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Short-Term Effects of a School-Based Program on Gambling Prevention in Adolescents

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 A B S T R A C T

Purpose: To evaluate short-term effects of a school-based media education program for sixth- and seventh-grade adolescents on gambling knowledge, attitudes, and behavior.

Methods: A two-wave cluster randomized control trial with two arms (intervention vs. control group) was conducted in the German Federal State of Schleswig-Holstein. The intervention group received a four-unit media education program, which contained one unit on gambling. The program was implemented by trained teachers during class time. The control group attended regular classes without any specific intervention. Survey data from 2,109 students with a mean age (SD) of 12.0 (.85) years was collected before and shortly after the intervention.

Results: Thirty percent of the sample reported lifetime gambling; 6.7% were classified as current gamblers. Results of multilevel mixed-effects regression analyses revealed significant program effects in terms of an increased gambling knowledge ($d = .18$), decreased problematic gambling attitudes ($d = .15$), as well as a decrease of current gambling ($d = .02$) in the intervention group compared to the control group. The program had no significant influence on lifetime gambling.

Conclusions: A 90-minute lesson about gambling can improve gambling knowledge and change attitudes toward gambling and gambling behavior among adolescents. Studies with a longer follow-up period are needed to test the long-term effects of such an intervention.

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 IMPLICATIONS AND
 CONTRIBUTION

Using a cluster randomized trial the study evaluates a school-based media education program for 6th- and 7th-grade students containing a 90-minute gambling unit. Short-term effects on improvement of gambling knowledge, change in gambling attitudes and behavior are reported.

Gambling among adolescents has increasingly come into focus of prevention research and practice. Prevalence studies revealed that a surprisingly large number of adolescents are involved in gambling activities and that problem gambling or pathological gambling is not restricted to adults [1–3]. Some studies reported a mean age of gambling onset between 11 and 12 years of age [4,5].

A range of school-based gambling prevention programs have been developed, but very few of them have been evaluated [6,7]. The main focus of these programs is improving knowledge of gambling (e.g., types of gambling and true odds) and of the development or symptoms of problem gambling. The few

existing studies showed that programs may increase knowledge and decrease gambling misconceptions [6], but it is less clear if such interventions could have substantial effects on gambling behavior.

To our knowledge, there are no evaluated gambling prevention programs for school settings in Germany. In the present study, we present results of an effect evaluation of a new school-based media education program that is also dealing with adolescent gambling. Because gambling prevention is rather unpopular or unknown among many teachers [8], the program was embedded into the broader issue of media education, which is perceived as a topic of high demand in many German schools.

Targeting young people before they get involved in any problem behavior is assumed to be an effective drug use prevention approach that has also been adapted in this study. However, designing gambling prevention programs for students

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younger than the mean age of gambling onset (11–12 years of age) conflicts with the fact that understanding of gambling concepts (e.g., probability) requires a certain degree of mathematical or cognitive ability [6]. Because problematic gambling does rarely occur among young adolescents and traditional measures of problem gambling such as the South Oaks Gambling Screen (SOGS [9]) are assumed to be unsuitable for this age group [10], problematic gambling does not seem to be an appropriate outcome in primary prevention studies. However, there is empirical evidence that problematic gambling attitudes and beliefs play an important role in the development and persistence of problematic gambling [2,11,12] and are highly associated with problematic gambling behavior as measured by the SOGS [13,14]. Therefore, in this study, problematic gambling attitudes and beliefs (e.g., illusions of control) were used as a proxy for problematic gambling.

The aim of the present study was to test the short-term effects of an intervention for sixth- and seventh-grade students regarding changes in gambling knowledge, problematic attitudes and beliefs, and actual gambling behavior.

Methods

Intervention

“Vernetzte www.Welten” (“networked www.worlds”) is a school-based prevention program aimed at 6th and 7th graders. The program consists of four 90-minute units covering the following themes: internet use (unit 1), online communication (unit 2), computer gaming (unit 3), and gambling (unit 4). All working units focus on monitoring, discussion and reflection of own use, and on raising awareness of excessive use and addictive behavior. Because this article focuses on gambling prevention, program description and evaluation of effectiveness were restricted to the gambling aspect only. The entire program can be viewed and downloaded online at www.vernetzteswelten.ift-nord.de.

The prevention program is carried out by trained teachers during usual school lessons. Teachers receive 4-hour training and a written manual that describes the activities, goals, and didactical techniques of each teaching unit in detail. During the 90-minute gambling unit students learn about: (1) features distinguishing gambling from other games; (2) the development and symptoms of pathological gambling; (3) gambling features promoting addiction; (4) actual winning probabilities; (5) popular gambling fallacies; and (6) existence and profits of the gambling industry.

The gambling unit includes three activities. The first is a coin toss experiment in which students gather personal experience of chance followed by information given by the teacher about popular gambling fallacies, true odds of winning, and who really profits from people’s gambling activities. In the second activity, students discuss the development and warning signs of pathological gambling, illustrated by a short case study. To practice and to repeat what they have learned about gambling addiction students complete a simplified version of the South Oaks Gambling Screen-Revised for Adolescents (SOGS-RA) as a role-play exercise referring to the person described in the case study before. The last activity informs students about gambling features, stressing addiction (e.g., rapid succession of games).

Study design, sample size considerations, and randomization

A cluster randomized control trial with two arms (intervention vs. control) and two waves (baseline vs. posttest) was conducted. Estimation of the effective sample size required adjustment of the total sample size by $1 + (m-1)*\rho$ [15,16]. Assuming a mean of 20 students per class and an intraclass correlation coefficient of $\rho = .05$ (estimated from former survey data [17]), this adjustment factor resulted in 1.95. Using the program G-Power [18], the total sample size was calculated with $N = 788$ assuming a small effect size (Cohen’s $d = .20$) with a significance level of $\alpha = .05$ and a power of .80. Thus, the recommended sample size resulted in $N = 1.95*788 = 1,537$. In addition, a dropout rate of 25% over the study was hypothesized, resulting in a necessary baseline sample of 2,049 subjects.

Randomization was done on school level, blockwise and stratified by school type. Before schools were allocated, three groups of different school types were formed: Gymnasium (group 1), Hauptschule/Regionalschule/Realschule (group 2), and Gemeinschaftsschule/Gesamtschule (group 3). Gymnasium is a German school type for students who have high academic skills finishing with a university-entrance diploma after grade 12 or 13. Realschule, Hauptschule, and Regionalschule focus on students with lower academic skills finishing with a final examination after grade 9 or 10. At Gemeinschaftsschule and Gesamtschule, all students with varying skills are taught together offering all kinds of degrees. The blockwise randomization procedure could not account for the actual number of participating classes in each school, which led to unequal sample sizes and different school type representations in the two conditions.

Procedure

The study was conducted in Schleswig-Holstein, a federal state in the north of Germany. Before the beginning of the study, the intended procedure was approved by the Ethics Committee of the Medical Faculty of the University of Kiel, the Ministry of Education, and the Data Protection Commissioner of Schleswig-Holstein. Head teachers of 80 randomly selected secondary schools were informed about the subject and the aims of the study and were invited to participate with all their 6th- and 7th-grade classes. After randomization, schools were informed about their group status and had to register participating classes and teachers. Because schools in the intervention condition registered more classes than schools in the control condition, we invited 39 additional schools for the control condition to counteract this distortion and to secure a sufficient overall sample size (Figure 1).

The prevention program had to be implemented by teachers during a 3-month interval between December 2010 and February 2011. The control group attended regular classes without a specific intervention. Baseline data were collected through a self-completion questionnaire administered by trained research staff during class time. A posttest questionnaire was administered to both groups in May 2011. The mean interval from baseline to posttest differed significantly between control and intervention group ($t(1) = -11.7, p < .001$) with 20 weeks in the control group (mean = 20.4; SD = 5.3; range 13–30) versus 31 weeks in the intervention group (mean = 30.9; SD = 3.1; range 25.5–35). In the intervention group, posttest data were gathered 7 weeks after the intervention (mean = 6.8; SD = 4.8; range 1.5–19). To link individual data of both assessments, each

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