Journal of
Addiction Research & Therapy

Shin et al., J Addict Res Ther 2017, 8:3
DOI: 10.4172/2155-6105.1000322

Research Article OMICS International

The Effects of Abuse, Emotion Regulation and Family Member's Gambling Problem on Problem Gamblers: Developmental Perspective

Hyun-Ji Shin, Young-Imm Choi* and Kyo-Heon Kim

Department of Psychology, Chungnam National University, Republic of Korea

***Corresponding author:** Young-Imm Choi, Department of psychology, Chungnam National University, Daehak-ro, Yusung-gu, Daejeon, Republic of Korea, Tel: 82-10-7449-0645; 82-42-821-6224; Fax: 82-42-821-8898; E-mail: psycho97@cnu.ac.kr

Received date: March 21, 2017; **Accepted date:** April 24, 2017; **Published date:** April 30, 2017

Abstract

The goal of this study was to identify the moderated mediating effect of family member's gambling problem on the connection between abuse, emotion regulation and problem gambling. To this end, a research model was tested among 642 adults (men: 473, women: 169) who gambled at least once a year and had been categorized as problem gamblers based on the CPGI score (8 and above). The study results were as follows: for men, abuse was identified to have a direct effect on problem gambling and an indirect influence on problem gambling by lowering their emotion regulation. In addition, men who experienced much abuse and had a family member with a gambling problem were found to suffer with a gambling problem of higher severity. This indicates that family member's gambling problem moderates the connection between abuse and gambling problem. As for women, history of domestic abuse affected emotion regulation, but emotion regulation did not mediate the connection between abuse and gambling problem. This study has its significance as it identifies the mechanism of family member's gambling problem from the perspective of developmental psychopathology, in addition to the mechanism of emotion regulation and gambling problem on the developmental path that negative childhood experience can lead to adjustment problem in adulthood.

Keywords: Abuse; Emotion regulation; Familial member's gambling problem; Problem gambling

Introduction

Gambling has some positive functions for individuals and society, as it serves as a medium of leisure and a source of capital in a country and local communities; however, it often plays a dysfunctional role among individuals, families, colleagues, workplaces, communities, and countries [1]. The severity of gambling problem can be seen in Diagnostic and Statistical Manual of Mental Disorders (DSM) by American Psychiatric Association (APA), and the problems that stem from dysfunctionality due to loss of self-control are defined as "disordered gambling" [2]. In the same vein, it is crucial to identify the factors influencing gambling problem. Shaffer and Korn highlighted the usefulness of a public health paradigm for gambling, while addressing the issue with a pathological model, which only focuses on individuals with gambling problem and cannot properly handle these problems that create great havoc not only for individuals but also for families and communities [3].

The core targets of a public health paradigm for gambling are agents, hosts, and environment; they focus on the interplay between these components, instead of approaching the individual targets separately. In gambling, the agent is the game that determines the outcome of gambling; the host is the individual participating in gambling; and the environment is the physical, socio-cultural surroundings where the game takes place. To discuss the details of the public health paradigm for gambling, let us examine the influencing factors of gambling problem by each component as follows [4]. First, from the host's perspective, the factors that influence gambling problem are exposure to traumatic events in childhood and lifetime [5], impulsivity [6], risk taking tendencies [7], and anxiety and/or depression [8]. From the perspective of environment, a narrow sense of environment, such as family and primary environment [9], as well as a large sense of environment, such as political, economic, and cultural environment of community [10], country and the world [11], is factors that can influence gambling problem. From the perspective of the agent, the influencing factors of gambling problem are the types of games: whether the outcome of the game is dependent on luck or the participant's knowledge and skill; whether the outcome of the game is notified immediately or not; and whether the competition is among the participants or between the client and the company [12]. In a public health paradigm for gambling, it is important to identify not only each individual factor of gambling problem but also the interplay of the elements. Among various factors of gambling problem, family is a particularly important factor that determines the well-being of individuals and continues to influence the individuals throughout their life; thus, familial problem should be discussed substantially in a public health paradigm for gambling [13]. Subsequently, it is essential to take family aspect into consideration, as it is the primary environment of individuals; if any of the family functions fails to perform properly, it can become a cause of involvement in gambling [14].

Among the familial factors that influence gambling problem, one factor is individual's exposure to abuse [15]. Hodgins et al. identified the correlation of childhood abuse with gambling problem by examining the difference in childhood abuse exposure after categorizing the Alberta residents of Canada based on the gambling severity into non-gamblers, non-problem gamblers, low-severity gamblers, moderate-severity gamblers and problem gamblers [16]. According to that study, the problem gamblers reported more severe abuse than regular groups; in particular, women reported to have been exposed to more serious physical neglect, emotional abuse, and sexual

abuse in comparison to men. Moreover, even when individual and social factors of gambling problem, such as status of substance abuse (alcohol or other drug use), family environment, psychological stress, and anti-social disorders were controlled, childhood abuse exposure was identified to be a predictor of the gambling behaviors and the cause for severity of this problem [16]. These findings indicate that exposure to abuse in childhood can influence the gambling problem in adulthood.

Meanwhile, those who are exposed to abuse may suppress the emotion or acquire mal-adaptive emotion regulations [17] and manifest the behavior of failed self-control, such as addiction [18,19]. Targeting the adolescents who were emotionally abused by parents, Shin investigated the direct and indirect paths that influence the internalization and externalization of problem behaviors [18]. The study results showed that parental abuse of adolescent children could directly cause the internalization and externalization of problem behaviors, but simultaneously hinder emotional perception and cause problem behaviors indirectly. In addition, Shin also identified that parent's emotional abuse could result in internalizing of problem behaviors through the mechanism of suppressing adolescent's emotional expression and indirectly cause internalization and externalization of problem behaviors through the avoidant/distractive emotional regulation style. This finding indicates that subjects who were exposed to parents' emotional abuse, because of the failure to learn proper response to negative emotions that function as the individual's internal or external informants essential for adjustment, may continue to avoid the relevant stimulation, such as the situation that provokes negative emotions, unable to accept his or her own emotion, failure to regulate their emotions, and eventually manifest problem behaviors. In other words, familial abuse exposure can not only directly influence gambling problem; it can also indirectly influence this gambling problem because of inadequately acquired emotion regulation.

Komoto's study mentioned the background and the treatment process for a patient who had been continuously involved in gambling behaviors to reduce negative emotions and eventually became a pathological gambler [20]. The subject held bitterness toward his abusive alcoholic father and guilty feeling toward his mother, who had to work hard because of his father's incapability to support the family. To relieve such negative emotions, he preoccupied himself with gambling after work and became a pathological gambler. Subsequently, the counselor discussed his negative emotions, using Naikan (self-reflection) therapy, and helped the patient relieve his guilt. Thus, the subject could control gambling behaviors. In view of the seriousness of the process, inability to cope with (negative) emotions can lead to self-control failure; at this point, inappropriate emotion regulation may have stemmed from the exposure to familial abuse in childhood. This clearly shows that abuse in childhood not only causes self-control failure, which is associated with negative childhood development from developmental psychopathological perspective [21-23]; but abuse in childhood also continues to influence adulthood psychopathology [24-27].

Moreover, some previous studies pointed out that among environmental factors, according to a public health paradigm for gambling, not only individual factors but also family factors can be a significant contributor to gambling problem. To be specific, Black et al. addressed gambling problem as a family problem, by confirming that the group of pathological gamblers had a higher number of pathological gambler relatives in comparison to the control group [28]. Meanwhile, the chances of individuals developing gambling problem increased when one of the spouses [29] or one of the siblings [30] was a problem or pathological gambler. Furthermore, when there is a gambler in the family, the risk of gambling problem can increase in other generations beyond the same generation. In other words, when one of the children is a problematic or pathological gambler, the chance of a parent developing gambling problem can increase [31] and vice versa: When a parent is a problematic or pathological gambler, the chance of children developing gambling problem can also increase [32,33].

Although there is an increase in the number of empirical studies proving that familial factors as well as individual factors can influence gambling problem, few studies have conducted research on how childhood experience interplay with familial factors in adulthood and influence gambling problem. Most studies related to gambling so far have inferred the connection between individual and familial factors of gambling problem by conducting correlation or regression analysis of variables [16], t-test or ANOVA [16] and chi-square test [34]. However, the intervention with regard to gambling problem requires identification of specific path between variables of gambling problem. From this context, the present study is a cross-sectional study, with a goal to identify the specific path between the variables of gambling problem.

Meanwhile, many studies about emotion regulation reported the difference in emotion regulation by gender [35,36]. Most studies presented their finding that girls have better emotion regulation than boys. The difference in emotion regulation by gender is known to originate from biological difference (such as disposition), cultural difference or socialization process [35-38]. According to neuroscience researches that are being conducted actively in recent years, gender-based differences are reported in close connection to emotion regulation [39], which implies the probability of gender-based discrepancy due to biological sex differences. Furthermore, in cultures that prefer boys and promote patriarchal system as in Korea, gender-based difference in emotion regulation may be present in the process of socialization due to the different parenting styles for each sex.

In addition, there can be difference in emotion regulation by age. According to Carstensen, young adults give priority to obtaining things and knowledge necessary for future because there is much time left to live, whereas older people prioritize present well-being as they age and feel that their days are numbered in comparison to young adults [40]. Such difference in perspective of remaining life affects the motivation for behaviors; older people compared to young adults have a stronger motivation for emotion regulation to minimize negative emotions and maintain positive ones. In other words, as people age, they tend to regulate negative emotions more effectively [41].

In other words, although the emotion regulation is a factor that affects the gambling problem, the effect on the gambling problem can be different depending on gender and age. It is reported that there is a significant difference in the severity of gambling problem according to demographic factors [42] such as gender, age, income level and marital status. However, it is not result of the demographic factors that determine the severity of the gambling problem; it can be a result of behavior acquired through various experiences, psychological weakness in developmental viewpoint. So that, it is necessary to consider developmental perspectives such as gender and age in order to grasp more deeply the role of factors affecting gambling problem.

Accordingly, the present study aimed to take gender and age into account when identifying the mediating effect of emotion regulation between familial abuse and gambling problem, and the mediating effect of family member's gambling problem between familial abuse, emotion regulation, and gambling problem. Research hypotheses and research model (Figure 1) were established based on previous studies.

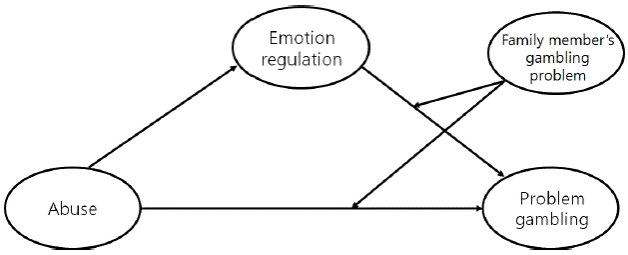

Figure 1: Error! bookmark not defined, moderated mediation model from literature review.

Research question 1: How do abuse, emotion regulation, family member's gambling problem, and problem gambling differ by gender and age?

Research question 2: Does emotion regulation mediate the effect of abuse on problem gambling?

Research question 3: Is the connection between abuse, emotion regulation and problem gambling moderated by family member's gambling problem?

3-1: Is the connection between abuse and problem gambling moderated by family member's gambling problem?

3-2: Is the connection between emotion regulation and problem gambling moderated by family member's gambling problem?

Methods

Participants

From the online panel data within a study on psychological, socio-cultural model development for understanding gambling problem in Korea[1], the present study selected 642 people who belonged to the category of problem gamblers. The characteristics of participants were as follows. By gender, 473 participants were men (73.7%) and 169 were women (26.3%); by age, 106 participants were in their 20s (16.5%), 248 in their 30s (38.6%), 167 in their 40s (26.0%), and 121 in their 50s (18.8%). By educational level, 3 participants were middle school graduates (0.5%); 91 were high school graduates (14.2%); 468 were either college graduates or college students (72.9%); 80 were either in graduate school or had a graduate degree (12.5%). By the type of gambling the participants did the most within the recent 6 months, 324 people bought lottery tickets (50.5%); 78 people participated in friendly games for socialization (12.1%); 64 people bought sports lottery tickets (10.0%); 63 played online entertainment games (9.8%); 39 betted on horse racing (6.1%); 24 betted on bicycle racing (3.7%); 14 participated in illegal gambling activities (2.2%); 6 played casino games (0.9%); 4 betted on boat racing (0.7%); and 3 betted on bull fight (0.5%).

Measures

Problem gambling

To measure gambling problems, this study utilized the Korean version of Canadian Problem Gambling Index (K-CPGI) based on the Canadian Problem Gambling Index (CPGI) developed by Ferris and Wynne [43,44]. The scale consists of one single factor, and there are 9 questions to measure the following areas: excessive betting, tolerance, chasing, borrowing, problem recognition, negative effects on health, criticism, financial problems, and feelings of guilt. Each question is measured on a 4-point scale (0=Never, 1=Sometimes, 2=Most of the time, 3=Almost always); the total score ranges from 0 to 27. Because K-CPGI does not have an approved standard score, this study categorized the groups based on the CPGI standard score suggested by Ferris and Wynne [43]. The participant whose CPGI score was 0 was classified as No-Problem Gambling; 12 points as Low-risk Gambling; 37 points as Moderate-risk Gambling; and 827 points as Problem Gambling. The present study analyzed the participants who scored 8 and above. Cronbach α was 0.772, which was a reliable level.

Abuse

To measure the exposure to abuse, this study revised Lee's abuse scale for adolescent victims and used the three following questions [45]. Three items were summed to assess family abuse: (a) Either a parent or a guardian has hit me on the face/the head or slapped me on the face before; (b) With extremely high expectation and interest, either a parent or a guardian has interrupted or controlled me before; when the expectation was not met, I was criticized or scolded; (c) Either a parent or a guardian has said something critical or insulting before. Each item was measured on 4-point Likert scale as follows: 0=Never, 1=Sometimes, 2=Most of the time, and 3=Almost always. Cronbach α, measured for reliability in this study was 0.806, which was a reliable level.

Emotion regulation

To measure the emotion regulation, this study selected two questions from the Emotion Quotient Survey for Adults developed by Moon. Two items were summed to assess emotion regulation ability: (a) When I am upset with someone, I keep thinking about the offence (-), and (b) When things do not go the way I desire, I tend to become irritable (-). Each item was rated on a 5-point Likert scale, from "Strongly agree" to "Strongly disagree": 1=Strongly disagree, 2=Slightly disagree, 3=Neither agree nor disagree, 4=Slightly agree, and 5=Strongly agree. Cronbach α in this study was 0.691.

Family member's gambling problem

To measure family member's gambling problem, this study used one item: "Do you have anyone family members or relatives who caused a problem due to gambling?" The item was measured with "1=Yes" or "0=No".

[1] Kyo-Heon Kim's study, "Psychological, socio-cultural model development for understanding gambling problem in Korean society.

Results

Differences in family abuse, emotion regulation, family member's gambling problem and gambling problem by gender and age.

To verify whether there is any discrepancy in family abuse, emotion regulation, and gambling problem by gender and age, two-way ANOVA was performed. Table 1 shows the gender-based descriptive statistics of family abuse, emotion regulation competency, familial gambling problem and gambling problem. Table 2 shows the result of two-way ANOVA on abuse, emotion regulation and gambling problem by gender and age.

M(SD)															
	Family abuse					Emotion regulation					Gambling problem				
	20-29	30-39	40-49	50-59	All	20-29	30-39	40-49	50-59	all	20-29	30-39	40-49	50-59	all
	(N=106)	(N=248)	(N=167)	(N=121)	(N=642)	(N=106)	(N=248)	(N=167)	(N=121)	(N=642)	(N=106)	(N=248)	(N=167)	(N=121)	(N=642)
Men	3.632	4.079	3.937	3.750	3.907	5.265	5.41	5.52	5.43	5.423	12.206	12.854	11.937	11.95	12.323
(N=473)	2.022	2.119	1.951	1.684	1.975	1.367	1.456	1.452	1.32	1.412	3.299	3.731	3.675	3.433	3.608
Women	3.842	4.171	3.825	3.762	3.964	4.763	4.700	4.925	5.19	4.828	12.447	12.529	11.45	12.571	12.26
(N=169)	2.224	2.106	2.319	2.189	2.182	1.567	1.517	1.474	1.692	1.535	4.011	3.646	3.602	4.664	3.849
Total	3.708	4.105	3.910	3.752	3.922	5.085	5.210	5.377	5.388	5.266	12.292	12.762	11.82	12.058	12.307
(N=642)	2.088	2.112	2.038	1.771	2.030	1.455	1.505	1.475	1.387	1.468	3.554	3.703	3.653	3.661	3.67

Table 1: Descriptive statistics of abuse, emotion regulation, and gambling problem by gender and age (N=642).

As shown in Table 2, gender-based difference was displayed only in emotion regulation. To be specific, men were found to have higher level of emotion regulation than women [F (1,634)=13.176, p<0.001]. However, no significant difference was found in family abuse and gambling problem [family abuse: F(1,634)=0.909, gambling problem: F(1,634)=0.479].

Connection between emotion regulations, family member's gambling problem and problem gambling

To examine the connection between abuse, emotion regulation, family member's gambling problem, and problem gambling, correlation analysis was performed. Because gender-based discrepancy was confirmed in emotion regulation, gender was analyzed separately. Table 3 shows the results of correlation analysis of abuse, emotion regulation, family member's gambling problem and problem gambling by gender.

As presented in Table 3, abuse and problem gambling had a significant positive correlation for men and women (men: r=0.258, p<0.001, women: r=0.295, p<0.001). In addition, abuse and emotion regulation had a significant negative correlation for men and women (r=-0.230, p<0.001, women: r=-0.249, p=0.001). Family member's gambling problem had a significant positive correlation with problem gambling for men and women (men: r=0.219, p<0.001, women: r=0.154, p=0.046). In other words, participants with a high exposure to abuse and the presence of a gambler in the family were found to have a more severe problem gambling. Moreover, the participants with a higher exposure to abuse were found to have lower emotion regulation.

	Family abuse				Emotion regulation				Gambling problem			
	df	Mean square	F	p	df	Mean square	F	p	df	Mean square	F	p
Gender (A)	1	0.271	0.065	0.798	1	27.642	13.176***	0	1	0.017	0.001	0.972
Age (B)	3	4.551	1.1	0.349	3	1.907	0.909	0.436	3	25.217	1.878	0.132
A*B	3	0.512	0.124	0.946	3	1.004	0.479	0.697	3	6.314	0.47	0.703
Error	634	4.138			634	2.098			634	13.431		

Table 2: Descriptive statistics of abuse, emotion regulation, and gambling problem by gender and age (N=642), ***p<0.001.

The effect of family member's gambling problem on the connection between abuse, emotion regulation and gambling problem

To verify the moderating effect of family member's gambling problem between abuse, emotion regulation, and gambling problem, the present study utilized Hayes's PROCESS and analyzed the data using Model 15 [46]. The result of analyzing the moderated mediation is presented in Table 5.

First, the result of analyzing men's data with regard to Research question 2 is as follows. For men, it was found that emotion regulation partially mediated between abuses and gambling problem. In other

words, for men, abuse could lower the level of emotion regulation (B=-0.165, p<0.001); decreased emotion regulation due to exposure to abuse could increase gambling problem (B=-0.539, p<0.001), while abuse directly influenced gambling problem positively (B=0.187, p=0.049).

	1	2	3	4
1. Problem gambling		0.295***	-0.103	0.154*
2. Abuse	0.258***		-0.249	0.052
3. Emotion regulation	-0.238	-0.23		0.017
4. Family member's gambling problem	0.219***	0.152**	-0.102	

Table 3: Correlation between abuse, emotion regulation, family member's gambling problem, and problem gambling (N=642), **p<0.05, **p<0.01, ***p<0.001, For family member's gambling problem, "Yes" to the gambling problem in family was coded as "1," and "No" to the gambling problem in family was coded as "0", The numbers below the diagonal line show the result of correlation analysis on men; the numbers above the diagonal line show the result of correlation analysis on women.

Second, the result of analyzing men's data with regard to Research question 3 is as follows. For men, as shown in Table 4, the mediating effect of emotion regulation and family member's gambling problem (Research question 3-1) on gambling problem was not significant (B=0.323, p=0.214, LLCI= -0.187, ULCI=0.834); however, the mediating effect of the exposure to abuse and family member's gambling problem (Research question 3-2) on gambling problem was found to be significant (B=0.592, p=0.001, LLCI=0.236, ULCI=0.948). In other words, the connection between family abuse exposure and gambling problem was moderated by family member's gambling problem. Figure 2 presents the graph that describes in detail the moderating effect of family member's gambling problem on family abuse and gambling problem. As Figure 2 shows, when there was a low exposure to abuse, the levels of problem gambling did not vary depending on the status of family member's gambling problem, whereas when there was a high level of abuse, the participants with gambling problem in the family were more vulnerable to gambling problem.

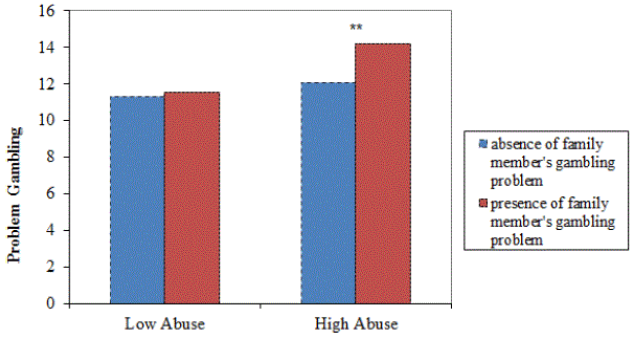

Figure 2: Analysis of direct effect and simple effect.

First, the result of analyzing women's data with regard to Research question 2 is as follows. For women, the mediating effect of emotion regulation was not significant. Among women, the exposure to family abuse influenced emotion regulation (B=-0.175, p=0.001) and gambling problem (B=0.439, p=0.009), but emotion regulation did not mediate between abuse and gambling problem (B=-0.216, p=0.324).

	B	SE	t	p	R^2	Research question
Mediation variable: Emotion regulation					0.053***	
Constant	6.066	0.140	43.236	0.000		Research question 1
Abuse	-0.165	0.032	-5.139	0.000		
Dependent variable: Problem gambling					0.149***	
Constant	14.117	0.885	15.952	0.000		Research question 2
Emotion regulation	-0.539	0.13	-4.157	0.000		
Abuse	0.187	0.095	1.972	0.049		
Family member's gambling problem	-2.806	1.732	-1.620	0.106		
Emotion regulation × Family member's gambling problem	0.323	0.260	1.244	0.214		Research question 3-1
Abuse × Family member's gambling problem	0.592	0.181	3.267	0.001		Research question 3-2

Table 4: Moderated mediation analysis: variables for men (N=473), **p<0.05, ***p<0.001.

Second, the result of analyzing women's data with regard to Research question 3 is as follows. For women, as shown in Table 5, the mediating effect of emotion regulation and family member's gambling problem on gambling problem (Research question 3-1, B=0.538, p=0.232, LLCI=-0.347, ULCI=1.423) and the mediating effect of abuse and family member's gambling problem (Research question 3-2, B=0.204, p=0.480, LLCI=-0.365, ULCI=0.772) were both found to be not significant.

Discussion

The present study investigated the moderated mediation effect of family member's gambling problem on the connection between abuse, emotion regulation, and gambling problem. As there is a report on gender-based discrepancy in emotion regulation, which is one of the factors of gambling problem [35,36], the present study examined each gender group for mediation effect of emotion regulation on the connection between family abuse and gambling problem, as well as the moderated mediation effect of family member's gambling problem on the connection between family abuse and emotion regulation. To this end, the research model was verified among adults who had participated in gambling at least once a year and had been categorized as problem gamblers based on CPGI. The research showed the following result. For women who had a higher exposure to family abuse, a low level of emotion regulation was observed; however, the low emotion regulation did not impact gambling problem. In contrast, for men, exposure to family abuse was found to directly impact gambling problem; furthermore, men with more exposure to family abuse had lower level of emotion regulation, which impacted gambling problem. Accordingly, the mediation effect of emotion regulation was verified. In addition, for men, family member's gambling problem status was found to moderate the effect of family abuse exposure and emotion regulation on gambling problem. In other words, people with high exposure to family abuse were found to experience more serious gambling problem when there was a gambling problem in the family.

	B	SE	t	p	R^2	Research question
Mediation variable: Emotion regulation					0.053***	
Constant	6.066	0.140	43.236	0.000		Research question 1
Abuse	-0.165	0.032	-5.139	0.000		
Dependent variable: Problem gambling					0.149***	
Constant	14.117	0.885	15.952	0.000		Research question 2
Emotion regulation	-0.539	0.130	-4.157	0.000		
Abuse	0.187	0.095	1.972	0.049		
Family member's gambling problem	-2.806	1.732	-1.620	0.106		
Emotion regulation × Family member's gambling problem	0.323	0.260	1.244	0.214		Research question 3-1
Abuse × Family member's gambling problem	0.592	0.181	3.267	0.001		Research question 3-2

Table 5: Moderated mediation analysis: Variables for women (N=169), **p<0.05, ***p<0.001.

Such results cannot be directly compared with existing data because there are few studies that analyzed the pathway model of the correlation between childhood abuse history, emotion regulation, family member's gambling problem, and gambling problem; however, the finding of this study is consistent with a study result that childhood abuse history can impact gambling problem [16] and with a study result that the presence of a gambling problem in the family can exacerbate the severity of the individual's gambling problem [47]. Moreover, the finding of this study is validated by Flores's perspective that described individual's addiction problem in relation to attachment problem during childhood [48]. In other words, those who have unmet desire for intimacy during childhood due to exposure to child abuse may continue gambling behaviors as compensation and end up with gambling problem. In addition, childhood abuse exposure may have weakened the ability to regulate one's emotions in a functional manner and led the individual to perpetuate compulsive gambling behaviors. Particularly, when there is a gambling problem in the family, the chance of meeting the desire for intimacy becomes less feasible; thus, a family member's gambling problem with much exposure to family abuse can even maximize its impact on gambling problem.

Meanwhile, the finding of this study was contrary to previous study findings that women have a higher level of emotion regulation than men [35,36]. To be specific, the examination of gender-based difference in strategies for emotion regulation showed that women, compared to men, more frequently used rumination, which is a negative strategy for emotion regulation [49], and that women are more likely to respond to their own emotions and other people's emotions sensitively and experience negative emotions [50]. In other words, because women respond to negative emotions more sensitively than men do, the participants in the present study may have indicated that they are not as good as men at controlling their emotions and feelings when answering the question about emotion regulation. In addition, the items that measure the emotion regulation include a question about rumination. Because rumination is a strategy women frequently adopt to regulate negative emotions [49], it is probable that women demonstrated a lower level of emotion regulation than men. This phenomenon can be characteristic of this sample group. Considering the fact that women gamble to avoid negative emotions, while men participate in gambling seeking excitement [51], this study's sample of pathological gamblers may have demonstrated lower

emotion regulation among women. Besides, women tend to prioritize the relationship with others and are more likely to perceive family abuse exposure as a trauma, which may have produced the result different from previous studies on gender-based emotion regulation. Subsequently, it is probable that emotion regulation influenced gambling problem in the men's group of pathological gamblers, while the effect of emotion regulation on gambling problem in the women's group of pathological gamblers was insignificant.

The findings of this study indicate the need for different interventions based on gender at the time of making clinical intervention for gambling problem. As for men, improving emotion regulation during the intervention for gambling problem can bring a positive outcome; for women, it is essential to make intervention for coping with negative emotions derived from abuse exposure rather than to improve emotion regulation. In other words, if the desire for gambling is related to negative emotions, implementing intervention on emotion rather than making a direct intervention for gambling problem can increase the therapeutic effect [20]. For example, it is helpful to educate men about how to improve their emotion regulation and to provide them with opportunities to practice and train. However, it is helpful for women to have the psychotherapeutic approach such as counseling to recognize and resolve negative emotion experiences. This aligns with the suggestion made by Burns, Fischer, Jackson, and Harding that along with the effort to improve emotion regulation, the intervention on trauma can prevent negative outcome based on compulsive behaviors [52]. Aside from this, the aforementioned clinical implication is as follows: the effect of therapy is expected to increase even more when family is involved in comparison to when the therapy focuses only on the individuals with gambling problem. Heineman also verified that offering family education along with treating individual patients had a better improvement effect for treating alcohol addicts [53].

The findings of this study not only provide implications from clinical perspective but also implications for studies on gambling problem. This study attempted to understand gambling problem from a macroscopic perspective, just as in the Leisure, Lifestyle and Lifecycle Project (LLLP), which was a longitudinal study done in the span of five years (2006-2011) targeting Alberta residents not only to predict the prevalence of gambling addiction but also to identify biological, psychological, and social factors that can predict a wide spectrum of gambling behaviors from responsible gambling to problem gambling [54]. Kim's longitudinal study, which has been conducted for 3 years (2013-2015) for building psychological, socio-cultural model to understand gambling problems in Korea, also underlies the significance of comprehending gambling problem from a macroscopic perspective [55]. In this vein, the finding of this study has its significance as it verified that an individual's family, who could impact the individual most directly, can influence one's gambling problem. Although the analysis of the present study utilized cross-sectional data from Kim's three-year longitudinal study, it would be possible to investigate the effect of family abuse exposure, emotion regulation, family member's gambling problem on gambling problem from a longitudinal perspective if the three-year long data collection was complete [55]. In particular, in the follow-up studies, it would be crucial to examine how stress can influence gambling problem as LLLP, a longitudinal study performed from a macroscopic perspective, identified stress as a factor that initiates gambling behaviors. The LLLP longitudinal study postulated that individuals with negative attributes in family history, biological factor, disposition/personality factor, cognitive factor, family environment and non-family environment factor become involved in gambling behaviors due to stressors/life events and as a result, gambling problem may emerge. Coman et al.'s study also mentioned stress as an influencing factor that initiates problem gambling [56]. Accordingly, future studies can gain greater implications if they investigate the influencing factors of gambling problem by taking stressors/life events into consideration.

The present study is significant as it identified the role of family and primary environment that influences individuals, based on the public health paradigm for gambling, which provides a framework for a macroscopic perspective and provides relevant implications; nevertheless, follow-up studies can provide greater implications if they include the role of agent (one of the core targets) within a public health paradigm for gambling. Furthermore, future studies can employ experimental research or longitudinal study to identify the causal connection between the factors of gambling problem so that they can investigate more clearly, from a perspective of developmental psychopathology, the pathway that develops the negative exposure in childhood into maladaptive problems in adulthood. Also, this study focuses on psychological factors and aims to reveal the specific mechanisms of emotional regulation and family gambling problem in the developmental pathway where negative experiences of childhood lead to maladaptive problems in adulthood. However, according to fMRI study on problem gamblers [57] and environmental factors were also related to the severity of gambling problems [58], further research will need to be reviewed not only from a psychological point of view but also from a biological point of view and a social/cultural point of view. And comparing the result of this article to articles that there is increase of alcohol use when person have friend who spend time drinking alcohol and experiencing difficulties of emotion regulation [59] there seems to be a similar aspect between behavioral addiction, such as gambling problems and drug addiction.

Conclusion

In other words, a comparative study of behavioral addiction and drug addiction would reveal a common mechanism that could propose various approaches that could be used in clinical settings for drug addiction as well as behavioral addiction.

Acknowledgement

This work was sponsored by the National Research Foundation of Korea Grant under the Korean Government (NRF-2013S1A5A2A03045658). We would also like to acknowledge the help of the Macromill Embrain.

References

1. Kim KH (2006) Self-regulation model of gambling behavior: The extension of common-sense model. Korean Journal of Psychology: Clinical Health 11: 243-274.
2. Kwon SJ, Kim KH (2011) Comparison of gambling addiction diagnostic tool DSM-IV and DSM-5: Focusing on prevalence estimation. Korean Psychological Association Annual conference presentation thesis collection, 305. Jeonju: Chonbuk National University.
3. Shaffer HJ, Korn DA (2002) Gambling and related mental disorders: a public health analysis. Annu Rev Public Health 23: 171-212.
4. Kim KH (2009) Responsibility and measure for Korean gambling addiction problem. Korean Journal of Psychology: Clinical Health 14: 27-39.
5. Scherrer JF, Xian H, Kapp JMK, Waterman B, Shah KR, et al. (2007) Association between exposure to childhood and lifetime traumatic events

and lifetime pathological gambling in a twin cohort. J Nerv Ment Dis 195: 72-78.

6. Steel Z, Blaszczynski A (1998) Impulsivity, personality disorders and pathological gambling severity. Addiction 93: 895-905.
7. Gupta R, Derevensky JL, Ellenbogen S (2006) Personality characteristics and risk-taking tendencies among adolescent gamblers. Can J Behav Sci 38: 201.
8. Blaszczynski A, McConaghy N (1989) Anxiety and/or depression in the pathogenesis of addictive gambling. Int J Addict 24: 337-350.
9. Kalischuk RG, Nowatzki N, Cardwell K, Klein K, Solowoniuk J (2006) Problem gambling and its impact on families: A literature review. International Gambling Studies 6: 31-60.
10. Yeon MY (2006) The effect of adolescent's impulsivity, family gambling severity and residential district on gambling behaviors, gambling belief and future motivation for gambling. Korean Journal of Psychology: Cultural and social problem 12: 1-14.
11. Raylu N, Oei TP (2004) Role of culture in gambling and problem gambling. Clin Psychol Rev 23: 1087-1114.
12. Griffiths M, Wood RT (2000) Risk factors in adolescence: The case of gambling, videogame playing and the internet. J Gambl Stud 16: 199-225.
13. Korn D, Gibbins R, Azmier J (2003) Framing public policy towards a public health paradigm for gambling. J Gambl Stud 19: 235-256.
14. Sung JM, Kim JJ (2014) A study on the risk and protective factors influencing addiction of gambling industry users at off-track betting place. Health and Social Welfare Review 34: 135-164.
15. Chambers RA, Potenza MN (2003) Neurodevelopment, impulsivity, and adolescent gambling. J Gambl Stud 19: 53-84.
16. Hodgins DC, Schopflocher DP, el-Guebaly N, Casey DM, Smith GJ, et al. (2010) The association between childhood maltreatment and gambling problems in a community sample of adult men and women. Psychol Addict Behav 24: 548.
17. Cassidy J (1994) Emotion regulation: Influences of attachment connections. Monogr Soc Res Child Dev 59: 228-249.
18. Shin HY, Choi HR (2003) Correlation between parental abuse, aggression and interpersonal anxiety- Focusing on 4-6th graders. Korean
19. Cho SK, Han JS (2014) Effect of parenting style on college student's risk for gambling addiction. Korean Psychological Association Annual conference presentation thesis collection, 460, August 28-30, 2014. Seoul: Ewha Womans University.
20. Komoto Y (2015) Brief intervention based on Naikan therapy for a severe pathological gambler with a family history of addiction: Emphasis on guilt and forgiveness. Asian J Gambl Issues Public Health 5:1-8.
21. Egeland B (2009) Taking stock: Childhood emotional maltreatment and developmental psychopathology. Child Abuse Negl 33: 22-26.
22. Shaffer A, Yates TM, Egeland BR (2009) The relation of emotional maltreatment to early adolescent competence: Developmental processes in a prospective study. Child Abuse Negl 33: 36-44.
23. Yates TM, Wekerle C (2009) The long-term consequences of childhood emotional maltreatment on development: (Mal) adaptation in adolescence and young adulthood. Child Abuse Negl 33: 19-21.
24. Briere J, Runtz M (1990) Differential adult symptomatology associated with three types of child abuse histories. Child Abuse Negl 14: 357-364.
25. Grilo CM, Masheb RM (2001) Childhood psychological, physical, and sexual maltreatment in outpatients with binge eating disorder: Frequency and associations with gender, obesity and eating-related psychopathology. Obes Res 9: 320-325.
26. Hankin BL (2005) Childhood maltreatment and psychopathology: Prospective tests of attachment, cognitive vulnerability and stress as mediating processes. Cogn Ther Res 29: 645-671.
27. Spertus IL, Yehuda R, Wong CM, Halligan S, Seremetis SV (2003) Childhood emotional abuse and neglect as predictors of psychological and physical symptoms in women presenting to a primary care practice. Child Abuse Negl 27: 1247-1258.
28. Black DW, Monahan PO, Temkit M, Shaw M (2006) A family study of pathological gambling. Psychiatry Res 141: 295-303.
29. Lorenz VC, Yaffee RA (1988) Pathological gambling: Psychosomatic, emotional and marital difficulties as reported by the spouse. J Gambl Behav 4: 13-26.
30. Lorenz V (1987) Family dynamics of pathological gamblers. In T. Galski (Ed.), The handbook of pathological gambling (pp. 71-88). Springfield IL: Charles C. Thomas.
31. Jacobs DF, Marston AR, Singer RD, Widaman K, Little T, et al. (1989) Children of problem gamblers. J Gambl Behav 5: 261-268.
32. Heineman M (1989) Parents of male compulsive gamblers: Clinical issues/treatment approaches. J Gambl Stud 5: 321-333.
33. Moody G (1989) Parents of young gamblers. J Gambl Behav 5: 313-320.
34. Dowling NA, Jackson AC, Suomi A, Lavis T, Thomas SA, et al. (2014) Problem gambling and family violence: Prevalence and patterns in treatment-seekers. Addict Behav 39: 1713-1717.
35. Eisenberg N, Fabes RA, Bernzweig J, Karbon M, Poulin R, et al. (1993) The relations of emotionality and regulation to preschoolers' social skills and sociometric status. Child Dev 64: 1418-1438.
36. Weinberg MK, Tronick EZ, Cohn JF, Olson KL (1999) Gender differences in emotional expressivity and self-regulation during early infancy. Dev Psychol 35: 175.
37. Kang JH (2003) Correlation of emotion regulation and aggression to school life adjustment by gender of children. Ewha Womans University master's thesis.
38. Zeman J, Garber J (1996) Display rules for anger, sadness, and pain: it depends on who is watching. Child Dev 67: 957-973.
39. Gazzaniga MS, Heatherton TF (2003) Psychological science: Mind, brain and behavior, New York: WW Norton.
40. Carstensen LL (1995) Evidence for a life-span theory of socioemotional selectivity. Curr Dir Psychol Sci 4: 151-156.
41. Park ES, Lee YH (2016) Effect of age and individual differences on negative emotion regulation among the elderly and the youth. The Korean Gerontological Society 36: 123-136.
42. Jang HK, Choi YS (2016) Impact of gambling addiction, internet addiction and psychological wellbeing in the demographic and economic characteristics. Korean Journal of Addiction Psychology 1: 55-65.
43. Ferris J, Wynne H (2001) The Canadian problem gambling index. Ottawa, ON: Canadian centre on substance abuse.
44. Kim AY, Cha JE, Kwon SJ, Lee SM (2011) Development and validation of Korean version of CPGI. Korean Journal of Psychology: General 30: 1011-1038.
45. Lee JS (2005) Effect of childhood abuse exposure on violent behaviors: Validation of mediation effect of dissociation and alexithymia. Korea university graduate school doctoral thesis.
46. Hayes AF (2012) PROCESS: A versatile computational tool for observed variable mediation, moderation and conditional process modeling [White paper].
47. Gambino B, Fitzgerald R, Shaffer H, Renner J, Courtnage P (1993) Perceived family history of problem gambling and scores on SOGS. J Gambl Stud 9: 169-184.
48. Flores PJ (2004) Addiction as an attachment disorder. New York: Jason Aronson.
49. Lee EJ (2015) The relations between covert narcissism and addiction tendency to SNS: Mediating effect of cognitive emotion regulation strategy. Soonchunhyang University master's thesis.
50. Lee YH, Jeong SH, Choi WY (2014) Effects of cognitive emotion regulation strategies by gender difference on peer relationship of middle school students. Korean Journal of Counseling 15: 2491-2508.
51. Lee HP (2002) Correlation of irrational gambling belief, motivation and risk-taking tendency to pathological gambling. Korea university doctoral thesis.
52. Burns EE, Fischer S, Jackson JL, Harding HG (2012) Deficits in emotion regulation mediate the connection between childhood abuse and later eating disorder symptoms. Child Abuse Negl 36: 32-39.
53. Heineman M (1994) Compulsive gambling: Structured family intervention. J Gambl Stud 10: 67-76.

54. el-Guebaly N, Casey DM, Hodgins DC, Smith GJ, Williams RJ, et al. (2008) Designing a longitudinal cohort study of gambling in Alberta: Rationale, methods, and challenges. J Gambl Stud 24: 479-504.

55. Kim AY, Cha JE, Kwon SJ, Lee SM (2011) Development and validation of Korean version of CPGI. Korean Journal of Psychology: General 30: 1011-1038.

56. Coman GJ, Burrows GD, Evans BJ (1997) Stress and anxiety as factors in the onset of problem gambling: Implications for treatment. Stress Medicine 13: 235-244.

57. Goudriaan AE, De Ruiter MB, Van Den Brink W, Oosterlaan J, Veltman DJ (2010) Brain activation patterns associated with cue reactivity and craving in abstinent problem gamblers, heavy smokers and healthy controls: An fMRI study. Addict Biol 15: 491-503.

58. Abdi TA, Ruiter RA, Adal TA (2015) Personal, social and environmental risk factors of problematic gambling among high school adolescents in Addis Ababa, Ethiopia. J Gambl Stud 31: 59-72.

59. Morleo M, Cook, PA, Elliott G, Phillips-Howard PA (2013) Parental knowledge of alcohol consumption: A cross sectional survey of 11-17 year old schoolchildren and their parents. BMC Public Health 13: 412.