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One Decade of Self Exclusion: Missouri Casino Self-Excluders Four to Ten Years after Enrollment

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Abstract For more than a decade, casinos around the world have offered self-exclusion programs (SEPs) to gamblers seeking help with their gambling behavior. Despite the proliferation of SEPs, little is known about the long-term outcomes for gamblers who utilize these programs. The current study assessed the experiences of a sample ($N = 113$) of Missouri self-excluders (SEs) for as long as 10 years after their initial enrollment in the Missouri Voluntary Exclusion Program (MVEP). Most SEs had positive experiences with MVEP and reduced their gambling and gambling problems after enrollment. However, 50% of SEs who attempted to trespass at Missouri casinos after enrollment were able to, indicating that the benefit of MVEP was attributable more to the act of enrollment than enforcement. SEs who engaged in complementary treatment or self-help groups had more positive outcomes than those who did not, suggesting that SEPs ought to encourage and provide information about additional support and treatment options to participants.

Keywords Gambling · Pathological gambling · Casino · Self exclusion · Program evaluation

Introduction

Accompanying the expansion of gambling opportunities during the past few decades is a growing concern that the increased gambling exposure will cause escalating numbers of people to gamble excessively and suffer from gambling-related problems (e.g., Abbott and Volberg 1994; Volberg 2000). Given these potential harms, a growing number of casinos

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have implemented self-exclusion programs (SEPs) that permit individuals to ban themselves from entering casinos for a specified time period or for a lifetime. Details of these programs differ; however, in most programs customers identified on-site in violation of self exclusion are escorted from the premises, forfeit their winnings, and face potential trespassing charges (Rhea 2005). Currently, all of Canada's provinces except Quebec have province-wide SEPs, most of Australia's states and territories have universal programs, and several US states, including Missouri, Louisiana, Michigan, Mississippi, and New Jersey, have state-wide programs. Nation-wide programs exist in the Netherlands, France, Poland, Sweden, Switzerland, and South Africa (Nowatzki and Williams 2002). In addition to government-run programs, company-wide SEPs are available at some multinational casino companies and at all American Gaming Association member venues.

Despite the proliferation of SEPs, there are only five published studies that have examined the characteristics of self-excluders (SEs) (LaBrie et al. 2007; Ladouceur et al. 2000, 2007; Nower and Blaszczynski 2006, 2008), and only one of those studies (Ladouceur et al. 2007) interviewed SEs on multiple occasions subsequent to enrollment. No studies have followed SEs beyond 2 years post-enrollment. The current study expands the knowledge base about SEs and the effectiveness of SEPs by interviewing SEs 4–10 years after program enrollment.

Characteristics of SEs

A nationwide estimate of the percent of disordered gamblers served by SEPs suggested that only 0.4–1.5% of disordered gamblers in Canada enlist in SEPs (Nowatzki and Williams 2002). However, almost all SEs have problems with gambling, and a large majority (89–95%) qualify as disordered gamblers [i.e., scoring ≥ 5 on the South Oaks Gambling Screen (SOGS: Lesieur and Blume 1987), Ladouceur et al. 2000, 2007].

Studies indicate that an essentially equal number of males and females enroll in SEPs (LaBrie et al. 2007; Ladouceur et al. 2000, 2007; Nower and Blaszczynski 2006). The majority of participants entering SEPs are in their early 40s (LaBrie et al. 2007; Ladouceur et al. 2000, 2007; Nower and Blaszczynski 2006). Nower and Blaszczynski (2008) found that among Missouri SEs who enrolled between 2001 and 2003, 31% were young adults (i.e., ages 21–35), 59% were middle-aged adults (i.e., ages 36–55), and 10% were older adults (i.e., ages 56–79). Studies in Quebec have also found that approximately half of SEs had a high school education or less, the majority were employed, and more than half were married (Ladouceur et al. 2000, 2007).

Effectiveness of SEPs

Post-exclusion studies of SEs are rare; we know of only two, both conducted by Ladouceur et al. (2000, 2007). In Ladouceur et al. (2000), the researchers interviewed 220 Quebec residents when they enrolled in a casino's SEP. The majority of participants (76%; $n = 167$) were banning themselves for the first time. However, the other participants, (24%; $n = 53$) were able to provide information about a previous period of self exclusion. Thirty percent of these repeat SEs reported successfully abstaining from all gambling during exclusion, a rate nearly four times that of members of Gamblers Anonymous (8%, Stewart and Brown 1988), and nearly equal to those who "naturally recover" (i.e., no longer meet criteria for problem gambling) on their own (Hodgins et al. 1999). However, 36% returned to the casino and 50% continued to gamble at other venues during their exclusion period. Those who returned to a casino did so an average of six times.

In 2007, Ladouceur et al. completed the first, and currently only, published longitudinal study of SEs (enrolled $N = 161$) following participants every 6 months for up to 24 months after SEP enrollment (six-month $n = 117$, 73%; 12-month $n = 83$, 52%, 18-month $n = 60$, 37%, 24-month $n = 53$, 33%) (Ladouceur et al. 2007). Results indicated that participants' urge to gamble, number of gambling problem symptoms, and intensity of negative consequences of gambling significantly decreased between the intake interview and six-month follow-up; participants' sense of control significantly increased during this time. However, more than half of participants enrolled in the study returned to a casino within the first 6 months.

Current Study

The current study builds upon the existing literature by assessing the experiences of a sample of Missouri SEs up to 10 years after their initial enrollment and investigating the long-term effectiveness of the Missouri Voluntary Exclusion Program (MVEP) in helping participants change their problem gambling behavior. The major study goal was to obtain a better understanding of the SE population and the role of self exclusion in changing gambling behaviors and problems. Specific hypotheses included: (1) participants would report decreases in gambling problems and improvements in general health from pre- to post-enrollment in MVEP; (2) enrollment in MVEP would lead to increased use of other treatments post-enrollment; and (3) participants who combined MVEP enrollment with other treatment would show more decreases in gambling problems and improvements in other health measures than participants who only enrolled in MVEP. We also investigated whether the decision to quit all, some or no forms of gambling upon enrollment affected outcomes.

Methods

Participants

In 2007, the Missouri Gaming Commission provided the Division on Addictions with a vetted, censored roster of enrollees in MVEP who had provided consent at the time of their application to be contacted later for research purposes. The roster included the demographic information and telephone numbers of 5,125 enrollees who applied to MVEP from the beginning of 1997 through the end of 2003. We stratified the MVEP enrollees into three strata resulting in a five (year) by two (gender) by four (region) stratification grid. To arrive at a manageable sample for recruitment, we randomly selected 20% of the SEs in each stratum and randomly assigned them to one of five study blocks. If randomization failed to include a representative from each stratification grid cell within a block, a representative was chosen randomly from those not selected. Statistical analyses confirmed that the five blocks did not differ by gender, region, or year of application. Funding allowed us to attempt to interview the 419 SEs in the first two blocks.

Among the 419 SEs in these first two blocks, we confirmed that 194 (46.3%) had wrong or disconnected telephone numbers listed; another four were deceased, and five were non-English speakers. Of the remaining 216, we were able to speak to 169 (78.2%) and complete interviews with 113 (52.3%). Figure 1 displays the final sample of 113 and the reasons for lack of completion among the rest of the potential participants.

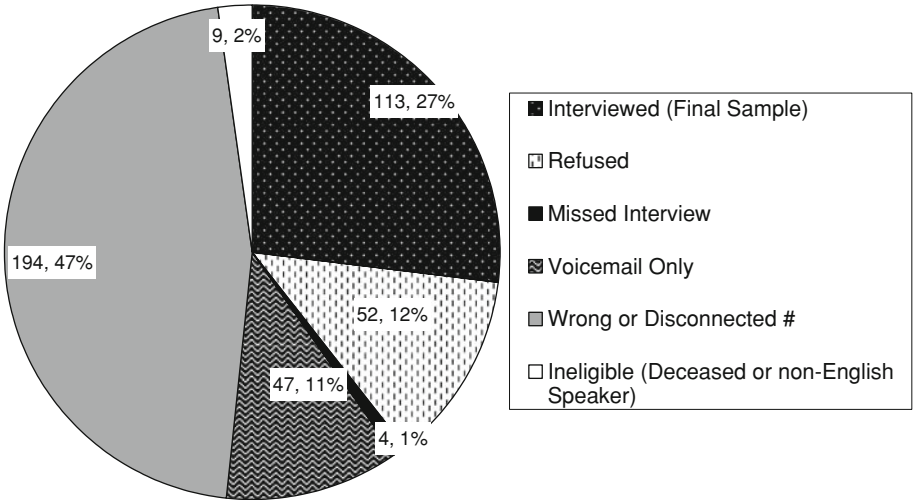

Fig. 1 Participation among 419 potential participants

Program Description: The Missouri Voluntary Exclusion Program

In 1996, the Missouri Gaming Commission created the first statewide SEP in the United States. Applicants who enroll in MVEP add themselves to the List of Dissociated Persons for life and assume responsibility for not entering any Missouri casino. The Missouri Gaming Commission removes the applicants' names from all marketing lists, prohibits the applicants from cashing checks on the premises, and requires the presentation of appropriate identification before compensating any jackpot winner of $1,200 or more. If an enrolled person returns to a casino, he or she can be arrested and charged with trespassing (American Gaming Association 2003; Missouri Gaming Commission 2008).

Procedures

Interviewers attempted to contact participants once per week for the duration of the study. Interviewers varied time of day, day of the week, and the gender of the researcher attempting contact. If they reached a voice messaging service, they left a brief scripted message including their name, affiliation, phone number, and purpose for their call. When staff members connected with a participant, they asked for the individual's full name and birthday to confirm the participant's identity. As compensation for completing the interview, research staff provided participants with a $10 gift card to a local retailer. The study received approval from Cambridge Health Alliance's Institutional Review Board and also received a Certificate of Confidentiality from the U.S. Department of Health and Human Services.

Materials and Variables

The computer-assisted telephone interview (CATI) consisted of demographic questions, questions about gambling, substance use, treatment, and functioning adapted from the Follow-up Module of the Gambling Treatment Outcome Monitoring System (GAMTOMS: Stinchfield et al. 2007), the SOGS, (Lesieur and Blume 1987), and questions about experiences with MVEP. For many of the questions, including those for the SOGS,

participants responded about their behavior and experiences prior to enrolling in MVEP, as well as in the 6 months prior to interview.

We categorized SEs based on SOGS response into four levels: no gambling/no gambling-related problems (SOGS score 0 or, for the follow-up period, no gambling in the past 6 months); few gambling-related problems (SOGS score 1–2); problem gambling (SOGS score 3–4); and probable pathological gambling (SOGS score ≥ 5).

Participants reported on the current quality of important aspects of their lives (e.g., relationships) compared to before entering MVEP. Participants rated these changes on a scale from +1 to −1: (1) A great deal better; (0.5) Somewhat better; (0) About the same; (−0.5) Somewhat worse; (−1) Much worse. In addition to analyzing the individual items, we created a composite score by averaging all 12 of the items. For participants who refused to answer some of the questions, we created the composite from their existing data unless they answered fewer than 5 of the questions. This quality of life scale had good internal consistency (Cronbach's α coefficient = 0.91) and factor analysis confirmed a single factor structure.

One of the questions about MVEP experiences, "Why did you enroll in MVEP," required an open-ended response. Three coders classified each reason into one of 13 categories with major divisions between self-motivated and other-motivated reasons. Coder agreement was excellent ($\kappa = 0.92$–0.95) for determining whether a reason referred to the self or others. Agreement among coders was acceptable for specific reasons pertaining to the self ($\kappa = 0.61$–0.64), but low between two of the coders for specific reasons pertaining to others ($\kappa = 0.35$–0.77).

Analytic Strategy

The researchers conducted χ^2 analyses and *t*-tests to determine the final sample representativeness in comparison to both the initial sample and Missouri residents. Descriptive analyses and paired *t*-tests assessed participants' gambling behavior, treatment experience, and health before and after entering MVEP. Finally, researchers used linear and logistic regressions to analyze whether outcomes of interest (i.e., satisfaction with MVEP, quality of life after MVEP, and changes in gambling behavior/problems) varied by (a) treatment involvement, and (b) decision to quit all, some, or no forms of gambling upon enrollment, controlling for gender, region, and years enrolled in MVEP. All analyses were conducted using SPSS for Windows version 16.

Results

Demographics

Table 1 displays demographics for the SEs who participated in this research project (participants), SEs who were not part of the study (non-participants) and Missouri residents. Forty-five percent of participants were male, 80.5% were Caucasian, and 58.4% were married. The average age of participants was 45.1 (SD = 10.0) at the time of MVEP enrollment and 50.7 years (SD = 10.2) at the time of the interview. Time between MVEP enrollment and follow-up interview ranged from 3.8 to 10.5 years with an average of 6.1 years (SD = 1.6). Approximately three-quarters of participants (75.9%) were employed, and more than a quarter (28.2%) reported having been arrested in their lifetime.

Table 1 Demographics of SE participants compared to SE non-participants and 2006 U.S. Census Data

	Participants *N* (%)	Non-participants *N* (%)	Missouri Census 2006 (%)
Gender			
Female	62 (54.9)	152 (49.7)	51.2
Male	51 (45.1)	154 (50.3)	48.8
Race			
White	91 (80.5)	201 (65.7)	84.0
Black or African-American	16.8	22.9	11.3
Other	2.7	11.4	4.7
Hispanic or Latino (of any race)	0.9	0.7	2.8
Age at MVEP enrollment			
20–24	1.8	6.5	6.9
25–34	15.9	26.5	12.9
35–44	31.0	28.4	14.0
45–54	33.6	27.5	14.7
55–64	15.0	8.8	10.8
65+	2.7	2.3	13.3
Year of MVEP enrollment			
1997	5 (4.4)	8 (2.6)	–
1998	1 (0.9)	14 (4.6)	–
1999	10 (8.8)	35 (11.4)	–
2000	16 (14.2)	58 (19.0)	–
2001	28 (24.8)	69 (22.5)	–
2002	25 (22.1)	60 (19.6)	–
2003	28 (24.8)	62 (20.3)	–
Region			
Northern	6 (5.3)	11 (3.6)	8.6
Eastern	59 (52.2)	144 (47.1)	35.7
Western	43 (38.1)	134 (43.8)	19.6
Central/Southeastern	5 (4.4)	17 (5.6)	21.3
Southwestern	0 (0.0)	0 (0.0)	14.8
Marital status			
Married	58.4	–	51.8
Divorced	21.2	–	11.7
Never married	13.3	–	27.8
Separated	2.7	–	2.0
Widowed	4.4	–	6.8
Total annual household income			
<$25,000	11	–	28.3
$25,000–$74,999	44	–	48.2
$75,000 or more	45.2	–	23.6

Note. Non-participants are the 306 potential participants who did not participate due to disconnected or wrong numbers, ineligibility, failure to answer telephone, and refusal

Participants did not differ significantly from non-participants in terms of gender, year of application to MVEP, Missouri region, or race/ethnicity. However, participants were significantly older than non-participants at time of enrollment, $t(417) = -3.20$ $p < 0.01$. Compared to Missouri residents (United States Census Bureau 2006), participating SEs were older, had higher incomes, were more likely to be Black/African American, less likely to be married, and more likely to be divorced.

Gambling before and after Entering MVEP

Gambling Frequency after Entering MVEP

As Fig. 2 shows, 28 participants (24.8%) reported quitting all gambling, 20 participants (17.7%) reported quitting casino gambling, and 65 participants (57.5%) reported not quitting any gambling upon entering the MVEP. Among the 28 participants who reported quitting all gambling upon entering MVEP, 13 (46.4%) gambled at some point after MVEP enrollment. Sixty-eight participants (60.2%) gambled in the 6 months prior to interview. Participants who quit all gambling upon MVEP entry were less likely to have gambled in the past 6 months (17.9%) than those who quit only casino gambling upon MVEP entry (70.0%) and those who did not quit any gambling upon MVEP entry (75.4%), χ^2 [2, $N = 113$] $= 28.0$, $p < 0.001$. Among the 98 SEs who reported gambling at any point after signing up for MVEP, 44 (44.9%) had gambled on 20 or more occasions since MVEP enrollment. Thirty-five of those 44 (79.5%) claimed to be gambling less than before entering MVEP; eight claimed their gambling was about the same.

Gambling Location before and after Entering MVEP

Prior to entering MVEP, 109 participants (96.5%) gambled in Missouri casinos; after entering MVEP, only nine participants (8.0%) reported gambling in Missouri casinos (McNemar's χ^2 [1, $N = 113$] $= 100.0$, $p < 0.001$). The proportion of participants who gambled in any location other than Missouri casinos (i.e., non-Missouri casinos, other venues, the Internet) did not change significantly after entering MVEP (i.e., 81.4% pre-MVEP and 75.2% post-MVEP, McNemar's χ^2 [1, $N = 113$] $= 1.5$, $p =$ ns); however, 13

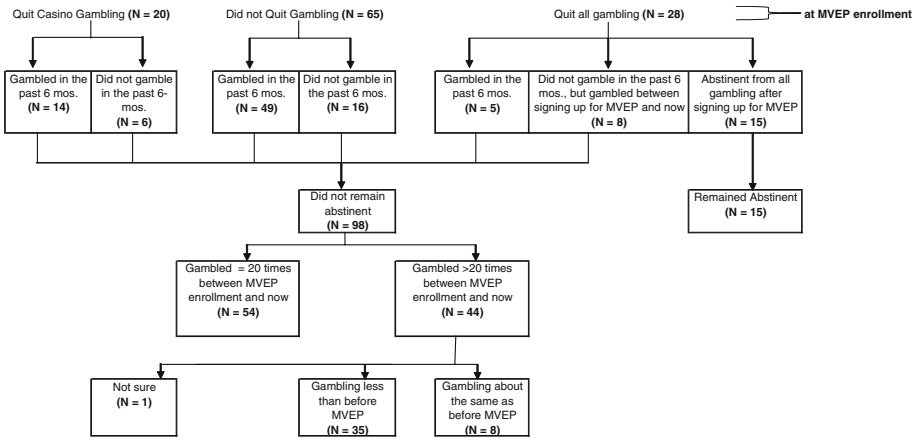

Fig. 2 Gambling behavior of SEs after MVEP enrollment

of the 21 SEs (61.9%) who had not gambled in non-Missouri locations prior to MVEP enrollment began gambling in these locations after entering MVEP.

Gambling Patterns after Entering MVEP

Participants who gambled in the 6 months prior to follow-up reported an average aggregate loss of $1,537.36 (SD = 3,153.87) during those 6 months. However, the median loss was $400, and the range was $0–$20,000. This discrepancy and the large standard deviation describe a distribution of losses in the hundreds or less for most participants and losses in the thousands for a few. The largest amount of money reported lost in one gambling session in the 6 months prior to interview ranged from $0 to $2,500 with an average of $361.03 (SD = 532.33) and a median of $200. Examining aggregate losses as a percentage of gross annual household income, we found the average loss was between 5.6% (SD = 22.7) and 7.7% (SD = 33.8) in the 6 months prior to interview. The median losses, as expected, were much smaller, from 0.5% to 0.7%. The range is provided because participants reported their income by selecting a range.

Among the 68 participants who reported gambling in the 6 months prior to interview, the most popular games played included: the lottery (85.3%) with 2.9% playing three or more days per week; slot machines and video lottery terminals (67.6%) with 3.0% playing three or more days per week; and card games (26.5%), with 5.9% playing three or more days per week.

Reasons for Continued Gambling

Participants who reported gambling at any point after MVEP enrollment were asked to endorse one or more reasons for their continued gambling. The most endorsed reasons for continued gambling were to have a good time (71.7%), excitement (52.2%), the challenge of gambling (33.6%), for money (27.4%), and because they were sad or depressed (25.7%).

MVEP Experience

Reasons for Entering MVEP

Just under a quarter of all participants (23.0%) provided reasons for enrollment in MVEP that could be categorized as other-influenced. These included mentions of coercion (e.g., "She wanted a divorce if I did not stop"), contagion (e.g., "I was with someone else who signed up and signed up also"), and supportive influence from others (e.g., "Husband and children were very concerned… husband saved me"). Seventy-seven percent of the sample provided self-related reasons; the most common of these were financial worries (e.g., "Just because I was spending too much money and getting too far into debt"). Inability to control gambling and recognition of having a problem were also commonly offered reasons.

Attempts to Trespass on Missouri Casinos

Eighteen participants (15.9%) attempted to enter Missouri casinos after enrolling in MVEP: 13 (20.6%) who had not quit gambling upon MVEP enrollment, one (5.0%) who had quit casino gambling, and four (14.3%) who had quit all gambling, χ^2 (2, N = 112) = 2.7, p = ns. One SE reported visiting a Missouri casino approximately 400 times

after entering the program. The 17 other participants who tried to enter a Missouri casino entered an average of 4.7 times. Nine of the 18 (50.0%) entered at some point without being caught, and ten of the 18 (55.5%) were caught at least once. One of these was fined; one was arrested; seven experienced no consequences other than being asked to leave; and one received a citation and had to take a class.

Satisfaction with MVEP

Most participants were either very satisfied (44.2%) or mostly satisfied (23.9%) with MVEP. However, nearly one-third of participants expressed dissatisfaction with MVEP: 17.9% of those who had quit all gambling upon MVEP enrollment, 15.0% of those who had quit casino gambling, and 43.1% of those who had not quit gambling, χ^2 (2, $N = 113$) = 8.9, $p < 0.05$. Fourteen of the 36 participants who were dissatisfied with the program provided reasons for their dissatisfaction. Eight of these participants (57.1%) were dissatisfied because of the permanence of the ban. Three thought the program was not explained adequately when they signed up, two had issues with the staff, and one thought it made his gambling worse.

Gambling Problems before and after Entering MVEP

Table 2 displays participants' SOGS scores before MVEP enrollment (retrospectively reported) and in the 6 months preceding the interview. Overall, SEs' SOGS scores decreased significantly from pre-MVEP ($M = 8.8$, SD = 4.7) to 6 months prior to interview ($M = 1.5$, SD = 2.8), $F(1,112) = 263.3$, $p < 0.001$. This decrease was also evident when the analysis included only SEs who responded to the past-6-month SOGS (i.e., those who gambled in the past 6 months): pre-MVEP $M = 8.9$, SD = 4.7; past-6-month $M = 2.4$, SD = 3.3; $F(1,67) = 133.8$, $p < 0.001$. Comparisons revealed no significant difference in SOGS score prior to MVEP between participants who did and did not gamble in the past 6 months, $t(111) = 0.2$, $p =$ ns. There also was no significant difference in SOGS score change between participants who had quit all gambling, casino gambling, or no gambling upon MVEP enrollment, $F(2,110) = 2.1$, $p =$ ns.

Table 2 Gambling problems reported retrospectively for the 6 months before MVEP enrollment and in the 6 months prior to interview

	All ($N = 113$)		No gambling past 6 mo. ($N = 45$)		Gambling past 6 mo. ($N = 68$)	
SOGS score	Pre-MVEP [*N* (%)]	Past 6 mo. [*N* (%)]	Pre-MVEP [*N* (%)]	Past 6 mo. [*N* (%)]	Pre-MVEP [*N* (%)]	Past 6 mo. [*N* (%)]
0: No gambling/No gambling problems	4 (3.5)	77 (68.1)	1 (2.2)	45 (100.0)	3 (4.4)	32 (47.1)
1–2: Few gambling problems	10 (8.8)	14 (12.4)	4 (8.9)	0 (0.0)	6 (8.8)	14 (20.6)
3–4: Problem gambling	10 (8.8)	5 (4.4)	4 (8.9)	0 (0.0)	6 (8.8)	5 (7.3)
≥5: Probable pathological gambling	89 (78.8)	17 (15.0)	36 (80.0)	0 (0.0)	53 (78.0)	17 (25.0)

Note. Mo. = months. 45 participants abstained from gambling in the 6 months prior to interview and were not asked to answer past-6-month SOGS questions. These 45 were classified as having SOGS scores of 0 for this 6-month timeframe

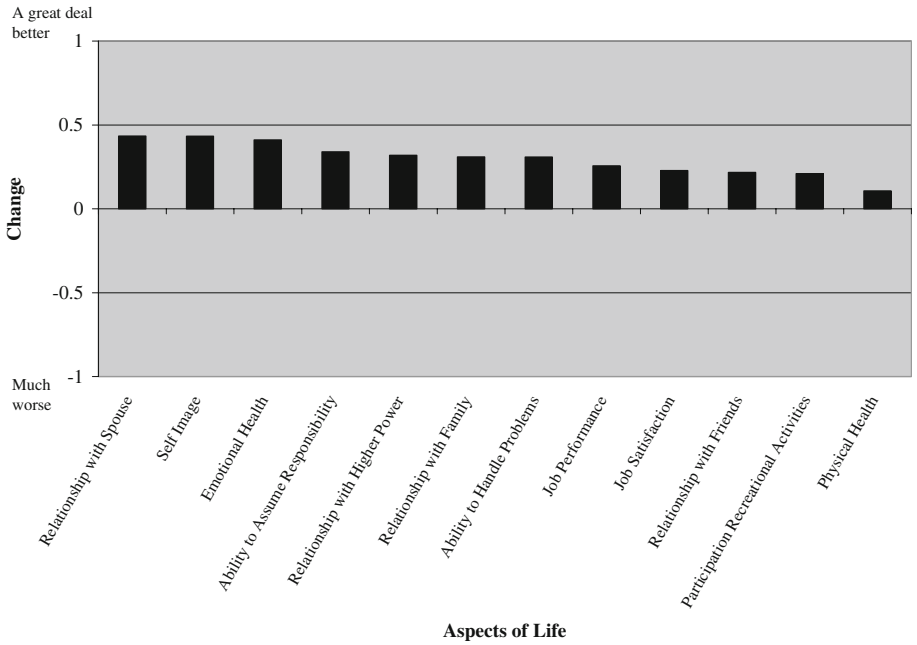

Fig. 3 Change in quality of life after MVEP enrollment

Quality of Life after Enrolling in MVEP

Figure 3 displays average ratings for each quality of life domain. Participants reported the greatest improvements in their relationship with their spouse/significant other ($M = 0.4$, $SD = 0.5$), their self-image ($M = 0.4$, $SD = 0.5$), and emotional health ($M = 0.4$, $SD = 0.5$). All of the average reported changes were positive. However, 24 participants (21.2%) reported a decline in the quality of certain aspects of their lives. More specifically, the most commonly reported declines were in physical health (13.3%), emotional health (7.1%), and participation in recreational activities (5.3%).

On the composite quality of life scale, for which we averaged responses across the 12 questions, we observed the average score to be 0.3 ($SD = 0.3$), indicating on average a slight improvement in quality of life since enrolling in MVEP.

Treatment Experience

Almost 60% of participants reported receiving some form of psychological treatment/self-help. Table 3 displays the number of participants who reported receiving each treatment/self-help and the time at which they received these treatments/self-help (i.e., before and/or after entering MVEP). Gambling therapies, including gambling treatment programs, gambling treatment extended care or aftercare sessions, and Gamblers Anonymous, were the most frequently received therapies among participants (37.2%). Gamblers Anonymous was the most frequent gambling therapy among participants (33.6%). Overall, treatment/self-help recipients were satisfied with their experiences; however, satisfaction with gambling therapies appeared lower than satisfaction with other therapies.

Table 3 Psychological treatments received before and/or after entering MVEP

Treatment/self-help type	When participants received treatment/self-help [*N* (%)]			Average level of satisfaction [*M* (SD)]
	Ever	Before MVEP	After MVEP	
Any treatment/self-help	67 (59.8)	49 (43.4)	60 (53.1)	–
Gambling treatment/self-help	42 (37.5)	17 (15.0)	38 (33.6)	–
Gamblers Anonymous	38 (33.9)	15 (13.3)	32 (28.3)	2.5 (1.2)
Gambling treatment program	27 (24.1)	8 (7.1)	24 (21.2)	2.7 (1.3)
Gambling extended care/aftercare	3 (2.7)	2 (1.8)	2 (1.8)	3.3 (1.2)
Substance use treatment/self-help	16 (14.3)	11 (9.7)	10 (8.8)	–
Alcoholics/Narcotics Anonymous	14 (12.5)	10 (8.8)	9 (8.0)	3.5 (0.9)
Inpatient alcohol/drug treatment	7 (6.3)	7 (6.2)	1 (0.9)	4.0 (0.0)
Outpatient alcohol/drug treatment	7 (6.3)	4 (3.5)	2 (1.8)	3.6 (0.8)
Mental health treatment	25 (22.3)	22 (19.5)	22 (19.5)	–
Outpatient mental health treatment	23 (20.5)	22 (19.5)	20 (17.7)	3.6 (0.8)
Inpatient mental health treatment	9 (8.0)	7 (6.2)	7 (6.2)	3.4 (0.7)
Other treatment/self-help	41 (36.6)	28 (24.8)	32 (28.3)	–
Marital counseling	23 (20.5)	19 (16.8)	16 (14.2)	3.0 (0.9)
Financial counseling	17 (15.2)	8 (7.1)	13 (11.5)	3.8 (0.6)
Budget or pressure relief meetings	8 (7.1)	2 (1.8)	8 (7.1)	3.9 (0.4)
Other support group	7 (6.3)	2 (1.8)	6 (5.3)	3.6 (0.8)
Other service/counseling	4 (3.6)	3 (2.7)	2 (1.8)	3.7 (0.5)
Vocational counseling	3 (2.7)	3 (2.7)	3 (2.7)	3.3 (1.2)
Other 12-step group	2 (1.8)	1 (0.9)	2 (1.8)	3.5 (0.7)

Note. Satisfaction ranges from 1 = very dissatisfied to 4 = very satisfied

As predicted, participants were more likely to report involvement with psychological treatments/therapies after enrollment in MVEP than before (i.e., 43.8% pre-MVEP and 53.6% post-MVEP, McNemar's χ^2 [1, $N = 112$] = 4.8, $p < 0.05$). This relationship was particularly strong for gambling therapies, (i.e., 15.2% pre-MVEP and 33.9% post-MVEP, McNemar's χ^2 [1, $N = 112$] = 15.2, $p < 0.001$).

Relationship Between Treatment/Self-Help Involvement and Outcome

The main outcomes of interest for this project included: (1) participant's satisfaction with the MVEP; (2) quality of life after the MVEP; (3) past-6-month SOGS score; (4) probable pathological gambling status (i.e., past-6-month SOGS score ≥ 5); and (5) abstinence from gambling in the 6 months prior to interview. For each of these five major outcomes, we examined the relationship between the outcome and treatment beyond MVEP, controlling for the factors of gender, age, and time since enrollment. We ran hierarchical linear and logistic regressions, entering the control variables first, variables for gambling treatment/therapies before and after MVEP in the second step, and variables for any other treatment/therapy before and after MVEP in the third step. We also included whether participants had quit gambling upon MVEP entry as an exploratory fourth step.

Tables 4 and 5 present the results of the linear and logistic regressions, respectively. Though men were slightly more satisfied with MVEP than women, there were no other

Table 4 Hierarchical regression analysis summary for treatment variables predicting outcomes

Model	*B*	SE_B	β	R^2	ΔR^2
Satisfaction with MVEP					
Step 1	–	–	–	0.06	0.06
Gender (1 = F; 2 = M)	0.49	0.23	0.20*	–	–
Age	−0.01	0.01	−0.03	–	–
Years since MVEP Enrollment	0.09	0.07	0.12	–	–
Step 2	–	–	–	0.09	0.04
Gambling Tx/self-help pre-MVEP	0.32	0.34	0.10	–	–
Gambling Tx/self-help post-MVEP	0.35	0.25	0.14	–	–
Step 3	–	–	–	0.12	0.03
Any other Tx/self-help pre-MVEP	0.17	0.28	0.07	–	–
Any other Tx/self-help post-MVEP	0.32	0.27	0.13	–	–
Step 4	–	–	–	0.18*	0.06*
Quit all gambling at MVEP entry (versus all others)	0.05	0.09	0.06	–	–
Quit casino gambling at MVEP entry (versus did not quit)	0.37	0.15	0.24*	–	–
Quality of life					
Step 1	–	–	–	0.03	0.03
Gender (1 = F; 2 = M)	0.11	0.06	0.17	–	–
Age	−0.01	0.01	−0.04	–	–
Years since MVEP enrollment	0.01	0.02	0.01	–	–
Step 2	–	–	–	0.14**	0.11**
Gambling Tx/self-help pre-MVEP	0.13	0.09	0.15	–	–
Gambling Tx/self-help post-MVEP	0.17	0.07	0.24*	–	–
Step 3	–	–	–	0.21**	0.07*
Any other Tx/self-help pre-MVEP	0.07	0.07	0.10	–	–
Any other Tx/self-help post-MVEP	0.16	0.07	0.23*	–	–
Step 4	–	–	–	0.31***	0.10**
Quit all gambling at MVEP entry (versus all others)	0.08	0.02	0.30**	–	–
Quit casino gambling at MVEP entry (versus did not quit)	0.04	0.04	0.08	–	–
Past-6-month SOGS score					
Step 1	–	–	–	0.02	0.02
Gender (1 = F; 2 = M)	−0.26	0.54	−0.05	–	–
Age	−0.04	0.03	−0.13	–	–
Years since MVEP enrollment	0.04	0.17	0.02	–	–
Step 2	–	–	–	0.07	0.05
Gambling Tx/self-help pre-MVEP	0.55	0.82	0.07	–	–
Gambling Tx/self-help post-MVEP	1.07	0.61	0.18	–	–
Step 3	–	–	–	0.07	0.00
Any other Tx/self-help pre-MVEP	−0.15	0.67	−0.03	–	–
Any other Tx/self-help post-MVEP	0.11	0.66	0.02	–	–

Table 4 continued

Model	B	SE_B	β	R^2	ΔR^2
Step 4	–	–	–	0.12	0.05
Quit all gambling at MVEP entry (versus all others)	−0.51	0.22	−0.23*	–	–
Quit casino gambling at MVEP entry (versus did not quit)	−0.03	0.37	−0.01	–	–

Note. *F* female; *M* male; *MVEP* Missouri Voluntary Exclusion Program; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 5 Hierarchical logistic regression analysis summary for treatment variables predicting outcomes

Model	B	SE	Odds Ratio	Model χ^2	Step χ^2
Past-6-month probable pathological gambling (≥5 SOGS)					
Step 1	–	–	–	1.61	1.61
Gender (1 = F; 2 = M)	−0.23	0.54	0.80	–	–
Age	−0.03	0.03	0.97	–	–
Years since MVEP enrollment	0.02	0.17	1.02	–	–
Step 2	–	–	–	4.96	3.34
Gambling Tx/self-help pre-MVEP	0.28	0.72	1.33	–	–
Gambling Tx/self-help post-MVEP	0.89	0.58	2.42	–	–
Step 3	–	–	–	5.36	0.41
Any other Tx/self-help pre-MVEP	0.37	0.64	0.34	–	–
Any other Tx/self-help post-MVEP	−0.31	0.64	0.23	–	–
Step 4	–	–	–	11.61	6.25*
Quit all gambling at MVEP entry (versus all others)	−0.71	0.37	0.50	–	–
Quit casino gambling at MVEP entry (versus did not quit)	−0.12	0.37	0.89	–	–
Past-6-months gambling abstinent					
Step 1	–	–	–	4.74	4.74
Gender (1 = F; 2 = M)	0.74	0.40	2.10	–	–
Age	−0.02	0.02	0.98	–	–
Years since MVEP enrollment	0.10	0.13	1.10	–	–
Step 2	–	–	–	5.48	0.73
Gambling Tx/self-help pre-MVEP	0.06	0.61	1.06	–	–
Gambling Tx/self-help post-MVEP	−0.38	0.46	0.69	–	–
Step 3	–	–	–	12.35	6.87*
Any other Tx/self-help pre-MVEP	1.26	0.53	3.54*	–	–
Any other Tx/self-help post-MVEP	−0.16	0.51	0.86	–	–
Step 4	–	–	–	37.71***	25.36***
Quit all gambling at MVEP entry (versus all others)	0.89	0.21	2.45***	–	–
Quit casino gambling at MVEP Entry (versus did not quit)	0.08	0.31	1.08	–	–

Note. *F* female; *M* male; *MVEP* Missouri Voluntary Exclusion Program; * $p < 0.05$; *** $p < 0.001$

significant relationships between the control variables and outcome variables. Treatment/self-help was significantly related to post-MVEP quality of life scores, as well as gambling abstinence. Both gambling-specific therapies and other psychological treatments, particularly those received after MVEP entry, related positively to post-MVEP quality of life. Psychological treatments (not gambling-related) prior to MVEP enrollment also related to increased likelihood of past-6-month abstinence. There were no other significant relationships between treatment and outcome variables. Decision to quit gambling upon MVEP entry related positively to satisfaction with MVEP, post-MVEP quality of life, and, not surprisingly, past-6-month abstinence. Decision to quit gambling upon MVEP entry related negatively to past-6-month SOGS score and likelihood of qualifying as a probable pathological gambler in the past 6 months.

Discussion

This study, which surveyed SEs with an extensive period of self exclusion ranging from 3.8 to 10.5 years ($M = 6.1$ years) under a lifetime exclusion agreement, provides the first long-term observation of participants in an SEP. The only published prospective study (Ladouceur et al. 2007) of an SEP focused on SEs who agreed to periods of self exclusion in six-month increments from 6 months to 2 years. Results of the first interview in that study, covering a period during which all subjects were SEs, indicated that 50% of the SEs had gambled in that six month period. Brief studies such as Ladouceur's depict initial effects and do not allow for assessment of full courses of recovery and adjustment that eventually yield stable and enduring behaviors.

In the current study, about one in eight SEs (13%) had not gambled at all since enrolling in MVEP. Though most participants did not abstain from gambling permanently after enrolling in MVEP, signing up for the program seems to have contributed to a positive change on their long-term gambling behavior. About four in 10 (40%) had not gambled in the 6 months before the interview. The large majority (81%) of the SEs who continued to gamble regularly after enrolling in MVEP reported gambling less than before, and no one reported gambling more than before. According to their retrospective reporting of symptoms, the prevalence of probable pathological gambling among SEs declined from 79% at MVEP enrollment to 15% at follow-up.

Though recovery from disordered behavior likely includes episodes of relapse, the long follow-up period suggests that our findings are less liable to short-term fluctuations and that the 40% abstinence rate within the past 6 months and decline in gambling problems are positive outcomes for people who resorted to self exclusion as an aid to coping with gambling problems.

Effectiveness of SEPs in Preventing Casino Gambling

The explicit intervention of SEPs is to support the decision of participants to avoid entering casinos. In this study, 18 SEs (15.9%) attempted to gain entrance to a river boat casino in Missouri; nine (50.0%) did so successfully at some point without being caught. These nine include an SE who reported having entered Missouri casinos more than 400 times since becoming an SE. These findings indicate that, though enrolling in MVEP deters most SEs from attempting casino entry, those who try do not encounter strict enforcement.

The combined voluntary and forced compliance rate of 92.1% (i.e., 84.1% who did not try to enter a casino and 8.0% who tried to enter but never succeeded) is much higher than

the 64% reported by Ladouceur et al. (2000) in a study of Canadian SEs with a much briefer time at risk. However, after committing to self exclusion, 74% of SEs in this sample went to casinos in other jurisdictions. These results indicate that most of the participants who responded to the survey were committed to staying out of Missouri casinos and took the threat of prosecution for trespassing seriously. The attendance at other casinos and the findings that the SEs did not change their access to other gambling venues suggests that the beneficial outcomes discussed below are not solely the result of lack of access to gambling. Instead, it is likely that the very act of entering MVEP, not just the consequent enforcement, precipitated a change in participants' gambling behaviors. This speculation is also supported by the higher quality of life improvements among participants who chose to quit gambling upon MVEP entry. That decision itself, whether fully maintained or not, likely influenced future behaviors and choices.

Complementary Treatment

Some SEs complemented their decision to self-exclude with obtaining gambling-related treatment or self-help services. At enrollment, relatively few SEs ($n = 17$, 15%) had received some type of gambling-related treatment or self-help. However, after enrolling in the MVEP, more than twice that number ($n = 38$, 34%) received gambling-related treatment or self-help. For SEs in this research sample, electing treatment might have been encouraged by the free compulsive gambling services offered to residents by the Missouri Department of Mental Health. SEs who elected treatment or self-help after MVEP, both gambling-related and other types, reported greater positive changes in their quality of life than others. As mentioned earlier, the act of enrolling in MVEP might be as important as subsequent enforcement to initial changes in gambling behavior, but as with any addiction, relapse is likely and recovery is a complex process. Access to after-care and relapse prevention programs constitute important adjuncts to self exclusion.

Study Limitations

Although this is a follow-up study, it did not include baseline survey administration. The retrospective study design introduces the possibility of recall errors and self-report biases. We also did not have a comparison group of people with gambling problems who did not enroll in MVEP. We were able to obtain completed interviews from only 27% of the SEs we attempted to contact, limiting the representativeness of the sample. As reported earlier, however, participants who completed the survey did not vary from non-completers on any demographic measures except age. However, we cannot be certain that the results we observed are representative of all SEs. It is possible that participants who completed the survey chose to do so because they were more successful at making changes to their gambling behavior. In addition, this sample represents people from one US state, Missouri; the results we report might not be generalizable to SEs in other states, countries, or corporate self-exclusion programs.

Future Directions

A long-term prospective study of SEs, as well as people with gambling problems who do not self-exclude, is the next logical step in studying this important population. A prospective study beginning when residents self-exclude would allow the research team the

opportunity to observe and survey SE behaviors in real time, limiting potential recall and self-report biases. Such a longitudinal study design is important because it can correct many of the limitations we observed in the current study and provide detailed information about the impact of the SEP on SEs.

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