & Hing, 2016; Gainsbury et al., 2012; Hing, Russell, Gainsbury, et al., 2015).

Gambling on EGMs, including slot machines, was identified as the form of terrestrial gambling that most frequently led to the development of gambling-related problems among self-excluded gamblers. This confirms observations of studies reporting EGMs and slot machines as high-risk games more strongly associated with gambling problems than other types of gambling (Breen & Zimmerman, 2002; Hodgins et al., 2012; Lund, 2006; Meyer, Häfeli, Mörsen, & Fiebig, 2010; Petry, 2003). Therefore, self-exclusion programs should be tailored to the high-risk group of EGM and slot machine gamblers.

The major motives for initiating self-exclusion were financial issues and significant others. While for gamblers self-excluded from terrestrial gambling, significant others played an important role in decision-making; they had only little impact on gamblers self-excluded from online gambling. This might be related to findings that online gamblers were less often married or living with a partner than gamblers of terrestrial gambling (Griffiths, Wardle, Orford, Sproston, & Erens, 2009; Wood & Williams, 2009). Despite potentially problematic features specific for online gambling, for example, high accessibility and anonymity as well as the use of immature payments (Griffiths, 2003; Siemens & Kopp, 2011), gamblers excluded from online gambling reported financial reasons less often than gamblers excluded from terrestrial gambling. This may be explained by sociodemographic differences between online and terrestrial gamblers. Results suggest that online gamblers have a higher sociodemographic status, a higher household income and are more likely to work full-time than terrestrial gamblers (Gainsbury et al., 2012; Griffiths et al., 2009; Wood & Williams, 2011). It may alternatively relate to the younger age of self-excluded online gamblers and the fewer financial obligations related to this, that is, self-excluded online gamblers are presumably less likely to have started a family. Moreover, online gamblers may have made use of self-exclusion earlier than terrestrial gamblers due to online self-exclusion being more anonymous and faster to implement. Early self-exclusion might prevent (at least in part) financial problems, and hence, they may have been less important for self-excluders from online gambling. These findings illustrate that advertisement and media campaigns for self-exclusion should be tailored to the specific motives and needs of online and terrestrial gamblers.

The primary aim of self-exclusion was to prevent further gambling and to facilitate abstinence (Hayer & Meyer, 2011a, 2011b; Hing & Nuske, 2012; Hing et al., 2014). This is not surprising considering the fact that the majority of self-excluders from terrestrial or online gambling were identified to gamble problematically or pathologically. This illustrates that the concept of self-exclusion meets the needs of problem and pathological gamblers to regain control over their gambling behavior. However, these results also underline that self-exclusion seems to be used more often as a measure to regulate gambling behavior and to reduce further negative consequences at a later stage of the problem gambling career rather than a measure of early intervention. This supports previous notions of self-exclusion as a measure of harm minimization (Gainsbury, 2014; Hayer & Meyer, 2011b; Hing & Nuske, 2012; Hing, Russell, Gainsbury, et al., 2015; Hing et al., 2014). Nevertheless, if initiated earlier, self-exclusion may also be used to prevent intensive forms of gambling and consequently the development of problem and pathological gambling. To increase the effectiveness of self-exclusion and to promote early utilization, self-exclusion needs to be promoted and advertised as an effective means to regulate gambling behavior. In addition, self-exclusion programs for terrestrial gambling as well as self-exclusion options for online gambling need major structural changes to meet the needs of gamblers who wish to take a break from gambling as early intervention measure.

The necessity to improve exclusion programs for terrestrial gambling was underlined by the evaluation of frequently named structural barriers to self-exclusion that delay or prevent gamblers from using self-exclusion, such as impossibility of multiple venue exclusion and problems with venue staff due to false or incomplete information or lack of sensitivity and privacy (Gainsbury, 2014; Hing, Nuske, et al., 2015; Hing et al., 2014; Parke et al., 2014). Availability and accessibility are the key factors that should be considered in the (re)organization of

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self-exclusion. For instance, (a) gamblers should be able to exclude themselves from multiple venues within a single enrollment preferably outside of gambling venues. In addition, self-exclusion programs should be organized state-wide. Multiple venue exclusion reduces shame and the exposure to gambling within enrollment procedures. Moreover, restricting access to multiple venues will increase the effectiveness of self-exclusion by reducing the likelihood of circumvention and prevention of further gambling; (b) gamblers should be able to determine the length of self-exclusion themselves (Gainsbury, 2014). This might also encourage gamblers at an early stage of their problem gambling career to initiate self-exclusion and to experience a time out from gambling; (c) venue staff members need to be trained in all aspects of self-exclusion, for example, giving adequate information, treating applicants respectfully, ensuring adherence to self-exclusion by strict identity checks, etc. Moreover, staff members need to be trained in early recognition of problem gambling behavior and they should be encouraged to motivate possible problem gamblers to take a break from gambling. By improving staffs' competences and adherence to rules, gamblers will establish trust in self-exclusion programs.

Although research on barriers to self-exclusion from online gambling is lacking, the results indicate rather diverse abstinence goals. To address different needs, gambling providers should enable self-excluders to make individual decisions on the duration as well as on the extent of the exclusion, for example, exclusion from specific types of gambling or blocking the account. While some gambling providers already offer different self-exclusion options, this should be mandatory for all gambling websites. However, the exclusion is then limited to a single provider and therefore legal regulations and technical solutions are necessary to prevent further gambling using another gambling website or creating a new account.

The results indicate that the utilization of additional counseling increased during the self-exclusion period. However, additional forms of support were utilized rather rarely. In general, the use of further health care offers strongly depends on the interconnection between self-exclusion programs and further intervention measures. For example, accepting a direct offer of further professional help within the process of self-exclusion needs less self-initiative and is therefore more likely than active help seeking by the gambler. Besides offers for additional professional help at enrollment, follow-ups should be a tool accompanying self-exclusion. By this, further professional help can be offered through the whole self-exclusion period and help to increase their utilization. The self-exclusion program in Montreal (Canada) can be considered as a good example of the interconnection of self-exclusion and other forms of support. Here, gamblers are offered a session with an independent psychological adviser during the implementation of self-exclusion, who provides information on options for professional help (Tremblay et al., 2008). In contrast, the links between the German self-exclusion program and other offers of support have been evaluated as not sufficiently developed (Fiedler, 2014).

When interpreting the results of this review, some limitations need to be considered. First, the included studies used different methodological approaches, for example, quantitative and qualitative. Moreover, quantitative data are based on self-reports, self-exclusion files, or behavioral tracking data. With regard to the aims of this review, the use of this broad range of methodological approaches was beneficial, especially concerning the analyses of aspects that were not constantly focused in research to date, for example, motives or perceived barriers related to self-exclusion. Second, self-exclusion of gamblers is a rather new research field, where randomized controlled trials or other more rigorous methods are practically impossible or difficult to perform. Our results were thus extracted from mostly descriptive studies, which ranged in their quality. To ensure the highest possible data quality, we only included peer-reviewed publications and assessed their data quality. Publications below the recommended thresholds were excluded. Third, the results may be biased by the different self-exclusion programs in countries included in the study. Due to the scarce information given in the studies on self-exclusion jurisdictions and regulations, generalizability of results and conclusions may be limited or only applicable to certain programs. Finally, due to lack of data, cultural factors that may influence gamblers' attitudes toward the use of self-exclusion could not be considered.

CONCLUSIONS

Our review replicated some results and implications of previous narrative reviews, but in addition, brought new insights, especially with regard to online self-exclusion and the unused potential of self-exclusion as early intervention measure. To exploit the full potential of self-exclusion as a measure of gambler protection, its acceptance and its utilization need to be increased. First, self-exclusion programs for terrestrial gambling and online self-exclusion options as well as their promotion need to be target-group-specific and should be tailored to high-risk groups. Moreover, the promotion activities and information material should address motives for self-exclusion, such as financial issues or the role of significant others, especially in terms of terrestrial gambling. Second, the potential of self-exclusion as an early intervention measure is not fully exploited. To facilitate the use of self-exclusion as a time-out option at an early stage of problematic gambling behavior, venue staff needs to be trained in their skills of early recognition of problem gambling. In terms of online gambling, pop-up messages should inform problem gamblers about self-exclusion and additional care. Third, barriers to self-exclusion need to be reduced. To encourage early utilization, the process should be simplified, for instance, by providing options to self-exclude outside of gambling venues and to self-exclude from multiple venues within one enrollment procedure. Most importantly, the duration of self-exclusion should be more flexible to meet the needs of terrestrial and online gamblers. This includes individual decisions on the duration of self-exclusion. Fourth, for self-exclusion to become a measure of regulating impaired impulse control rather than merely controlling gambling exposure, self-exclusion and professional addiction care need to be strongly connected.

Finally, some future research directions became apparent. In light of the growing relevance of online gambling,

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it is necessary to shed light on the mechanisms behind the decision to self-exclude, for example, with regard to barriers. Moreover, knowledge concerning early identification on the basis of behavioral data is favorable for both offline and online gambling. Concerning the length of the exclusion period, studies investigating the impact of self-determined duration on its use and future gambling behavior are highly recommended.

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Authors' contribution: FM and BG implemented the methodical steps for the systematic research process and wrote the first draft of the manuscript. All authors developed the research questions, gave feedback for the manuscript, had full access to all data, take responsibility for the integrity of the data, and have approved the final version of the manuscript.

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