

Effects of Irrational Beliefs, Impulsivity, and Happiness on Problem Gambling: Focused on Korean and Australian College Students

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비합리적 신념, 충동감, 행복감이 문제도박에 미치는 영향: 한국과 호주 대학생을 중심으로

최정현

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Abstract This study examined the effects of irrational beliefs, impulsivity and happiness on problem gambling of Korean and Australian college students. Data were collected from 581 college students of Korea, and 100 college students of Cairns of Australia. As a result, The overall mean of the CPGI was significantly different between Koreans and Australians ($t = -29.828^{**}$). As for classification of gamblers by sub-type of CPGI, the number of problem gamblers in Australians was 7.0% compared to 5.3% for Koreans, showing a significant difference. In Multiple regression analyses, irrational beliefs, happiness, and the frequency of gambling significantly predicted problem gambling of Koreans ($R^2 = 0.175$, $F = 23.441$, $p < .001$). On the other hands, irrational beliefs and the frequency of gambling significantly predicted problem gambling of Australians ($R^2 = 0.368$, $F = 10.844$, $p < .001$). Through this study, it was found that the factors affecting the problem gamblers of Korean and Australian are different. It is required to continue further education on gambling among young adults of Korea and Australia.

Key Words : problem gambling, irrational beliefs, impulsivity, happiness, Korean, Australian, college students

요약 본 연구는 한국인과 호주 대학생의 비합리적 도박신념, 충동감, 행복감이 문제도박에 미치는 영향을 조사하기 위한 연구이다. 설문지를 통해 서울 등 대학생 581명을 대상으로 자료를 수집하였다. 호주에서는 호주 케언즈의 S대학생 100명이 참가하였다. 한국인은 복권(32.7%)와 친목게임(30.2%)을 가장 많이 하는 반면, 호주는 카지노(26.1%)와 복권(28.4%)을 많이 했다. CPGI의 평균은 한국인과 호주인 사이에 유의한 차이가 있었다($t = -29.828^{**}$). CPGI의 하위 유형에서 문제도박자는 한국인은 5.3%인데 비해 호주인은 7.0%로 유의하게 차이를 보였다. 다중회귀분석에서 한국인의 비합리적 도박신념, 행복감, 도박빈도는 문제도박을 유의하게 예측하였다($R^2 = 0.175$, $F = 23.441$, $p < .001$). 한편 호주인의 불합리한 도박신앙과 도박빈도가 문제도박을 유의하게 예측하였다($R^2 = 0.368$, $F = 10.844$, $p < .001$). 본 연구를 통해 한국인과 호주인의 문제도박에 영향을 미치는 요인이 다르다는 것을 알 수 있었다. 한국과 호주의 청년들을 대상으로 도박의 폐해를 알리고 문제성 도박을 예방하기 위한 지속적인 교육이 필요하다.

주제어 : 문제도박, 비합리적 신념, 충동감, 행복감, 한국, 호주, 대학생

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1. Introduction

1.1 Background of study

Young adults, which include college students, are at high risk for developing gambling problems. Gambling is an emergent public health issue among Koreans and Australians [1–2]. The Korean government has allowed the expansion of the gambling industry which has increased to ₩20.5 trillion by 2015 [2]. In addition, online illegal gambling is spreading due to the development of the internet [3] and online services. The total size of illegal gambling markets reached ₩83.7 trillion, four times more than that of the legitimate gambling market [2]. In Australia, national prevalence rates indicate that approximately 0.2~1% of the Australian population experiences problem gambling [1]. Gambling is an activity undertaken by many Australians. Over 80% of Australian adults engage in gambling, which is the highest percentage in the world [4]. This number includes some 4% of the adult population who play pokies once a week, accounting for 62% of the locals' annual gambling spending [4]. The prevalence rates of gambling addiction in Korean adults over 20 years of age were 7.2% in 2012, 5.4% in 2014, and 5.3% in 2018, and they were much higher than England's 2.5% of 2017 and Australia's 3.5% of 2017, which was conducted as national scale surveys [5].

Technological advances through increased access to online and digital technologies have provided young adults with new gambling opportunities [3]. Young adults are more likely to enjoy online gambling because they use the internet more than older adults [3]. They are also more likely to become addicted by recognizing gambling as a type of play or one-off stress relief [3]. When gamblers become addicted, they constantly obsess on gambling, pursue stimulation and excitement, and develop

resistance to an increasing amount of betting [5]. According to previous research, irrational beliefs, impulsivity, and happiness are associated with an increased risk of problem gambling [5–8]. People who gamble tend to have irrational beliefs, leading to risky decisions and excessive gambling [7]. Irrational beliefs in gambling include overestimating one's probabilities of winning, superstitious rituals, and the gambler's fallacy [8]. Irrational beliefs are consistent with an emotionally vulnerable pathway to problem gambling. A quantitative observational study reported that impulsivity was the strongest predictor of problem gambling [9]. A study reported that pathological gambling habits have a direct effect on impulsivity levels and gambling disorders [10].

Happiness is an emotional state characterized by feelings of joy, satisfaction, contentment, and fulfillment. Happy people have an advantage in that they feel that they can take time to build new resources and work actively towards new goals [11]. A study reported that happiness was negatively associated with an individual's level of gambling addiction [12].

Korean society, culture and history are vastly different and perhaps more conservative, and traditional than that of Australia. Young adults' gambling preferences often depend on the availability, accessibility and social acceptability of gambling. These factors are more prevalent in Australia.

1.2 Research Objective

This study aims to examine the effects of irrational beliefs, impulsivity and happiness on problem gambling of Korean and Australian college students.

First, the general characteristics and gambling behavior of Korean and Australia students are identified.

Second, the difference in gambling behavior

between Koreans and Australians is identified.

Third, the correlation between irrational beliefs, impulsivity, happiness, frequency of gambling, and problem gambling is investigated.

Fourth, the factors affecting Koreans and Australians' problem gambling are identified.

2. Materials and Methods

2.1 Design

This is a descriptive study designed to examine the effects of irrational beliefs, impulsivity and happiness on problem gambling of Korean and Australian college students.

2.1.1 Sampling and data collection

In Korea, data were collected from 581 college students in the Gyeonggi-do, Chungcheong-do, and Gyeongsang-do areas in Seoul using questionnaires. G*Power 3.1.9.2 software was used for sample size calculation for regression. The calculation revealed the need for a sample size of at least 98 participants to detect a medium effect size (0.15) with significance level set at 0.05 and power as 0.95. In Korea, a total of 563 questionnaires were statistically processed, excluding 14 questionnaires with missing answers. In Australia, data were collected from 107 college students in Cairns, Australia, and 100 questionnaires were statistically processed, excluding 7 questionnaires with missing answers. Thus, the 563 Korean students and 100 Australian students participated in this study. The data were collected from 2019 to 2020. The purpose of this study, data confidentiality, and the possibility of withdrawal were explained to the participants, and their written consents were obtained in advance.

2.2 Measurement

2.2.1 Problem gambling

Problem Gambling was measured using the Problem Gambling Severity Index (PGSI), which is composed of nine items from the 31 item—the Canadian Problem Gambling Index (CPGI) [13]. Thenine items were evaluated on a Likert scale from 0 to 3 points (0 =never, 1 =sometimes, 2 =most of the time, 3 =almost always). A higher score indicated a severe level of problem gambling. The Cronbach's alpha coefficient was .88.

2.2.2 Irrational gambling belief

In this study, the irrational beliefs scale is composed of 10 items selected by Kwon [14] from the items developed by Lee [15] on the basis of Steenbergh's questionnaire for gambling belief [16]. The items were evaluated using a five-point Likert scale. A higher score indicated a severe level of problem gambling. Cronbach's alpha coefficient was .91

2.2.3 Impulsivity

The impulsivity used by Kim et al. [17] was utilized. It is composed of eight items asking about impulsivity. Each item is evaluated on a four-point Likert scale. A score of impulsivity was indicated by the getting average points in the eight items. Higher scores indicate a higher level of impulsivity. The Cronbach's alpha coefficient was .85.

2.2.4 Happiness

Happiness scales made by Lyubomirsky and Lepper were used in this study. It is composed of four items asking about the degree of subjective happiness (e.g., "Compared to my colleagues, I think I'm happy.") [18]. Items were evaluated using a seven-point Likert scale. If the score of a student is higher than that of other students, it means that the happiness level of the student is better than others. Cronbach's alpha coefficient was .85.

2.3 Data Analysis

The SPSS Win 22.0, for statistical analysis of the data, was used in this study. Descriptive statistics for the general characteristics and gambling behavior were conducted. The t-test and chi-squared test were used for the difference analysis of the variables. The relationships between variables were analyzed using Pearson correlation coefficients. Multiple regressions were used to identify factors affecting problem gambling.

2.4 Ethical Consideration

The college students consented to participate in this study after they received information about its purpose, benefits, and potential risks. They were allowed to change his/her mind on participating at any time. This study was approved by the Institutional Review Board of Namseoul University (IRB No. NSU-202004-005).

3. Results

3.1 Demographic Characteristics

The baseline characteristics of the participants are shown in Table 1. The participants in this study were 259 male (46.0%) and 304 female (54.0%) Koreans, and 33 male men (33.0%) and 67 female women (67.0%) Australians. 55.6% of the Korean participants were under 20 years, while and 9.1% of Australian participants were under

Table 1. General Characteristics of Subjects

(N=663)			
Characteristics		Korean n(%)	Australian n (%)
Gender	Male	259(46.0)	33(33.0)
	Female	304(54.0)	67(67.0)
	Total	563(100)	100(100)
Age	≤20	313(55.6)	9(9.1)
	≥21	250(44.4)	90(90.9)
	Mean(yrs)	20.87±2.70	30.89±10.95

20 years old. The mean age of Korean students was 20.87 years old, and Australian students were 30.89 years old.

3.2 The Differences in Gambling behavior of Korean and Australian

Table 2 shows the most common types of gambling among Koreans and Australians. Koreans play lottery (32.7%) and games for fellowship (30.2%) the most, while Australians play casino (26.1%) and lottery (28.4%) the most.

Table 2. Types of gambling games.

(N=663)		
	Korean n=563 (%)	Australian n=100 (%)
Casino betting	14(2.2)	55(26.1)
Horse racing ticket	20(3.2)	35(16.6)
cycle racing ticket	2(.3)	7(3.3)
Boat racing ticket	1(.2)	5(2.4)
Lottery	204(32.7)	60(28.4)
Sports Betting(Sports toto)	34(5.5)	4(1.9)
Bullfighting betting	5(.8)	0(0)
Private gambling activities	34(5.5)	2(.9)
Game for fellowships	188(30.2)	38(18.0)
Online game for leisure	121(19.4)	5(2.4)
Total*	623(100)	211(100)

*multiple responses

Table 3 shows the age at which gambling starts. Most Koreans and Australians tend to start gambling as adults.

Table 3. The age to start gambling.

(N=663)			
	Korean n=563 (%)	Australian n=100 (%)	$\chi^2(p)$
Elementary school	61(10.9)	12 (12.0)	35.791 (p<.001)
Middle school	72 (12.9)	10 (10.0)	
High school	73 (13.1)	13 (13.0)	
Adulthood	114 (20.4)	46 (46.0)	
No gamble experience	239 (42.8)	19 (19.0)	
Total*	559* (100.0)	100 (100.0)	

* Missing data were deleted.

The difference of the main variables is listed in Table 4. The overall mean of the CPGI was significantly different between Koreans and Australians ($t=-29.828^{**}$). As for the classification of gamblers by sub-type of CPGI, non-problem, low risk, moderate risk, and problem gamblers were 68.9%, 16.3%, 9.4%, and 5.3%, respectively, in Korea. In contrast, Australians accounted for 59.0%, 20.2%, 20.0%, and 7.0%, respectively. Meanwhile, the number of problem gamblers among Australians was 7.0% compared to 5.3% among Koreans, showing a significant difference. Other variables did not differ between Koreans and Australians.

Table 4. Difference of main variables

(N=663)			
	Korean n=563 (%)	Australian n=100 (%)	t, χ^2
CPGI	.13±.33	1.18±.30	t=-29.828**
CPGI subtypes			
-Non-problem	388(68.9)	59(59.0)	
-Low risk	92(16.3)	14(20.2)	$\chi^2=10.598^*$
-Moderate risk	53(9.4)	20(20.0)	
-Problem	30(5.3)	7(7.0)	
irrational beliefs	2.01±.88	2.14±.73	t=-1.597
impulsivity	2.02±.57	2.06±.55	t=-.649
Happiness	4.99±1.20	5.13±1.21	t=-.992

* $p < 0.05$. ** $p < 0.01$.

3.3 Correlation between main variables

Table 5 shows the interrelations among irrational beliefs, impulsivity, happiness, frequency of gambling, and problem gambling. Irrational beliefs, happiness, and frequency of

Table 5. Correlations among main variables

(N=663)		
	Problem gambling(CPGI)	
	Korean	Australian
irrational beliefs	.35**	.50**
Impulsivity	.14**	.16
Happiness	-.14**	0
the frequency of gambling	.29**	.25*

** $p < 0.01$.

gambling were significantly associated with problem gambling in Korean. However, irrational beliefs and frequency of gambling were positively associated with problem gambling among Australians.

3.4 Factor influencing on problem gambling

Multiple regression analyses assessed the predictors (gender, irrational beliefs, impulsivity, happiness, and frequency of gambling) of problem gambling in Korea and Australia. Irrational beliefs, happiness, and frequency of gambling significantly predicted problem gambling in Korean college students ($F = 23.441$, $p < .001$) (Table 6). On the other hand, irrational beliefs and frequency of gambling significantly predicted problem gambling in Australia ($F = 10.844$, $p < .001$) (Table 7). Thus, happiness was the only difference in terms of the major factors which affect problem gambling between Korea and Australia, more specifically it was only found to be a relevant factor for Korean students and not Australian.

Table 6. The factors affecting problem gambling of Korean

(N=563)				
Variables	B	S.E	β	t
Constant	-.07	.09		-.86
Gender	.04	.03	.06	1.57
irrational beliefs	.10	.02	.27	6.47***
Impulsivity	.01	.02	.02	.52
Happiness	-.02	.01	-.09	-2.16*
the frequency of gamble	.05	.01	.19	4.79***
$R^2=.175$, $F=23.441$ ($p<.001$)				

* $p < 0.05$. *** $p < 0.001$.

Table 7. The factors affecting problem gambling of Australian

(N=100)				
Variables	B	S.E	β	t
Constant	.46	.17		2.62
Gender	.10	.06	.16	1.80
irrational beliefs	.20	.04	.47	5.62***
Impulsivity	.08	.05	.15	1.71
Happiness	-.00	.02	-.08	-.20
the frequency of gamble	.05	.02	.26	2.92*
$R^2= .368$, $F=10.844$ ($p<.001$)				

* $p < 0.05$. *** $p < 0.001$.

4. Discussion

This is a descriptive study designed to examine the effects of irrational beliefs, impulsivity and happiness on problem gambling of Korean and Australian college students. It found that Koreans play lottery (32.7%) and games for fellowship (30.2%) the most, while Australians play casino (26.1%) and lottery (28.4%) the most. This result is partly consistent with those of previous studies [19–20]. Koreans have limited access to casinos. There are only one or two known places where Koreans are free to enter and become serviced using their IDs. In contrast, Australians are free to enter any casino, as the country has fewer restrictions on gambling. Both Koreans and Australians like to play board and card games while attending university. This kind of pastime activity is very popular and is considered legal [21].

The overall mean of the CPGI was significantly different between Koreans and Australians ($t = -29.828^{**}$). As for problem gamblers among the classification of gamblers by sub-type of CPGI, there was a significant difference between Koreans and Australians. The number of problem gamblers in Australians was 7.0% compared to 5.3% in Koreans, showing a significant difference. A study reported that the rate of college students in 2011 was 11.1% in Korea [22] and the prevalence rates of gambling addiction in Korean adults were 7.2% in 2012, 5.4% in 2014, and 5.1% in 2016 [23]. The gambling prevalence rate among college students is high in comparison to the adult population, and the gambling prevalence rate among college students seems to be rapidly increasing in Korea. Meanwhile, an Australian study suggested that adolescents are engaged in a wide range of gambling activities, with 4% to 8% of the total population experiencing significant gambling-related problems [24]. In other countries, Mubarak and Blanksby reported an estimated prevalence rate of 11.7%, specifically 8.6% for problem gambling

and 3.1% for probable pathological gambling among college students [25]. After 2020, going directly to the casino or game room has become increasingly difficult due to the restrictions imposed by the coronavirus. This has led to an increasing number of online casinos and game rooms being the preferred option for gambling, which has its own risks, as these websites are not strictly controlled and audited.

In multiple regression analyses, irrational beliefs, happiness, and the frequency of gambling significantly predicted problem gambling among Koreans ($R^2 = 0.175$, $F = 23.441$, $p < .001$). On the other hand, irrational beliefs and gambling frequency significantly predicted problem gambling among Australians ($R^2 = 0.368$, $F = 10.844$, $p < .001$). In other words, irrational beliefs and gambling frequency were found to be significant predictors for both Koreans and Australians. These results are partly consistent with previous ones [26–27]. The lack of happiness has been exclusively linked with problem gambling in the Korea, but less so in Australia. This is due to higher levels of stress and anxiety among Korean young adults, caused by the heavy demand for getting a job after graduation. Korean young adults scored one of the lowest levels of “life satisfaction” as measured by the “Better Life” index from the Organization for Economic Cooperation and Development [28]. Thus, a sense of unhappiness may play a role in the higher incidence of problem gambling in Korea. Happy people have a higher likelihood of experiencing positive emotions, which reduces stress, allowing them to take positive action and have more self-control. Even if they engage in gambling, their tendency for addiction is lower.

To conclude, this study provides further evidence of the relationships between Koreans and Australians’ irrational beliefs, impulsivity, happiness, and problem gambling.

5. Conclusions

Although previous research has shown that a large number of factors are correlated with problem gambling, it is unclear what factors affect problem gamblers in Korean and Australian college students. Through this study, it was found that the factors affecting the problem gamblers of Korean and Australian are different.

Based on the results of this study, I would like to suggest the following suggestions. First, since irrational beliefs are a major predictor of problem gambling, it would be useful if countries were to implement an information campaign to reduce the degree to which people overestimate the chances of winning. Such a campaign could aim to educate people to avoid common gambling fallacies. In addition, these findings suggest that when treating problem gamblers, counsellors should concentrate on feelings of happiness and irrational beliefs.

Second, since this study was conducted with some college students of Korean and Australia, there is a limitation in generalizing the results to all college students, so it is suggested to conduct repeated studies in the future.

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