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Effect of Stress, Impulsivity, Peer Attachment and Social Interest on Gambling Behavior

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Abstract

This study identified the severity of youth gambling behavior and analyzed the impact of stress, impulsivity, peer attachment and social interest on youth gambling behavior. Based on the results of the study, the government sought to help understand teenagers who are addicted to gambling and to help them maintain psychological and social stability and healthy living. A total of 237 high school students were surveyed. According to the analysis, the prevalence rate was found to be 3.4 percent of the problem gambling group and 9.3 percent of the medium-risk gambling group, and a total of 12.7 percent was addiction. Low-risk gambling groups accounted for 16.9 percent and non-problem gambling groups accounted for 70.5 percent. By gender, male students have more serious gambling problems than female students. As a result of dividing the group that experienced gambling more than once and the group that did not experience gambling into gambling group and non-gambling group, the two groups showed significant differences in impulsiveness, avoidant attachment, and interest in others. Furthermore, a correlation analysis was conducted to examine the relationship between these factors and the level of gambling behavior, showing that only impulsivity was significant.

Keywords: Stress, Impulsivity, Peer Attachment, Social Interest, Adolescents' Gambling Behavior

Major classifications: Nursing and Mental Health, Public Health

1. Introduction

1.1. Necessity and purpose of research

On September 11, 2019, the gambling movie 'Tazza: One Eyed Jack' using cards was released. As a result, "Tazza" parodies were popular on social media, and the hamburger franchise company B introduces their products using the lines of movies as advertisements. Although 'Tazza' is a movie that received a rating that youths are not allowed to watch, the video uploaded to social media made it easier for youth to access the scenes of gambling. Not only that, but it has been an issue for a while as photos of celebrities known to the public, such as entertainers or agency representatives' gambling and betting golf, and African TV's popular BJ's gambling in the Philippines during his military service. In this way, various incidents and accidents related to legal issues related to gambling and damages from gambling have been occurred.

According to the '2018 Domestic Use of the Gaming Industry' survey by the National Gaming Control Commission, the prevalence of gambling addiction in Korea was 5.3%. Korea has a higher prevalence rate than other countries at 2.5% in the UK, 2.3% in Australia and 1.3% in France.

Gambling addiction refers to a condition in which gambling continues without being able to control gambling behavior at will, even though conflict between the person, family, and interpersonal relations, financial, social, and legal problems arise. Recently, the most serious issue in gambling addiction is that the prevalence of gambling addiction among adolescents is gradually increasing, while the stop-gambling rate is at the lowest level. According to the '2018 Youth Gambling Problems Survey' by the Korea Gambling Problem Management Center, the rate of youths in the problem group was 1.5%, an increase of 0.4%P compared to 2015, and the rate of youths in the risk group was 4.9%. It showed an increase of 0.9% from 4.0% in 2015. About 16,000 people received gambling addiction treatment services in 2018, and among them, the proportion of teens was 5.7%, a six-fold increase from 1% in 2015, showing the steepest increase among all age groups. Only 23% of teenagers stopped gambling after the treatment service, the lowest among all age groups, the report showed. The amount spent increased as the number of youths who encountered gambling increased. The amount of money teenagers lost from gambling was 10,000 won in 2015 to 18,000 won in 2018. The average amount lost by online and illegal internet gambling was 137,000 won and 135,000 won, respectively. As a result, it was found that he lost more money than other money betting games.

With the development of the Internet and communication technology and the spread of smartphones gradually increasing, they are not limited by time and space, so that adolescents can access more online gambling. The number of sites omitting the adult authentication process etc. has made it easier for adolescents to access and use (Slutske et al., 2005). In other words, accessibility is improved due to the use of smartphones, and due to the prevalence of materialism, adolescents who are addicted to gambling are increasing from a young age to open their eyes to financial greed. There have been studies showing that pathological gamblers start gambling at an average age of 11 years, and domestic studies also reported that about 70% of problem gamblers and pathological gamblers experienced gambling before the age of 20, before adulthood.

According to psychosocial personality theory, adolescence is the time to establish a sense of identity from 12 to 20 years old. During this period, adolescents find their sexual identity as men or women and discover their roles and abilities in companionship. At this time, the confusion of roles and self-identity comes from the idea that youths cannot make specific plans for socially important events such as college, career, and marriage. In this case, they show imitative behavior to resemble them while looking at idols such as the group to which they belong and celebrities. If they overcome such a crisis well, they will gain the quality of ego called fidelity, but if they do not overcome this crisis well, they may fall into a confusion of identity and anxiety, dependence on drugs or alcohol, or become a delinquent youth. It has been reported that stress has a positive correlation with gambling behavior. Adolescents make quick and easy choices to get out of stress, but these characteristics increase the risk of gambling behavior and gambling addiction. Kwon and Jun (2011) reported that the higher the stress level of adolescents and the lower their coping ability, the higher the probability of becoming addicted to gambling.

It has been found that impulsivity is the strongest predictor of gambling severity and is a major factor in adolescents' gambling behavior. In addition, it is reported that pathological gamblers lack the ability to delay satisfying their needs, devalue deferred rewards, and seek immediate satisfaction (Steel & Blaszczynski, 1998). Impulsiveness was also found to have a close relationship with addiction to substances such as alcohol, cigarettes, and cocaine, and addiction to behaviors such as gambling, sexual behavior, online games, Internet, and smartphones (Poulos et al., 1995; Bickel, Odum, & Madden, 1999; Belin et al., 2008; Kim & Jang, 2016; Yoo, 2007; Song, 2018; Cao et al., 2007). In addition, the higher the propensity to be sympathized through a relationship with a peer or when a peer gambles, the greater the likelihood of gambling behavior (Song, 2018).

According to the results of the '2018 Youth Gambling Problems Survey', 58.7% said it is serious about the youth gambling problem while in school, and 69.9% said they did not have any experience in preventive education that informs the dangers

of adolescent money betting games while in school. As adolescents' gambling experience increases, there is a risk of progression to gambling addiction, and it adversely affects not only individuals, but also families and communities. Adjacent intervention must take place before youth gambling can progress to gambling addiction.

The purpose of this study was to find out the severity of adolescents' gambling behavior level, and to examine how stress, impulsiveness, social interest, and peer attachment affect adolescents' gambling behavior. In addition, the purpose of this study was to understand the psychosocial characteristics of adolescents and to suggest intervention plans and practical implications so that adolescents can achieve desirable growth.

2. Theoretical Background

2.1. Concepts and causes of gambling addiction

The Korea Center on Gambling Problems (2016) defines gambling addiction as a condition in which gambling cannot be controlled at will and continues to gamble even though conflicts and financial or social and legal problems arise due to gambling. Gambling addiction is an act of losing control and repeating that gambling causes mental, physical, social, legal, and financial problems or harm to organizations and communities, including individuals, families, and friends, or workplaces (Kim, 2006).

Five-factor gambling motivations, the main motivations for continuing gambling are "money motivations" and "excitement motivations." The motivation for money is to give many gamblers the expectation that they can grab a large sum of money and recover the money they have lost so far, thus deeply involved in gambling behavior. The motivation for excitement is to create a primary awakening experience through gambling behavior, which makes deeply involved in gambling by the strange pleasures of winning and losing money. These two motivations were said to be important factors in sharing social gambling, problem gambling, and pathological gambling, respectively.

Blaszczynski and Nower (2002) presented three paths to gambling addiction. Path 1 is a path that increases participation in gambling due to classical and operational conditions and subsequently becomes habitual gambling. It is a common route for all gamblers to start gambling, and the possibility of gambling addiction increases when accessibility and availability increases, such as online gambling, which is frequently accessible to teenagers. Path 2 is the path to gambling because of emotional vulnerability, such as high levels of depression and anxiety, or low self-esteem, and high levels of stress before problem gambling. They gamble because of their avoidance motivation to escape from negative moods and have low motivation for treatment and poor prognosis. Finally, Route 3 is a path in which an individual suffers from behavioral control difficulties, tends to have ADHD, impulsiveness, lack of patience, criminal behavior, and substance abuse (Blaszczynski & Nower, 2002).

2.2. Adolescents and psychosocial characteristics

The development of formal manipulation thinking enables teenagers to logically think and form virtual as well as practical, and to systematically verify all possibilities. This development of abstract thinking can also enable to criticize one's imperfect reality and experience excessive concern about going to college, employment, marriage, etc. that will happen in the near future. In other words, when abstract and ideological thinking does not match reality, adolescents experience a conflict of values with frustration and anger, and even rebellion, resistance, and deviant behavior.

Factors that affect adolescents' behavior include hormonal changes and rapid brain growth. The secretion of sex hormones affects adolescents' excessive self-assertion or violent expression of emotions, and rapid brain growth affects excessive egocentric thinking, idealism, and black-and-white logic until it develops into rational and logical thinking brain. The growth of the frontal lobe helps to make rational judgments, but an inefficient information delivery system caused by the over-creation and over-connection of nerve cells triggers impulsive and indiscriminate behavior in adolescence.

The psychological and social characteristics to be explored in this study are stress, impulsiveness, peer attachment and social interest. First, stress comes from the Latin word "strictus" (narrow, tight) or "stringer" in the 17th century, which means "disturbance, difficulty, anguish" in the 18th and 19th centuries. American psychologist Lazarus said that stress can act as a good stress or as a bad stress depending on the cognitive assessment of the factors.

Stress refers to the pressure or required force exerted on the adaptation and regulation of an organism and is generally used in many ways to mean tension, fatigue, difficulty, adversity, exhaustion, or hardship (Ryu, 1993). Lazarus and Folkman (1984) emphasized that no environmental accident could be the sole cause of stress, independent of individual perception or assessment, and divided the view of stress from a psychological or social point of view into three (Folkman & Lazarus, 1984).

First, stress as a stimulus is to experience certain types of stimuli. Secondly, stress as a response focuses on the physiological and psychological reactions of organisms to stressful situations. Third, stress as a dynamic interaction was seen as occurring in the interactions between people and the environment, involving both social, psychological, and physiological systems very extensively. High school students who are subject to the study spend most of their time in school with their peers. Also, they get a lot of stress due to academic achievement and expectations from their parents due to college entrance exams. The more stress teenagers experience at school, the more delinquent problems they have (Kim, 2002).

Impulsivity has recently been extensively studied, considered as an important personality dimension. Personality psychologists consider impulsivity as an important characteristic that influences antisocial behavior (Buss, 1966).

Impulsivity as a personality trait that has a fast reaction speed and lacks the ability to speak, act, and predict the future without taking enough time. The impulsivity defined by Barratt is divided into motor impulsivity, attention impulsivity, and unplanned impulsivity. Motor impulsivity refers to the tendency to act impulsively, and attention impulsivity implies a lack of ability to focus right now. Unplanned impulsivity means not planning and not contemplating. Impulsive sensation seeking as pursuing various and complex sensations and taking social or physical risks to experience these sensations. They also explained impulsivity as a lack of planning, a tendency to act impulsively without contemplation, and a tendency to be willing to take risks for new experiences or thrills.

High impulsivity leads to various dysfunctional behaviors, including behavioral habits related to daily health and self-management skills. Heo (1999) reported that adolescents with high impulsivity showed more delinquency behavior than those with low impulsivity. Impulsivity has a positive correlation with not only delinquency, but also breaking rules, vandalism, theft, sexual problems, drug use, and attack.

The third factor is peer attachment. According to Erikson's theory of development (1980), in adolescence, in addition to parents, friends who can form intimacy with are needed, and close relationships with them begin to be established. Adolescents are affected not only positively by friends, but also negatively. Intimacy with friends has the greatest impact in adolescence than any other period. In other words, individuals basically form an attachment with their parents, but at the same time, they form an attachment with their peers along with growth and maturity according to age. In adolescence, the attachment target moves from parent to peer, and peers become strong attachment targets (Armsden, McCauley, & Greenberg, 1990).

When peer attachment is stabilized, it has value as the basis of intimacy, means social support that individuals can use as a resource. It becomes the basis for forming trust in others, and the possibility of positive awareness of future relationships increases. However, there are studies showing that when the level of peer attachment is high, delinquency behavior is rather increased (Kang, 2009), or deviant behavior is increased (Kim, 2010). The negative influence of peer attachment is also reported.

When peer attachment is low, inappropriate interactions occur. However, the experience of not being able to get along with the peers is related to the occurrence of various problems including juvenile delinquency behavior (Kim & Lee, 2011). The lack of close friends is causing a few psychological problems. Being rejected by their peers means not being recognized by their peers, but also being actively excluded by most of the peers, which is related to various youth problem behaviors such as aggression and delinquency.

Social interest is an important factor that affects an individual's psychological health and determines the way they live their lives. According to Adler (1933)'s individual psychology, social interest is a concept that includes the desire to become a competent person in society. Humans have a sense of inferiority and continue to strive for self-improvement to overcome this (Park, 2008). In addition, it was seen that an individual's mental health could be assessed according to the level of social interest. Since mentally healthy people live their lives in a way that is useful to society, so their social interest is high.

Social interest consists of individuals' efforts to make society complete, such as cooperation, interpersonal and social relationships, identification with groups, and empathy. Social interest emphasized the importance of education as it can be continuously developed through the upbringing of parents, home education and school education. In particular, there is an important opportunity for the development of innate potential for social interest in early maternal relationships. Individuals with high social interest can fully empathize with others' positions, act altogether, and cooperate with others. Furthermore, it means that contributions to society or humanity will be possible and that future-oriented welfare society and human progress can be pursued. The sense of self-worth gained through social interest helps to get out of a sense of inferiority, which is a criterion for social adaptation (Choi et al., 2013). When adolescents fail to develop social interests in the time of seeking their identities, which could lead to crime due to the wrong way of thinking and system.

Social interest was defined as interest in others with a sense of belonging in one's own community, and the ability to contribute to the community. A sense of belonging is one of the basic needs of human beings, and there is a desire to be connected to a meaningful relationship within the organization to which one belongs. It simply refers to leading them to work for their own interests as well as for the interests of the community, and when they feel that they exert influence within the

community, they regard themselves as valuable and meaningful beings (Nelsen, Lott, & Glenn, 2000). Social interest means identification with others, and empathy, and is necessary to achieve social life with the attitude of seeing, hearing, hearing, and feeling with the eyes of others (Kim et al., 2013). Social interest refers to the attitude of life to become a person worthy of use in society, to have a real interest in others, to engage in community activities, and to realize the welfare of mankind.

2.3. Review of previous studies on each independent variable and gambling behavior

In recent studies, stress is known to be the cause of pathological gambling or a significant factor influencing the continuation of gambling behavior and is closely related to recurrence. High school students, the subject of this study, are under more stress than other age groups due to entrance examination stress, achievement pressures encountered in school life, influx of new cultures, and blind parents' expectations and demands (Park, 2002). Adolescents' stress and gambling behavior showed a positive correlation, and among the sub-factors of stress, family factors and material factors influence gambling behavior (Cho, 2018).

Teenagers make quick and easy choices in order to escape the stress that they cannot overcome on their own, which increases the risk of gambling behavior and gambling addiction. A study by Kwon and Jun (2011) reported that the higher the stress level of adolescents, the lower the ability to cope, the higher the likelihood of becoming a gambling addict. Recently, studies have been conducted on the fact that people gamble to reduce stress. In Korea, there are a lot of studies only on adults' stress and gambling behavior, but few studies have been conducted on teenagers.

Studies related to impulsivity showed that among the predictors of problematic gambling in adults, the strongest predictor of gambling severity was impulsivity. Early adolescent's impulsivity was designated as predictors of gambling behavior. It turned out that teenagers were highly impulsive in situations where their emotions were not properly expressed, or they were not aware of their emotional state (Jang, 2011). The gambling behavior of adolescents was motivated by impulsivity. Jang (2011) also revealed that as impulsivity increases, it is 1.5 times more likely to become a problematic gambler.

Although few cases of peer attachment and gambling behavior were directly studied, a study conducted separating gambling behavior offline and online. The results showed that peer relationships were not significantly correlated with online youth gambling behavior, but they had a negative effect on offline youth gambling behavior. The reason why there was no significant correlation online was because online gambling was related to doing it alone, not with peers. It was also said that peer relationships were the most influential factors among the independent variables of the study, such as stimulation, family cohesion, risk-taking, and peer relationships. Other studies have shown that gambling behavior of peer and peer co-operation affect gambling behavior of adolescents. The higher the propensity to support their peers who gamble, the greater the gambling behavior (Song, 2018). Kim (2016) and others, studying male college students in Seoul, said that mental health (stress, anxiety, depression), parental education attitude, and attachment had a significant correlation with gambling addiction levels. In terms of parenting attitude, the lower the level of caring, the more severe the overprotection, and the lower the anxiety in attachment, the higher the level of gambling addiction.

The prior studies on social interest and gambling behavior, and studies on four sub-factors of the social interest scale and gambling behavior have not been studied yet. In a study on parenting and gambling behavior, which are factors that continuously develop social interest, it was found that parental relationship serves as control variables for various problem behaviors for adolescents in the developmental stage. When the level of attachment to parents and parental support increases, adolescents' gambling behavior decreases, and when trust and communication with parents decrease, problem behavior increases (Langhinrichsen-Rohling et al., 2004). In particular, it was said that attachment to mothers directly and indirectly affects female adolescents' problem behaviors, and increases impulse control for male adolescents, which indirectly lowers their problem behavior.

2. 4. Research Questions and Hypotheses

The purpose of this study is to investigate the actual state of gambling behavior of high school students and how the psychosocial characteristics of high school students affect gambling behavior.

Research Question 1: What is the level of youth gambling behavior?

Research Question 2: Do psychosocial characteristics affect gambling behavior?

H1: The daily life stress of high school students will be positively related to gambling behavior.

H2: High school students' impulsivity will be positively related to gambling behavior.

H3: In high school students, secure attachment with peers would be negatively related to gambling behavior, and anxious and ambivalent attachment, avoidant attachment would be positively related to gambling behavior.

H4: In high school students, self, others, community, and spiritual interests will be negatively related to gambling behavior.

3. Method

3.1. Subjects

For this study, 256 students currently enrolled in high school were surveyed. For the questionnaire, 200 people responded to the online questionnaire, and 56 people were surveyed using the handwritten questionnaire offline.

Among the collected questionnaires, a total of 237 subjects were selected for the final analysis, excluding the questionnaire that did not answer the question to the end and 19 subjects who did not respond to the questionnaire unscrupulously for the study or provided personal information.

3.2. Assessment Instruments

3.2.1. Korean Canadian Problem Gambling Index(K-CPGI)

In this study, the Korean Canadian Problem Gambling Index (K-CPGI) was used, which was adapted in Korea and validated by the Industrial Integration Supervisory Commission. A scale is composed of 9 items and a 4-point Likert scale. The scores range from 0 to 27. 0 points are classified as 'not at all', 1 point is 'sometimes', 2 points is 'mostly yes', and 3 points is 'always so'. The higher the total score, the more serious the gambling problem is. 0 points are classified as 'nonproblem gamblers', 1 to 2 points are 'low risk gamblers', 3 to 7 points are 'middle risk gamblers', and 8 to 27 points are classified as 'problem gamblers'. The reliability coefficient (Cronbach's α) in this study is .882. In this study, the middle-risk gamblers and problem gamblers were classified as gambling addiction.

3. 2. 2. Korean Perceived Stress Scale for Adolescent, KPSS-A-10)

In this study, the scales used to determine the level of daily life stress were Korean Perceived Stress Scale for Adolescent (KPSS-A-10). This scale consists of zero to four points on a five-point Likert scale. The total sum ranges from zero to 64 points. A score of 0 is "never." It is said that the higher this is, the higher the self-awareness of the stresses they are experiencing in their daily life. In addition, this scale consists of 4 positive (items 4, 5, 7, 9) and 6 negative perception questions (items 1, 2, 3, 6, 8, 10). The reliability coefficient (Cronbach's α) in this study is .857.

3. 2. 3. Impulsivity inventory

This study used four questions related to impulsivity from the 'self-reporting measure for personality disorder diagnosis' (Korea University Institute of Behavioral Science, 1998). The contents of the questionnaire for this study were 'I am easily excited and often use violence', 'I can't stand if what I want is not done immediately', 'I can't stand it when I'm angry and my emotions explode', 'I'm not very interested in feeling and emotions of others. On a 5-point Likert scale, 1 point is 'not at all', 2 points 'almost not', 3 points 'normal', and 4 points 'mostly yes', 5 points 'always yes'. The total score ranges from 4 to 20, and the higher the total score, the higher the impulsivity. The reliability coefficient (Cronbach's α) in this study is .721.

3. 2. 4. Adolescent Friendship Attachment Scale(AFAS)

Adolescent Friendship Attachment Scale (AFAS) composed of 30 questions developed was adapted and validated. In this scale, attachment was divided into secure attachment, anxious and ambivalent attachment, and avoidant attachment. There are a total of 25 questions. It is 5point Likert scale, 1 point is 'not at all', 2 points is 'not so', 3 points is 'normal', 4 points is 'yes', 5 points is 'very yes'. The number of questions corresponding to secure attachment is 13 and can range from 13 to 65. There are 8 questions for anxious and ambivalent, ranging from 8 points to 40 points, and 4 questions for avoident attachment, ranging from 4 points to 20 points. The reliability coefficient (Cronbach's α) in this study is .721.

3. 2. 5. Social Interest Scale for youth

The scale used to measure the social interest of high school students was the social interest scale, which was made for adolescents through validation. This scale consists of 28 questions. Questions 1 through 7 of the questionnaire are Interest in Social Self (ISS), questions 8 through 14 are Interest in Others (IO), questions 15 through 21 are Interest in Community. Question 22 through 28 are Interest in Spirituality (IS).

This scale is a 4-point Likert scale, consisting of 1 point 'not at all', 2 points 'slightly', 3 points 'significantly', and 4 points 'very much'. For each area, the score can range from 7 to 28, and the total score can range from 28 to 112.

Social self-interest refers to the attitude of accepting oneself as it is and believing that one's own values are socially useful, while interest to others refers to the attitude to understand and express the hearts of others emotionally, taking the happiness of others seriously. Community interest refers to the attitude to be interested in the community to which one belongs and to help the community with the members of the community. Spiritual interest refers to an altruistic attitude to contribute to society beyond the community to which one belongs. In this study, the reliability coefficient (Cronbach's α) was .944, social self-interest was .914, others interest was .916, community interest was .876 and spiritual interest was .842.

3. 3. Research Model

In this study, based on previous studies, stress, impulsivity, peer attachment, and social interest, which are the psychosocial characteristics of adolescents, were selected as independent variables, and gambling behavior was set as dependent variables.

Control variables were gender and grade, which were included as demographic characteristics in this study. Gender was measured by dividing into 'male' and 'female', and grade was measured by dividing into '1st grade', '2nd grade' and '3rd grade'. The research model is shown in <Figure 1>.

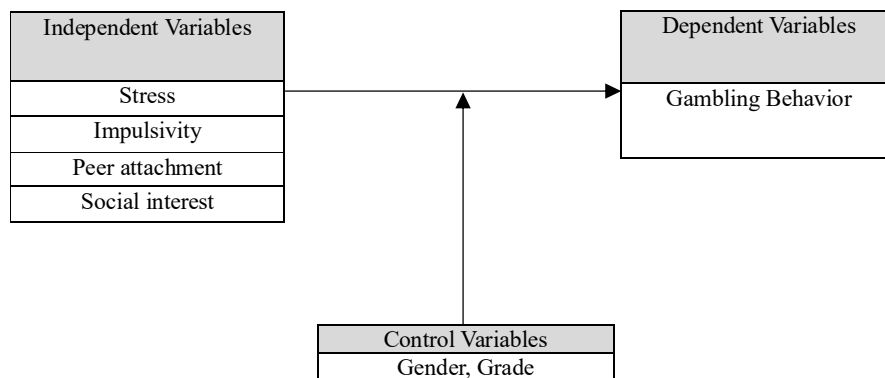


Figure 1: Research model

3. 4. Data analysis method

In this study, the collected data were processed using the IBM SPSS Statistics 26 statistical program to investigate the relationship between the psychological factors of high school students and gambling behavior, and the following analysis methods were performed in relation to the research questions.

First, a frequency analysis was performed to find out the general characteristics and gambling addiction level of adolescents. A cross-analysis was performed to find out the difference according to gender.

Second, a descriptive statistical analysis was conducted to determine the mean and standard deviation of each variable by dividing it into a group that has never gambled and a group that has ever gambled. T-test was performed to see if the difference between the mean scores of the factors is statistically significant.

Third, correlation analysis was conducted to understand the relationship between gambling behavior and each variable (stress, impulsivity, peer attachment, social interest).

Fourth, multiple regression analysis was carried out to find out which of the sub-factors of each variable (stress, impulsiveness, safety attachment, anxiety attachment, avoidance attachment, social self-interest, other people's interest, community interest, spiritual interest) has the greatest influence.

Fifth, a one-way analysis of variance of factors (stress, impulsivity, safety attachment, anxiety attachment, avoidance attachment, social self-interest, interest in others, community interest, and spiritual interest) according to the level of gambling addiction was conducted, and a post-test was conducted for factors of different degrees.

4. Results

4.1. Demographic characteristics

Of the total 243 subjects, male students were 123 (51.9%) and female students were 114 (48.1%), with little difference in gender.

111 students in the first year were accounted for 46.8%, 41 students in the second year (17.3%), and 85 students in the third year (35.9%). In summary, first graders showed significantly higher response rates than second and third graders (Table 1).

Table 1: Results of frequency analysis of subjects

		frequency	percentage (%)
Gender	male	123	51.9
	female	114	48.1
Grade	1	111	46.8
	2	41	17.3
	3	85	35.9
total		237	100

4.2. Adolescents' Gambling Problem Level

<Table 2> shows the results of frequency analysis to find out the level of adolescents' gambling problems.

Table 2: Adolescents' gambling behavior severity level frequency analysis results

		frequency	percentage (%)
no problem	0 point	167	70.5
low risk	1~2points	40	16.9
middle risk	3~7points	22	9.3
problem	more than 8points	8	3.4
total		237	100

There were 167 (70.5%) students with a youth gambling problem level of 'no problem'. Among the risk groups, 40 (16.9%) in the 'low risk group' and 22 (9.3%) in the 'medium risk group'. And 'problem gambling group' were 8 people (3.4%). In other words, 70 students have tried gambling at least once, and a total of 30 students in the "moderate risk group" and "problem gambling group" included in the prevalence of gambling addiction were 12.7% of the respondents.

Cross-analysis was conducted to find out the difference in the level of gambling problems according to gender. As a result of the analysis, it was found that male students had more serious gambling problems than female students ($\chi^2= 19.864, <.001$) (Table 3).

Table 3: Results of cross-analysis on the severity of gambling behavior by gender

	no problem	low risk	middle risk	problem	total	χ^2

Total (N = 237)	167 (70.5%)	40 (16.9%)	22 (9.3%)	8 (3.4%)	237 (100%)	19.864***
Gender - male (N = 123)	72 (58.5%)	26 (21.1%)	18 (14.6%)	7 (5.7%)	123 (100%)	
Gender - female (N = 114)	95 (83.3%)	14 (12.3%)	4 (3.5%)	1 (0.9%)	114 (100%)	

***p < .001

Descriptive statistics were conducted to find out the characteristics of adolescents' gambling behavior according to gender, and the results are shown in <Table 4>.

As a result of measuring adolescent gambling behavior characteristics, the overall average was 1.10, indicating that most of the students did not gamble or remained at a low risk level. A t-test was conducted to find out the difference in gambling behavior of adolescents according to gender. As a result, it was found that male students had greater gambling behavior than female students (t=4.564, p<.001).

Table 4: Gambling behavior by gender

		Mean	Standard deviation	t
total		1.10	2.95	4.564***
Gender	male	1.79	3.85	
	female	0.35	1.05	

***p < .001

4.3. Gambling behavior and psychosocial characteristics

To determine whether there is a difference in gambling behavior and psychosocial characteristics between 70 subjects who have experienced gambling and 167 subjects who have not played gambling, t-test was performed. The results are shown in Table 5.

Table 5: Comparison of psychosocial characteristics between a gambling and non-gambling group

		gambling group (N = 70)		non-gambling group (N = 167)		t
		Mean	SD	Mean	SD	
gambling behavior		3.71	4.49	0	0	10.725***
stress		19.82	5.39	19.69	5.12	.898
impulsivity		7.47	3.05	6.32	2.33	3.154*
peer attachment	secure	44.64	7.90	47.15	6.18	-0.737
	anxious and ambivalent	18.09	5.64	18.24	4.88	-0.211
	avoidant	9.74	3.33	9.88	2.79	-0.325**
social interest	self	20.00	5.01	20.05	5.18	-0.074
	others	22.00	5.37	23.53	3.82	-2.472**
	community	20.13	4.75	20.49	4.50	-0.555
	spirituality	19.86	4.59	20.75	4.26	-1.444

*p < .05, **p < .01, ***p < .001

There was no difference in the level of stress perception between the gambling and the non-gambling group. There was a significant difference in impulsivity (t= 3.514, <.05). In peer attachment, there was a significant difference only in avoidant

attachment ($t = -0.325, <.01$). In social interest, there was no difference in social self-interest, community interest, and spiritual interest, but there was a significant difference in interest of others ($t = -2.472, <.01$).

4.4. Correlation between stress, impulsivity, peer attachment, social interest and level of gambling behavior

Pearson's correlation analysis was conducted to determine the correlation between stress, impulsivity, peer attachment, social interest and gambling behavior. As a result, unlike the hypothesis, stress did not appear to have a significant relationship with gambling behavior. Impulsivity was found to have a significant relationship ($r = .382, <.01$). The three factors of peer attachment, such as secure attachment, anxious and ambivalent attachment, and avoidant attachment, did not show any significant correlation with gambling behavior.

There was also no significant correlation between social self-interest, interest in others, community interest, and gambling behavior, which are the four sub-factors of social interest, and gambling behavior.

Stress showed to be significant with community interest ($r = .133, <.05$). This means that the higher the stress, the higher the community's interest. Impulsivity showed a positive (+) correlation with anxiety and ambivalent attachment ($r = .284$), but there was a negative correlation with four elements of social interest ($r = -.248, p <.01$), interest in others ($r = -.278, p <.01$), community interest ($r = -.242, p <.01$) and spiritual interest ($r = -.208, p <.01$).

Secure attachments showed positive (+) correlations with social self-interest ($r = .307, <.01$), interest in others ($r = .555, <.01$), community interest ($r = .408, <.01$), and spiritual interest ($r = .405, <.01$). This means that social self-interest, interest in others, community interest, and spiritual interest are high if secure attachments with peers have been formed. Anxious and ambivalent attachment have shown a correlation of social self-interest ($r = -.356, <.01$), interest in others ($r = -.278, <.01$), community interest ($r = -.356, <.01$), and spiritual interest ($r = -.170, <.01$). Avoidant attachment showed negative correlations with social self-interest ($r = -.169, <.01$), other people's interest ($r = -.279, <.01$), community interest ($r = -.182, <.01$), and spiritual interest ($r = -.261, <.01$). This means that the stronger the avoidant attachment with teenagers, the less interest they have in themselves, others, communities, and spiritually (Tab. 6).

Table 6: Correlation of gambling behavior, stress, impulsivity, and social interest

	1	2	3	4	5	6	7	8	9	10
1 Gambling behavior	1									
2 Stress	.044	1								
3 Impulsivity	.382**	-.032	1							
4 Secure attachment	-.013	.017	-.064	1						
5 Anxious and ambivalent attachment	.022	-.041	.284**	-.202**	1					
6 Avoidant attachment	-.003	.037	.102	-.394**	.355**	1				
7 Interest in Self	.007	.064	-.248**	.307**	-.356**	-.169**	1			
8 Interest in Others	-.091	.062	-.278**	.555**	-.278**	-.279**	.452**	1		
9 Interest in Community	-.032	.133*	-.242**	.408**	-.356**	-.182**	.773**	.571**	1	
10 Interest in Spirituality	-.071	-.015	-.208**	.405**	-.170**	-.261**	.400**	.576**	.547**	1

p <.01 *p <.001

4.5. Regression Analysis of Adolescents' Gambling Behavior

<Table 7> shows the results of multiple regression analysis to find out how much stress, impulsivity, peer attachment, and social interest of the adolescents explain the level of gambling behavior.

As a result of multiple regression analysis, the model summary was $F = 5.033$ and it was found to be insignificant, so the regression model's suitability was not verified, and the rate of explaining the effect of all independent variables on gambling behavior was 16.6%. The standardization coefficient of stress was 0.055 and the value was 0.894, indicating that it was not statistically significant. Therefore, the level of stress perception cannot be considered as influencing gambling behavior.

Impulsivity ($p < .001$) was found to have a standardization coefficient of 0.418, and it was statistically significant. It could be said that impulsivity influenced gambling behavior. In other words, it was found that students with high impulsivity were more likely to gamble.

The secure attachment, anxious and ambivalent attachment, and avoidant attachment were not statistically significant. Therefore, all three factors of peer attachment have not effect on gambling behavior. The four factors for social interest have no effect on gambling behavior.

Table 7: Effects of psychosocial variables on youth gambling behavior

factor	gambling behavior		
	b	β	t
Stress	.031	.055	0.894
Impulsivity**	.473	.418	6.357
Secure attachment	-.007	-.015	-0.195
Anxious and ambivalent attachment	-.038	-.065	-0.921
avoidant attachment	-.025	-.025	-0.351
Interest in Social Self	.078	.135	1.393
Interest in Others	-.016	-.024	-0.270
Interest in Community	-.031	-.048	-0.431
Interest in Spirituality	-.006	-.009	-0.110
R2		.166	
F		5.033	

* $p < .05$, ** $p < .01$, *** $p < .001$

5. Discussion

5.1. Summary of the results

This study investigated the level of gambling behavior of adolescents and analyzed the effects of stress, impulsiveness, peer attachment, and social interest of adolescents on gambling behavior. The subjects of this study were students in the 1st to 3rd grades enrolled in high school, and a total of 256 copies of data were collected. For the analysis, 237 questionnaires were used, excluding 19 questionnaires for poor responses. Data analysis was conducted using the SPSS 26 program, frequency analysis to identify gambling problem level, cross-analysis to identify gambling problem level by gender, descriptive statistical analysis, t-test, correlation analysis, and multiple regression analysis, Bonferroni test was performed. The summary of the results is as follows.

First, because of finding out the level of gambling behavior of adolescents, 30 (12.7%) of the total respondents belonged to the medium-risk gambling and problem gambling group. The prevalence of gambling behavior including medium-risk group and problem gambling was found to be 10~15%, like that of previous studies (Kim, 2013). In addition, it was found that male students have a higher level of gambling behavior than female students. This was different from the research results of Cho (2017), which revealed that female students' gambling behavior level was higher than that of male students.

Second, the group was divided according to the presence or absence of gambling experience. There were significant differences in impulsivity ($t = 3.154, p < .05$), avoidant attachment ($t = -0.325, p < .01$), and interest in others ($t = -2.472, p < .01$)

between the gambling experience group and the non-experience group. This means that in the gambling experience group, the impulsivity is higher in the gambling experience group than in the gambling non-experience group. The gambling experience group tried to avoid attachment with peers and showed higher interest in others.

Third, as a result of conducting a correlation analysis, it was found that there is a positive (+) correlation between impulsivity and gambling behavior level as in the study of Song (2018). This is students with high impulsivity have a higher level of gambling behavior, and this study also found that the level of impulsivity and gambling behavior are correlated, so the hypothesis was adopted.

On the other hand, stress had no significant correlation with the level of gambling behavior. Secure peer attachment, anxious and ambivalent attachment, and avoidant attachment were all unrelated to the level of gambling behavior. Therefore, the hypothesis in this study was rejected.

Social self-interest, interest in others, community interest, and spiritual interest, which are the four sub-factors of social interest, have no significant correlation with the level of gambling behavior.

Fourth, multiple regression analyses to see how much each psychosocial variable affects the level of gambling behavior show that only impulsivity affects the level of gambling behavior.

5.2. Limitations of research

The limitations of this study are as follows: First, it is difficult to generalize all the findings to teenagers because the subjects were selected mainly by teenagers in the metropolitan area and the survey was conducted on a small number of high school students. Therefore, it is necessary to conduct further studies not only for high school students but also for all age groups of teenagers.

Second, in this study, since the survey subject answered the question based on his or her own experience and cognition, there is a possibility that a socially desirable response to the gambling level measurement item.

Third, in this study, it has been found that stress, impulsivity, peer attachment, and social interest had the effect on the level of gambling behavior of adolescents. However, gambling addiction is not only affected by the four factors, but by the complex interaction of various factors. Therefore, further research is needed to see what other factors influence the level of adolescents' gambling behavior.

Fourth, in this study, the online response method using the online questionnaire form and the offline response method by handwriting were combined as a questionnaire method. Therefore, it cannot be ruled out that data result values may differ due to the unfairness of respondents' environment in responding to the survey.

5.3. Implications and suggestions of research

The purpose of this study is to find out the actual status of adolescents' gambling behavior level and to provide basic data for developing a program to prevent adolescents' gambling behavior through research on the factors that influence the gambling behavior level of adolescents, and to prepare an alternative to gambling prevention education for adolescents. It can be said to have significance in the following points.

First, this study investigated impulsivity, stress, peer attachment, and social interest to identify factors that affect the level of youth gambling behavior. This has contributed to the integrated identification of factors affecting the level of gambling behavior in adolescents.

Second, existing prior studies were conducted mainly on adults and college students. Thus, to compensate for the limitations of existing prior studies, this study is significant in that it is selected for students at high school and can be used to establish basic data and approaches to future gambling-related problems at school.

Third, it is meaningful that the study related to social interest and youth gambling behavior level was conducted. Based on this, the following is suggested:

First, since this study has only studied the level of gambling behavior in adolescents, further studies of the type, frequency, and degree of gambling behavior in adolescents are needed.

Second, education is needed to properly recognize sense of money because adults as well as teenagers are more likely to fall into gambling due to financial motivation. Counseling and treatment services of gambling addiction, and parent education programs are needed to promote awareness of gambling problems.

Third, as mentioned earlier in the 2018 Youth Gambling Problem Survey, 69.9 percent said they did not have any preventive education experience to inform the dangers of betting games while attending school. Prevention education is currently

conducted in conjunction with local education offices, but it is only conducted in some areas. Therefore, there is a need for policies, programs, and support to ensure that schools and communities are aware of youth gambling and to promote appropriate intervention and cooperation.

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