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GAMBLING PREVENTION PROGRAM FOR TEENAGERS

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Abstract
The purpose of the present study was to compare a program of rational emotive education plus specific primary prevention (developed for restructuring erroneous information about gambling) with a rational emotive education program. Participants were randomized (*N* = 75, age 12-13) into three groups: 1) Control; 2) Rational emotive education plus specific information about games using the interactive software "Amazing Chateau"; and 3) Rational emotive education. All teenagers filled a 38 items questionnaire regarding their knowledge about gambling, at the beginning and at the end of the study (after 10 weekly meetings). Each item had three answering options, teenagers being asked to choose only one correct answer. The results of the study confirmed that using primary prevention tools designed specifically for gambling activities, along with programs which improve socio-emotional development, as rational emotive education does, is more efficient than using rational emotive education by itself. Results were maintained at follow up (3, 6, 9, and 12 month). Results demonstrate that school programs should include specific primary prevention activities for gambling along with rational emotive education in order to restructure erroneous information about gambling in teenagers. This study tried to satisfy the need for evidence-based research about prevention programs for gambling, demonstrating that specific prevention programs targeting gambling should be combined with rational emotive education in order to have better and long lasting results.

Keywords: gambling, adolescent, prevention, rational emotive education (REE), "Amazing Chateau"

Introduction

During the past years gambling has become a subject of interest for researchers and clinicians (Griffiths, 2003). The most important prevalence

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studies were conducted in highly developed countries such as USA, Canada, and UK, at both regional and national levels (Griffiths, 2009). Research in the Eastern countries started later, but used the experience of the former mentioned countries. The majority of the previous studies offered prevalence rates for gambling problems, although at the moment there is still a need for well-constructed and validated instruments of screening and diagnosis in the case of teenagers (Blinn-Pike et al., 2010). The most important implication mentioned by most of the studies is the need for data about the effect of prevention programs. Also, authors agree that prevention programs should inform teenagers about the consequences of excessive gambling (Dickson et al., 2002).

Until 2012 there have been few published studies on gambling prevention programs for children and adolescents. The first three studies were conducted in Canada and the fourth in USA. Gaboury and Ladouceur (1993) tested a gambling prevention program on high school students. They presented three 75-minute informational sessions conducted over a 3-week period and followed-up 6 month later. The results showed that the students in the experimental group improved their knowledge about gambling compared with the control group, which did not. The improvement was maintained at the 6 month follow-up (Gaboury & Ladouceur, 1993). Ferland, Ladouceur and Vitaro (2002) tested a 20-minute intervention video to determine if it changed Canadian children's illusion of control over the output of the game. They randomly assigned children to four conditions (video only, lecture only, video and lecture, and control group). They found that the three experimental conditions were more effective in changing misconceptions about personal control over gambling compared with the control group. No follow-up data were collected (Ferland et al., 2002). Lavoie and Ladouceur (2004) involved 273 French-speaking students (5th and 6th grades) to test a video designed to: (a) increase knowledge about gambling and (b) correct inaccurate knowledge. The effectiveness of the video was evaluated using two experimental conditions and one control condition. Analysis indicated that the video significantly increased gambling knowledge and decreased errors in attitudes toward gambling (Lavoie & Ladouceaur, 2004). Taylor and Hillyard (2009) tested a 45-minute program that consisted of lectures, discussion, and activities, on more than 8,000 students in Midwestern schools in the United States. The program was successful in increasing knowledge of the negative effects of gambling over the short term (Taylor & Hillyard, 2009).

In 2013, Todirita and Lupu randomly assigned 81 Romanian, 6th grade, children into three conditions: 1) control, 2) specific gambling prevention program for elementary school children "Amazing Chateau" (AC) (International Centre for Youth Gambling Problems and High-Risk Behaviors, 2004) plus rational emotive education, and 3) rational emotive education (REE). AC targets several misconceptions, the illusion of control, attitudes and cognitive errors in gambling. This intervention is an interactive mean of learning, it captures attention, and it doesn't imply further costs. An agreement of using the software

was obtained from its designers from International Centre for Youth Gambling Problems and High-Risk Behaviors (Todirita & Lupu, 2013). The results of the study confirmed that using specific primary prevention tools for changing erroneous conceptions about games is more efficient than using only rational emotive education.

Rationale for the Present Study

Given the limited number of studies evaluating different prevention programs regarding gambling it is necessary to replicate their results. More evidence-based programs could sustain better and more specific gambling prevention activities implemented earlier, at national levels.

Scientific literature in the field of gambling states that the age of onset significantly influences the gravity of the pathology. That is why the delay of onset is considered to be a measure of prevention (Derevensky et al., 2005). Considering the findings, prevention programs should be applied from the age of 11-12 years.

The purpose of the present study was to compare a program of rational emotive education plus specific primary prevention (focused on restructuring erroneous information about gambling) with a rational emotive education program.

Method

Participants

We selected three 6th grade classes from a Romanian school from Cluj-Napoca. Eligibility criteria were: 1) to be part of the class from the beginning of the school year; 2) to be between 12 and 13 years of age; 3) no previous psychiatric diagnosis, and 4) speak fluent English, as the intervention software was in English. Both boys and girls were eligible for participating in the study. Teenagers as well as parents signed an informed consent before taking part in this study. One psychologist and a psychiatrist administered the interventions. Three psychology students and the class tutor assisted the intervention activities. All participants had to a fill a questionnaire at baseline, at post-intervention, and at 3, 6 and 12 month follow-up. No drop out was registered. Thirty-six participants (48%) were male. The three classes ($N=75$) were randomly assigned to one condition. Each class tutor drew a ticket with one of the conditions from an urn, having even chances to get into one of the three conditions.

Measures

A questionnaire measuring knowledge about gambling was used. It included 38 items, each having three answering options, with only one correct answer. Items included questions referring to misconceptions, illusion of control,

and cognitive errors. Items of this questionnaire were taken from *Teacher's Manual: Youth Gambling Awareness and Prevention Program, Level II, „Hooked City"* (International Centre for Youth Gambling Problems and High-Risk Behaviors, 2004), translated and adapted in Romanian (Todirita & Lupu, 2013). The agreement to use the program materials was obtain from its' authors. The questionnaire total score could vary from 38 (100% correct answers) to 0 (no correct answer). Correct, omitted, and wrong answers were accounted for each participant at the beginning, at the end of the intervention, and at 3, 6 and 12 month follow-up.

Design

There were three experimental conditions.

1. Control (*N*=23). This group was neither shown the software, nor presented the principles for rational emotive education. Discussions were led so that no topic on gambling to be reached. There were free discussions about subjects of interest for teenagers their age, unrelated to social and emotional development or gambling. There were 10 weekly meetings of 50 minutes each.

2. AC + REE (*N*=24). This group had 10 weekly meetings of 50 minutes each with two specialists in gambling – a psychologist and a psychiatrist. They received information about gambling and gaming throughout the software designed for elementary school children - "Amazing Chateau". This intervention is an interactive mean of learning, it captures attention, and it doesn't imply further costs – it is a software that requires PCs with audio output for each student, or means for projecting the software for all the class students. Teenagers had the opportunity to experience two different types of activities: games of chance and games of skill. During these activities they learnt that gambling can make you lose a lot of money and that you cannot predict the outcome of the game; this experience gave them the possibility to replace misconceptions ("after big loses there has to be a big winning jack pot"), the illusion of control ("if I have the amulet with me, I will be lucky, if not, that is the reason I will lose"), attitudes ("in order to be accepted by a group, I have to play poker as they do, otherwise they will exclude me") and cognitive errors ("children are not at risk for developing gambling problems, gambling is legal for all ages") with rational and correct knowledge. During the same 10 weekly meetings, the participants in this group were explained the cognitive and behavioral ABC model (Ellis, 1979); the ABC models were illustrated with examples about gambling activities. Teenagers were given examples as it follows.

For example, when having a fight with your parents for not giving you money (A – the situation) you may think "I must have my own money. I must find a way to make money easy and quickly. Gambling is a good way for making money" (B – thoughts, erroneous cognitions) and then you may spend your savings and a lot of time gambling and avoid stress given by fights with your parents (C – behavior – gambling, avoidance of negative emotions – anger -

which becomes a reinforcement for doing so in the case of future fights and in the case you need money). ABC model sustains that a situation activates a certain pattern of thoughts which lead to behaviors. So behaviors are driven by thoughts (cognitions) and not by the situation itself.

3. REE (*N*=28). This group had 10 weekly meetings of 50 minutes each with the same psychologist and psychiatrist, both specialists in gambling. REE offered the possibility to learn about cognitive and behavioral ABC models (Ellis, 1979); participants were explained that emotions and behaviors are triggered by cognitions; examples about gambling were discussed; they learnt that by changing irrational cognitions ("I must…", "I can't stand it…", "It is awful…", "I am a bad person") they can change their emotions (anxiety, anger) and behaviors (gambling, cursing, fighting) (See the previous examples).

Procedure

The 38 items questionnaire was filled by all participants at baseline. The control group participated at meetings where no discussions about gambling were allowed. The second group participated at AC + REE activities. The third group participated in REE activities only. Each activity took place separately with each group. After the 10 weeks of intervention all participants completed the same questionnaire with 38 items. Follow ups were at 3, 6 and 12 months.

Results

SPSS 17.0 software was used for the study database. Intergroup comparisons (i.e., control vs. AC+REE vs. REE) were computed using One-Way ANOVA.

The means and standard deviations of correct answers at pre-, post-intervention, 3, 6 and 12 month follow-up are shown in Table 1. No significant differences were obtained at baseline (M = 23, M = 22 and M = 23 respectively); results are showing group differences at post-intervention (M = 21, M = 30, and M = 24 respectively).

Table 1. Correct answers at pre-intervention, post-intervention, 3, 6 and 12 month follow-ups.

Sample		**Pre-intervention**	**Post-intervention**	**Follow-up at 3, 6 and 12 month**		
				3	6	12
	n	M *(SD)*	M *(SD)*	M *(SD)*	M *(SD)*	M *(SD)*
Control	23	22.56 (1.95)	20.61 (2.78)	19.31 (2.03)	18.17 (2.15)	16.78 (1.70)
AC+REE	24	22.17 (2.10)	30.42 (5.76)	30.58 (5.22)	29.75 (4.84)	29.17 (5.03)
REE	28	22.96 (2.55)	23.79 (3.57)	22.93 (3.50)	21.54 (3.39)	20.57 (3.28)
TOTAL	75	22.59 (2.23)	24.93 (5.77)	24.27 (5.95)	23.13 (5.97)	22.16 (6.21)

Note. Control = without specific intervention; AC = Amazing Chateau specific prevention program, REE = Rational Emotive Education.

Table 2. Within and between group comparisons of correct answers.

Moment of assessment		Sum of Squares	df	F	Sig.
Before intervention	Between Groups	8.24	2	.83	.443
	Within Groups	359.95	72		
	Total	368.19	74		
After intervention	Between Groups	1188.64	2	33.54	.000***
	Within Groups	1276.03	72		
	Total	2464.67	74		

Note. *** p<0.001

The one-way ANOVA, $F(2, 72) = 33.54$, $p = .000$ demonstrated statistically significant differences between groups after the intervention.

The analysis revealed that the experimental conditions significantly corrected participants' erroneous knowledge about gambling as compared to control group immediately after the intervention.

Subjects from the AC+REE condition reveled significantly more correct answers than the control condition. Also, subjects from AC+REE condition obtained significantly more correct answers than the REE condition only.

Table 3. Post Hoc Tests (Scheffe).

Moment of assessment	Sample	Mean Difference	Standard Error	Sig.
Pre- intervention	Control vs. AC+REE	.40	.65	.830
	Control vs. REE	-.40	.63	.818
	AC+REE vs. REE	-.80	.62	.444
Post-intervention	Control vs. AC+REE	-9.81	1.23	.000**
	Control vs. REE	-3.18	1.18	.032*
	AC+REE vs. REE	6.63	1.17	.000***
3 month follow-up	Control vs. AC+REE	-11.28	1.11	.000***
	Control vs. REE	-3.62	1.07	.005**
	2 vs. 3	7.65	1.06	.000***
6 month follow-up	Control vs. AC+REE	-11.58	1.06	.000***
	Control vs. REE	-3.36	1.02	.007**
	AC+REE vs. REE	8.21	1.01	.000***
12 month follow-up	Control vs. AC+REE	-12.38	1.05	.000***
	Control vs. REE	-3.79	1.01	.002**
	AC+REE vs. REE	8.60	1.00	.000***

*p< .05, **p< .01, ***p< .001.
*The mean difference is significant at the 0.05 level

Table 3 presents the Post Hoc Tests for the results of the three groups by the five moments of assessment. The three groups' results were significantly different from each other. Scheffe's method of interval analysis demonstrated that the control group differed from AC+REE group (p = .000) and from REE group (p = .032), and AC+REE group differed from REE group (p = .000) at post-intervention. Control group differed from AC+REE group (p = .000) and from REE group (p = .005), and AC+REE group differed from REE group (p = .000) at the 3 month follow-up. Control group differed from AC+REE group (p = .000) and from REE group (p = .007), and group AC+REE differed from REE group (p = .000) at 6 month follow-up. Control group differed from AC+REE group (p = .000) and from REE group (p = .002), and AC+REE group differed from REE group (p = .000) at 12 month follow-up, but there were no other differences. When analyzing the data obtained at different moments of measurement we can notice that even though after the intervention both intervention groups give more correct answers that the control group, the only group maintaining correct answers is AC+REE. REE group had even more wrong answers than before the intervention, meaning that participants in the study got contact with incorrect information about gambling and they adopted it.

Table 4. Comparison between effect sizes in experimental conditions reported to pre-intervention.

	AC+REE	**REE**
Pre-post intervention	ES .66	ES .20
Pre-3 month follow-up	ES .71	ES .06
Pre-6 month follow-up	ES .69	ES -.18
Pre-12 month follow-up	ES .65	ES -.34

The mean effect size reported for AC+REE condition was between d = .65 and d =.71 while for REE condition was between d = -.34 and d = .20 (see Table 4).

As Figure 1 shows, there is an obvious difference between the longitudinal evolution of correct answers in the second condition compared with the evolution of the control and REE conditions. AC+REE group maintained results above the mean of 29 correct answers in all moments of assessment after intervention. REE had a good evolution immediately after the intervention, but a regression in the three months from the intervention as in the meantime the group might have got incorrect information about gambling. This group was supposed to have better results in giving correct answers about gambling after learning that erroneous cognitions about gambling can lead to gambling.

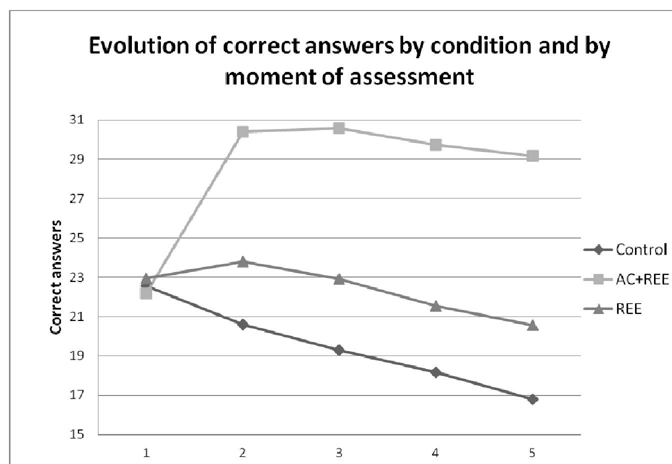

Figure 1. Longitudinal plot of correct answers for the three conditions at pre-, post-intervention and 3, 6 and 12 month follow-up.

Discussion and conclusions

This study answered some of the latest questions published in reviews – do prevention program work, do they modify cognitions about gambling? If so, which prevention program has better results in correcting erroneous cognitions and for how long do these results maintain?

Prevention has less costs then intervention. That is why the present study focused on prevention programs.

The present study's aim was to compare a REE prevention program with and a more comprehensive program – REE plus computer-aided education about gambling, which revealed that the combination of rational emotive education plus education about gambling gives better results in changing of erroneous cognitions and maintaining the changes for at least 12 month.

An important aspect revealed here is that prevention programs do work in changing erroneous cognitions if specific prevention programs (educating and correcting teenagers' erroneous cognitions about gambling) are combined with rational emotive education.

In some schools prevention programs were already introduced as optional programs. They focused on social and emotional development and teach teenagers how to deal with strong negative and positive emotions.

These programs should include specific prevention programs designed for different addictions, for example gambling, as the case of the present study. Social and emotional educational programs, in addition to specific information about gambling addiction, can contribute to a natural and non-problematic evolution from childhood to adulthood.

Prevention programs should be applied at national level and should include gambling and gaming as important issues along with smoking, drugs and alcohol consumption prevention programs. Associations and organizations that target gambling problems should finance studies of prevalence, prevention and intervention.

A limit of the present study is that it randomized three classes from the same school. For a future study, a better represented list of Romanian schools and classes should be randomized in the study groups. Also, longer follow-ups should be considered. Effects on gambling behaviour should be measured and presented in future studies. Lastly, future studies should include larger samples.

This is the second pilot study which investigates the impact of prevention programs on teenagers.

The study demonstrates the superiority of the association of specifically designed prevention programs for gambling with programs for social and emotional development (AC+REE) compared to general programs for social and emotional development (REE) in modifying knowledge about gambling.

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