



## RESEARCH REPORT

# Assessing the Efficacy of the Evive Smartphone Application as a Preventive Tool for Problem Gambling in Undergraduate Students

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## ABSTRACT

**Background:** Increased accessibility of gambling with digital technology is shifting social norms, which raises concerns about gambling-related harm in young adults. College students are particularly vulnerable, with higher rates of problem gambling compared to the general population. Students are highly influenced by peers, their social environments, and cognitive distortions, such as the illusion of control and predictive control. As online gambling platforms proliferate, digital interfaces may offer promising prevention and harm-reduction strategies. Preventive digital psychoeducation remains underused in university settings and could be optimized to be more effective for young adults. Purpose: This study hypothesizes: (a) completing a 14-day gambling harm prevention curriculum improves attitudes and perceptions immediately following lesson completion, and at 20 days post-completion; (b) college students will find value in learning more about how to reduce their risk of gambling-related harm.

**Methods:** Using a within-subjects design, this study examined whether a two-week harm-prevention curriculum improves gambling literacy, attitudes, and risk perceptions and leads to behavior change after 20 days. To measure the changes, the Positive Play Scale (PPS) was administered with distinct subscales of personality, pre-commitment, literacy, and honesty. The PPS was collected over three pre-intervention timepoints (T1), post-intervention (T2), and 20 days after intervention (T3).

**Results:** Statistically significant effect for the honesty subscale ( $F(2, 48) = 71.40, p < 0.001, \eta^2 = 0.748$ ), with scores increasing from T1 ( $5.28 \pm 0.51$ ) to T2 ( $6.65 \pm 0.58$ ) and remaining elevated at T3 ( $6.69 \pm 0.63$ ). No significant effects of time were found for personality, literacy, pre-commitment, or net PPS scores. The sample was composed of individuals reporting few in any gambling-related harms, as evidenced by Problem Gambling Severity Index (PGSI) scores below eight.

**Conclusion:** A significant increase in scores in the honesty PPS subscale indicates that individuals become more truthful with themselves and others about their gambling habits following preventative psychoeducation. The sustained attitudinal gains and high value ratings suggest that this type of structured digital harm prevention programming holds genuine promise as a scalable tool for college health promotion efforts.

## INTRODUCTION

Gambling has become increasingly prevalent and accessible due to digital technology and evolving social norms, leading to heightened concerns about gambling-related harms among emerging adults. College students appear particularly vulnerable, reporting higher rates of problem gambling and gambling-related behaviors than the general population (Martin et al., 2016). The social environments and peer influences present for some college students reinforce poor gambling attitudes and behaviors (Sarti & Triventi, 2017). Additionally, university students frequently endorse cognitive fallacies such as predictive control and the illusion of control, which have implications for risk of experiencing harm from gambling participation (Marmurek et al., 2015; Monreal-Bartolomé et al., 2023). Nearly 10% of university students may experience symptoms consistent with problem gambling, with an additional subset engaging in subclinical but risky gambling (Grant et al., 2019). Concerningly, these behaviors are often accompanied by adverse consequences, including academic difficulties, financial distress, and comorbid mental health symptoms such as anxiety, depression, and substance use (Grant et al., 2019; Marmurek et al., 2015).

With online gambling platforms now ubiquitous, interventions that leverage digital delivery offer promising avenues for prevention and harm reduction. Internet-based interventions have been found to reduce gambling frequency, symptom severity, and financial losses (Sagoe et al., 2021; Van Der Maas et al., 2019). Furthermore, therapist-supported digital tools appear to enhance efficacy relative to unguided interventions (Sagoe et al., 2021). Such approaches are particularly appealing for young people and students, who may avoid traditional mental health services due to stigma, time constraints, or privacy concerns (Van Der Maas et al., 2019).

Psychoeducational programming, especially when delivered digitally, has shown promise in addressing gambling-related knowledge, attitudes, and behaviors. Prior studies concluded that online psychological interventions significantly reduce problem gambling severity and comorbid symptoms, even in brief formats (Monreal-Bartolomé et al., 2023). Preventive programs that correct gambling misconceptions, build self-regulation skills, and promote informed decision-making are particularly effective among young adults (Monreal-Bartolomé et al., 2023). Qualitative studies also support the relevance of such interventions. Gezgin et al. (2025) found that while university students may engage in gambling for emotional escape, competition, and social bonding, they also report experiencing guilt, regret, and financial stress, highlighting the need for early, accessible intervention.

Despite these findings, digital psychoeducational approaches aimed at prevention remain underutilized in university populations. The current study addresses this gap by evaluating a brief, smartphone-based psychoeducational intervention designed to enhance gambling-related knowledge and reduce risk among undergraduate students. Specifically, this study investigates two key questions: (a) Does completing a 14-day gambling harm prevention curriculum increase gambling literacy and improve attitudes and perceptions regarding gambling-related risks immediately following lesson completion, and does this result in a measurable change in gambling behavior at 20 days post-completion? (b) Do college students report finding value in learning more about how to reduce their risk of gambling-related harm?

## **METHODS**

This study was a longitudinal intervention design conducted online using a baseline–intervention–follow-up framework. Data were collected at three time points: pre-intervention (T1), immediately following a 14-day intervention period (T2), and 20 days after completing the intervention (T3). All subjects provided written informed consent prior to participation. Participants were undergraduate students at Gonzaga University aged 18 to 24 years ( $20.56 \pm 1.29$  years) with access to a smartphone, internet, and the capability to download applications for iOS or Android devices. Participants were recruited through flyers, reader boards, and campus-wide emails. Demographic information and school email addresses were collected at baseline; email addresses were used solely to link responses across time points and were removed following study completion. Surveys were completed remotely through the Qualtrics survey software (Qualtrics, Provo, UT). This study was reviewed and approved by the Gonzaga University Institutional Review Board.

At baseline, participants completed the Problem Gambling Severity Index (PGSI), a validated nine-item questionnaire designed to measure the severity of gambling problems in the general population; the Positive Play Scale (PPS), a 14-question validated measure of gambling beliefs and behaviors; and a brief personality assessment. Following baseline assessment, participants downloaded a gambling psychoeducation and support smartphone application (Evoke Inc, Peabody, MA). Participants were instructed to engage with the app for a minimum of five minutes per day on at least 12 of 14 days. Engagement metrics, including time spent within the application, were collected through the Evoke application. The PPS was re-administered immediately after the intervention period and again at the 20-day follow-up. Participants who completed the

study received a \$30 Amazon gift card and access to Evive programs for the duration of their undergraduate degree.

Statistical analyses were conducted using a repeated measures ANOVA to evaluate behavioral change and perceived intervention value at the three time points. Where Mauchly's test indicated a violation of sphericity for net PPS scores ( $p = 0.042$ ) and personality ( $p < 0.001$ ), Greenhouse–Geisser corrected values were reported. Where necessary, data transformations were applied to meet statistical assumptions, a confidence interval was set at 95%, and results were considered statistically significant with  $p < 0.05$ .

## RESULTS

Statistical analyses were conducted using IBM SPSS Statistics (IBM, 29.0.2.0 (20), Chicago, IL). A significance threshold of  $p = 0.05$  was applied for all tests. A total of 27 participants were recruited, with 25 providing complete data across all three timepoints.

Separate repeated measures ANOVAs were performed to examine the net PPS scores and subscales: *personality*, *literacy*, *honesty*, and *precommitment* across three timepoints (T1-3). Results indicate a statistically significant effect for the *honesty* subscale ( $F(2, 48) = 71.40$ ,  $p < 0.001$ ,  $\eta^2 = 0.748$ ), with scores increasing from T1 ( $5.28 \pm 0.51$ ) to T2 ( $6.65 \pm 0.58$ ) and remaining elevated at T3 ( $6.69 \pm 0.63$ ). No significant effects of time were found for personality ( $F(2, 48) = 1.053$ ,  $p = 0.357$ ,  $\eta^2 = 0.042$ ), literacy ( $F(2, 48) = 0.772$ ,  $p = .468$ ,  $\eta^2 = .031$ ), pre-commitment ( $F(2, 48) = 1.449$ ,  $p = 0.245$ ,  $\eta^2 = 0.057$ ), or net PPS scores ( $F(2, 48) = 0.140$ ,  $p = 0.870$ ,  $\eta^2 = 0.006$ ).

Across both post-intervention time points, participants reported positive perceptions of the Evive application with confidence in making positive choices about gambling, rating highest at T2 ( $6.15 \pm 1.19$ ) and T3 ( $6.19 \pm 1.02$ ), followed by increased awareness of gambling-related risks at T2 ( $5.73 \pm 1.34$ ) and T3 ( $5.73 \pm 1.84$ ). Willingness to continue using similar tools was the lowest-rated item at both T2 ( $4.12 \pm 1.74$ ) and T3 ( $4.12 \pm 1.63$ ).

## DISCUSSION

The present study sought to evaluate the effectiveness of a 14-day gambling harm prevention curriculum in improving gambling literacy, attitudes, and perceptions of risk among college students, and to determine whether such changes translated into short-term measurable behavioral differences. This study's findings suggest that targeted, platform-based harm prevention programming can produce meaningful improvements in

specific dimensions of gambling-related attitudes, although the scope of change appears more selective than initially hypothesized. Notably, students also reported perceiving genuine value in the educational experience, reinforcing the feasibility of this type of intervention in a college setting.

The most prominent finding from Hypothesis 1 was a significant improvement in the *honesty* subscale of the PPS following curriculum completion. Mean scores rose substantially from baseline, and critically, these gains were maintained for 20 days post intervention. The large effect size indicates that the curriculum accounted for a considerable proportion of variance in honesty scores, lending meaningful practical significance to this result. This finding is consistent with broader literature on harm reduction education, which has demonstrated that structured psychoeducational programming can shift self-awareness and acknowledgment of risk-related behaviors even over relatively short intervention windows (Grande-Gosende et al., 2020; Tabri et al., 2025). The sustained elevation at the 20-day follow-up is particularly encouraging, as it suggests participants continued to reflect honestly on their gambling-related attitudes beyond the immediate post-intervention period.

Other than *honesty*, no other PPS subscales reached statistical significance across the three timepoints. One possible explanation is that the 14-day curriculum was long enough to improve students' willingness to honestly reflect on their gambling behaviors while falling short of producing broader changes in attitudes and perceptions that may require a longer or more intensive program to achieve (Davies et al., 2023). It is worth noting that the sample was predominantly composed of individuals reporting few gambling-related harms. PGSI scores indicated that the majority of participants reported no problem gambling, seven reported low risk, one participant reported moderate problem gambling, and no participants reported severe problems. This distribution likely reflects the broader college population, but may have constrained the sensitivity of the study to detect behavioral change, as individuals with minimal gambling involvement have less room for measurable behavioral improvement through programming such as the lessons provided to them (Davies et al., 2023). Future research employing samples with greater baseline gambling involvement, or recruiting specifically from populations identified as at-risk, may yield more robust behavioral outcomes across a wider array of subscales.

The findings for Hypothesis 2 provide support for the notion that college students perceive meaningful value in education aimed at reducing their risk of gambling-related harm. Across both post-intervention time points, participants reported positive perceptions of the Evive application, with confidence in making positive choices about

gambling and having increased awareness of gambling risk at both post-intervention points. The stability of these ratings across time points suggests that perceived value was not simply an artifact of novelty or immediate post-completion recency bias but rather reflected a lasting sense of having acquired meaningful knowledge related to harm reduction, a pattern consistent with findings from other digital health literacy interventions targeting low-risk collegiate populations (Roh & Won, 2023). Willingness to continue using similar tools was the lowest-rated item at both post-intervention time points; however, it is worth emphasizing that this rating still exceeded the midpoint of the scale, indicating that more participants than not expressed openness to future engagement with similar harm reduction tools. This is particularly noteworthy given that the majority of participants reported showing no problem gambling according to PGSI scores. This suggests that even students who do not identify as at-risk may recognize the broader protective value of gambling harm prevention education, which has meaningful implications for the implementation of universal, rather than targeted, prevention programming on college campuses (Grande-Gosende et al., 2020). Possible gamification may increase the willingness to engage with this app in undergraduate populations.

## **LIMITATIONS**

Several limitations of the present study should be acknowledged. The sample size of 25 was not large enough to assume normality, which limits statistical power and the generalizability of findings to broader college populations. The predominantly low-risk gambling profile of participants reduces the sensitivity of the design for detecting behavioral change; findings may not extrapolate to higher-risk groups where intervention impact is potentially most consequential. Additionally, the 20-day post-completion follow-up window, able to assess short-term retention, does not relate to the long-term durability of gambling perception. Seasonal or contextual factors that co-occur with gambling behavior in college environments, such as sports seasons, exam stress, or social events, were not controlled for, and their influence on PGSI scores across timepoints cannot be ruled out. Future work should employ larger and more diverse samples, extend follow-up periods to at least three or six months, and consider incorporating objective behavioral measures alongside self-report instruments.

## **CONCLUSION**

A 14-day gambling harm prevention curriculum delivered via the Evive platform produced a significant and durable improvement in honesty of gambling-related attitudes among college students, accompanied by broadly positive perceptions of the program's value.

While behavioral change at the group level was not observed, the sustained attitudinal gains and high value ratings suggest that this type of structured digital harm prevention programming holds genuine promise as a scalable tool for college health promotion efforts. Expanding this work to higher-risk populations and longer follow-up windows will be essential for establishing whether these early attitudinal shifts translate into meaningful reductions in gambling-related harm over time.

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