

Alexithymia and Pathological Gambling: The Mediating Role of Difficulties in Emotion Regulation



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SUMMARY

Objective: The aim of this study is to determine to what extent the level of alexithymia and difficulties in emotion regulation can predict pathological gambling. The research also examines the mediating role of emotional dysregulation in the relationship between alexithymia and pathological gambling.

Method: The sample consists of 246 male gamblers. The average age was 33.30 years with a standard deviation of 11.62. In addition to the socio-demographic form, The South Oaks Gambling Screen (SOGS), Toronto Alexithymia Scale (TAS-20), and Difficulties in Emotion Regulation Scale (DERS) were used to collect data.

Results: Regression analyses revealed that the amount of money bet on gambling, total score of TAS-20, and DERS significantly predicted pathological gambling. Furthermore, difficulties in emotion regulation have a partial mediator role in the relationship between alexithymia and pathological gambling.

Conclusion: It is argued that individuals with high levels of alexithymia become prone to addictive behavior via emotional dysregulation. In addition to the alexithymia, difficulties in emotion regulation also play an important role in pathological gambling. In this context, this study contributes to relevant literature by discussing alexithymia, emotion regulation, and pathological gambling in relation with one another.

Keywords: Pathological gambling, alexithymia, emotion regulation

INTRODUCTION

Gambling urges people to gain more money than they initially bet. It also provides the opportunity to gain more money than what was initially bet, thus providing impetus for people to gamble more. The increasing availability and variety of games has resulted in gambling becoming a critical problem. In Turkey, gambling is prevalent among individuals aged between 40 and 50 years old (Karaman 2014). With the development of technology, it has become even more popular among younger people (Orford 2005) and is widely

accessible and available, especially through internet (Arcan 2012, Karaman 2014). As legal gambling opportunities increase, the number of gamblers increases as well (Volberg 1994, Cox et al. 2000, Matthews et al. 2009). Gambling can quickly evolve from a nice, fun experience into a pathological situation (Blaszczynski 1994) when it increases to become severe in terms of frequency, persistency, and recurrence (Goodman 1990, Raylu and Oei 2004).

Pathological gambling can best be characterized as an individual's loss of control of their behavior creating problems in one's personal and social life (Lesieur 1984, American

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Psychiatric Association 1994). This phenomenon was mentioned for the first time in DSM-III (American Psychiatric Association 1980) and was then categorized under Impulse-Control Disorder in DSM-IV (American Psychiatric Association 2000). Now in DSM-5, it is classified as a subsection of Non-Substance-Related Disorders under the section of Substance-Related and Addictive Disorders. According to DSM-5, a gambling disorder is defined as an impairment in an individual's psychological, social, and occupational functioning as well as a preoccupation with gambling, feeling of restlessness, irritation when attempting to cut down or stop gambling, need to gamble with increasing amounts of money, and repeated unsuccessful attempts to control gambling (American Psychiatric Association 2013).

Pathological gambling is a behavioral addiction that has high comorbidity with other addictions such as alcohol and substance (Black and Moyer 1998, Kausch 2003, Desai et al. 2007, Barnes et al. 2009).

Development and maintenance of pathological gambling is effected by demographical factors such as age, income, education (Shepherd et al. 1998, Stewart and Oslin 2001, Lang and Omori 2009), and genetic predisposition (Comings et al. 1996, Winters and Rich 1998); as well as neurobiological substrates such as dopamine, serotonin, and norepinephrine (Blanco et al. 1996, Bergh et al. 1997, Blanco et al. 2000, Bagby et al. 2007), learning (Dickerson 1979, Lesieur and Rothchild 1989, Blaszczyński and Nower 2002), impulsivity (Moran 1970, Steel and Blaszczyński 1998, Vitaro et al. 1999), neuroticism (Blaszczyński et al. 1985, Kaare et al. 2009), cognitive distortions (Ladouceur et al. 2002, Myrseth et al. 2010), inadequate coping strategies (Lightsey and Hulsey 2002, Wood and Griffiths 2007), and mood disorders (Black and Moyer 1998, Petry 2005, Johansson et al. 2009).

Moreover, recent research has shown that there is a positive relationship between alexithymia and addiction. (Taylor et al. 1997, Speranza et al. 2004, Evren et al. 2008, Dalbudak et al. 2013). Alexithymia was first defined by Sifneos (1973), as having no words for feelings. Further related features are listed as difficulty in describing feelings and in distinguishing one's feelings from bodily sensations; as well as having restricted imaginative processes and a stimulus-dependent, externally oriented cognitive style (Nemiah et al. 1976, Taylor et al. 1997). Individuals with alexithymia have some challenges in emotional processing and coping with stressful feelings (Taylor 2000).

Taylor et al. (1991) argue that alexithymic individuals attempt to regulate their emotions through compulsive behaviors. Speranza et al. (2004) revealed that these individuals show addictive behaviors due to their lack of self-knowledge and insight. Alexithymic features, which are highly comorbid with disorders such as substance addiction (Taylor et al.

1990, Uzun et al. 2003, Thorberg et al. 2009) and internet addiction (De Berardis et al. 2009), can also pose a risk for pathological gambling. On the other hand, only a few studies investigated the relation between pathological gambling and alexithymia (Lumley and Roby 1995, Parker et al. 2005, Mitrovic and Brown 2009, Toneatto et al. 2009, Bonnaire et al. 2013). In addition to the aforementioned studies, emotion regulation skills, which are considered to be a part of coping styles, are weak in alexithymic individuals (Lazarus and Folkman 1984) and are considered to be insufficient. Therefore, these people tend to avoid their disturbing emotions by engaging in addictive behaviors (Taylor et al. 1997). Difficulty in emotion regulation is characterized by experiencing challenges in controlling over-riding impulses towards negative feelings, in engaging in goal-directed behavior, and in retrieving efficient emotion-regulation strategies (Gratz and Roemer 2004, Berking et al. 2011).

Some studies have shown that individuals with difficulty in emotion regulation can engage in addictive behaviors in order to avoid or regulate negative feelings and emotions (Taylor et al. 1997, Tice et al. 2001, Ricketts and Macaskill 2003, Aldao et al. 2010). Only one study has examined the emotion regulation strategies in pathological gambling (Williams et al. 2012) and shown that pathological gamblers use re-evaluation as an adaptive emotional regulation tool statistically significantly less than the control group, as well as showing lower levels of emotional awareness and clarity.

It could be argued that studies conducted thus far imply that difficulties in emotion regulation mediate the relationship between alexithymia and addictive behaviors. There are studies pairing alexithymia, pathological gambling, and difficulties in emotion regulation (Lumley and Roby 1995, Parker et al. 2005, Dubey et al. 2010, Chen et al. 2011, Stasiewicz et al. 2012, Williams et al. 2012). However to the best of our knowledge, no study has thus far assessed the predictive role of both alexithymia and emotion-regulation strategies on pathological gambling. This study aims to determine the prediction level of alexithymia and emotional dysregulation on pathological gambling and examine the mediating role of emotional dysregulation in the relationship between alexithymia and pathological gambling.

METHOD

Participants: The sample consisted of 246 male patients aged between 18 and 64 years of age, with the average being 33.31 (SD = 11.64). Participants were selected from various cities in Turkey accessed through shops that offer gambling games such as betting, horse race, and online gambling web sites. The research was only carried out with volunteers who were over 18 years old, claimed gambling, and signed the informed consent.

Measurement Tools

Demographic Information Form

This form is designed by researchers to collect demographic information such as age, sex, and education; it included a variety of questions to find out the amount of time and money spent by the participants on gambling.

South Oaks Gambling Screen (SOGS)

SOGS, developed by Lesieur and Blume (1987), was adapted to Turkish by Duvarcı and Varan (2001). The scale consisted of 19 items measuring the severity of gambling. It should also be noted that scores above 8 out of 19 points indicate probable pathological gambling in the Turkish version of scale. The internal consistency of the scale was .87 and test-retest correlation coefficient was .95 (Duvarcı and Varan 2001).

Toronto Alexithymia Scale (TAS-20)

The Toronto Alexithymia Scale is a 20-item self-report instrument, developed by Gratz and Roemer (2004) in order to assess the prevalence of alexithymic characteristics. The scale was adapted to Turkish by Güleç et al. (2009) and consists of three factors; difficulty in identifying feelings, difficulty in describing feelings, and externally-oriented thinking. Higher scores indicate higher level of alexithymia. The total Cronbach's Alpha reliability value was .78 and subscales were between 0.57-0.80.

Difficulties in Emotion Regulation Scale (DERS)

Difficulties in Emotion Regulation Scale (DERS) was developed by Gratz & Roemer (2004) to determine difficulties in emotion regulation. DERS consists of 36 items that are evaluated using a five-point Likert scale. The scale was adapted to Turkish by Rugancı (2008) and consists of six dimensions: awareness (Lack of emotional awareness), clarity (Lack of emotional clarity), non-acceptance (Non-acceptance of emotional responses), strategies (Limited access to emotion regulation strategies), impulse (Impulse control difficulties), and goals (Difficulties engaging in goal directed behavior). The Turkish version of the scale's total Cronbach's Alpha reliability value was .94 and subscales' were between .90 - .75. Test-retest reliability was .83 and two half test reliability was .95.

Procedure

The data were collected from individuals through an internet survey as well as in person. The data were analyzed by t-test in order to determine significance differences between the groups. However, no significant difference was found. Before the participants completed the surveys, it was ensured that they all signed a consent form. Data cleaning was performed after all data had been entered to the computer.

Twelve participants in total, who either did not answer more than half of the items or being outliers ($-3.29 > z < 3.29$), were excluded from the study.

RESULTS

Almost one third (29.9%) of the participants ($n=73$) were elementary and secondary school graduates, 33.6% ($n=82$) were high school graduates, and 36.5% ($N= 89$) were graduates of university or equivalent higher education. More than half of the participants were single and belonged to the middle socioeconomic class. Respectively, 140, 158, and 19 participants reported that they use alcohol, smoke, and use a substance.

Table 1. Means, Standard Deviation, Minimum and Maximum values obtained from variables and scales

Variables	Mean	SD	Min-Max.
Age	33.31	11.64	18-64
Weekly hours spent on gambling	8.68	16.01	0.5-100 hours
Weekly amount of money spent on gambling (TL)	311.79	704.91	3-5000 TL
SOGS	5.52	4.18	0-18
TAS-20	54.96	10.63	27-84
DERS	95.23	21.84	46-141

SD: Standard Deviation; Min-Max: Minimum and Maximum Values; TAS-20: Toronto Alexithymia Scale; DERS: Difficulties in Emotion Regulation Scale; SOGS: South Oaks Gambling Screen

Table 2. Correlation Table

	1	2	3
South Oaks Gambling Screen (SOGS)	-		
Toronto Alexithymia Scale (TAS-20)	.46**	-	
Difficulties in Emotion Regulation Scale (DERS)	.43**	.64**	-

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

TAS-20: Toronto Alexithymia Scale; DERS: Difficulties in Emotion Regulation Scale; SOGS: South Oaks Gambling Screen

Also, 168 participants stated that they have gamblers in their immediate environment. When analyzed in terms of SOGS' cut-off point, 85 of 244 participants meet the criteria of pathological gambling. Means, standard deviations, and minimum-maximum values are presented in table 1.

Correlation analysis was conducted to determine the relationships between all variables in the study, and the results were presented in table 2.

According to the results, there was a positive and a significant correlation between TAS-20 and DERS and the dependent variable (SOGS) (respectively: $r = 0.46$, $p < 0.01$; $r = 0.43$, $p <$

Table 3. Predictive variables of SOGS

Steps	R ²	Radj	CR ²	B	Std. Err.	Beta	t	F
1	.12**	.10	.12**					6.20**
Education				-.80	.38	-.15	-2.12*	
Weekly hours spent on gambling				.04	.02	.14	2.15*	
Weekly amount of money spent on gambling				.01	.00	.23	3.45*	
2	.29**	.28	.18**					15.96**
Weekly amount of money spent on gambling				.01	.00	.26	4.25**	
Toronto Alexithymia Scale (TAS-20)				.17	.02	.44	7.57**	
3	.31**	.29	.02*					14.95**
Weekly amount of money spent on gambling				.01	.00	.25	4.02**	
Toronto Alexithymia Scale (TAS-20)				.13	.03	.33	4.49**	
Difficulties in Emotion Regulation Scale (DERS)				.04	.02	.19	2.57*	

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

SOGS: South Oaks Gambling Screen

Table 4. The mediator role of DERS in the relationship between TAS-20 and SOGS

Dependent Variable	Predictive Variable	R	R ²	Radj	B	Std. Err.	Beta	t	F
SOGS	TAS-20	.46	.21**	.21	.18	.02	.46	8.03**	64.48**
SOGS	TAS-20	.49	.24**	.24	.12	.02	.31	4.21**	38.53**
	DERS				.04	.01	.23	3.19*	

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

TAS-20: Toronto Alexithymia Scale; DERS: Difficulties in Emotion Regulation Scale; SOGS: South Oaks Gambling Screen. 46** (.31**)

TAS-20: Toronto Alexithymia Scale; DERS: Difficulties in Emotion Regulation Scale; SOGS: South Oaks Gambling Screen

0.01). It is also noted that there was a positive and a significant correlation between DERS and TAS-20 ($r = 0.64$, $p < 0.05$).

A hierarchical regression analysis was conducted in order to determine the predictors of SOGS. Accordingly, in Step 1, demographical variables (age, education, and socio-economic status), weekly hours spent on gambling, weekly amount of money spent on gambling; in Step 2 TAS-20 total scores, and in Step 3 DERS total scores were entered into the equation. Results are presented in table 3.

As seen in table 3, only weekly hours spent on gambling and weekly amount of money spent on gambling significantly predicted SOGS in Step 1. These two variables explained 12% of the SOGS ($R^2 = 0.12$, $F(5, 233) = 6.20$, $p < 0.01$).

In Step 2, with the addition of TAS-20, explained variance increased to 29%. The weekly amount of money spent on gambling is the only variable that was entered in the equation in the first block and was still a significant predictor of SOGS ($R^2 = 0.29$, $F(6, 232) = 15.96$, $p < 0.01$). In Step 3 DERS was entered into the equation and explained variance increased to 31%. It shows the effects of the weekly amount of money spent on gambling and TAS-20 are maintained ($R^2 = 0.31$, $F(7, 231) = 14.95$, $p < 0.01$).

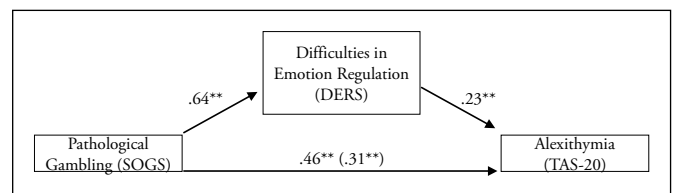
Considering the coefficient obtained in the last block, we could argue that demographical variables and weekly hours

spent on gambling are not predictors of SOGS. However, weekly amount of money spent on gambling ($\beta = 0.25$, $p < 0.01$), TAS-20 ($\beta = 0.33$, $p < 0.01$), and DERS ($\beta = 0.19$, $p < 0.05$) are positive and significant predictors of SOGS.

Mediator role of emotional dysregulation in the relationship between alexithymia and pathological gambling

In order to determine the mediator role of DERS in the relationship between TAS-20 and SOGS, Baron, and Kenny's (1986) criteria are considered. Figure 1 presented the model to explain the relationship between the predictor variable TAS, dependent variable SOGS, and mediator variable DERS.

The mediator role of DERS between TAS-20 and SOGS was tested via multiple regression analyses. First, TAS-20 was entered into the equation as a predictor of SOGS. TAS-20 was a positive, significant predictor of SOGS ($\beta = 0.46$, $t = 8.03$,

**Figure 1.** Mediator role of DERS between TAS-20 and SOGS

$p < 0.01$) and explained 21% of the variance of SOGS ($R^2 = 0.21$, $F(1, 242) = 64.48$, $p < 0.01$).

Second, TAS-20 was entered into the equation as a predictor of DERS. TAS-20 is a positive and significant predictor of DERS ($\beta = 0.64$, $t = 13.09$, $p < 0.01$) which also explained 42% of DERS ($R^2 = 0.42$, $F(1, 242) = 171.37$, $p < 0.01$).

Finally, when TAS-20 and DERS were entered concurrently into the equation, DERS was found to be a positive and significant predictor of SOGS ($\beta = 0.23$, $t = 3.19$, $p < 0.01$). Furthermore, the previously observed relationship between TAS-20 and SOGS decreased in strength ($\beta = 0.31$, $t = 4.21$, $p < 0.01$) ($F(2, 241) = 38.53$, $p < 0.01$) and the observed decrease of the beta coefficient of TAS-20 was confirmed to be statistically significant by the Sobel test ($z = 3.71$, $p < 0.01$). (See figure 2).

DISCUSSION

The study has shown that difficulties in emotion regulation and alexithymia are positive, significant predictors of pathological gambling. Previous literature has shown that there is a significant relationship between alexithymia and psychological symptoms (Honkalampi 2000, Courty 2015). It has also indicated that alexithymia is one of the most important risk factors for addictive behavior (Taylor et al. 1997, Evren et al. 2008).

There are quite a few studies examining the relationship between alexithymia and pathological gambling (Mitrovic and Brown 2009, Bonnaire et al. 2013). Lumley and Roby (1995) examined the relationship between alexithymia and pathological gambling in individuals between 17 and 55 years of age and revealed that the prevalence of alexithymia was higher than the control group. Likewise, another study conducted with 562 college students has shown that the ratio of pathological gamblers among alexithymic individuals is higher than individuals who are not gambling (Parker et al. 2005). Toneatto et al.'s research (2009) on male gamblers indicated that they have difficulties in recognizing and verbalizing their emotions. Furthermore, pathological gamblers have limited ability to describe their feelings and to interact through them.

To the best of our knowledge, there is only one study that has examined the relationship between difficulties in emotion regulation and pathological gambling (Williams et al. 2012). Consistent with our results, Williams et al. (2012) found that all subscale scores of Difficulties in Emotion Regulation scale were higher in pathologic gamblers than the control group. It is also noted that pathological gamblers had lower scores of goals and non-acceptance subscales than others. Pathological gamblers show higher levels of insufficient emotional clarity and impulsivity. Therefore, this study concluded that there were specific difficulties in emotion regulation in pathological gamblers.

Our results show that emotional dysregulation has a mediator role between alexithymia and pathological gambling. Alexithymic individuals are thought to engage in addictive behaviors in an attempt to regulate their emotions. Ricketts and Macaskill (2003) aimed to determine the emotional changes of gamblers, in which they formed two experiment groups. In the first experiment group participants ceased gambling, while in the second group participants continued gambling. Thus their ability to terminate an unpleasant emotional situation was tested. Individuals who stopped gambling reported that they had experienced difficulties enduring emotional distress (Ricketts and Macaskill 2003).

Our results also revealed that, age, education, and socioeconomic status are not significant predictors of pathological gambling. However, some studies did indicate that younger age is a risk factor for pathological gambling (Volberg et al. 2001, Bondolfi et al. 2008). On the other hand, there are studies that display contradictory results regarding age (el-Guebaly et al. 2006, Chou and Afifi 2011). A possible explanation for such controversial results can be due to limited studies conducted with middle age individuals, whereas there is an abundance of research with adolescent and young people. Recently, consistent with our findings, Arcan (2012) found that there are no significant differences of severity of pathological gambling in terms of age in Turkey.

Similar results were gathered with other studies in terms of explaining insignificant differentiation between level of education and severity of gambling (Volberg et al. 2001, Arcan 2012). In addition to this, there are further research studies indicating lower educational level as a risk factor for pathological gambling (Myrseth et al. 2009, Kessler et al. 2008). Moragas et al. (2015) determined that higher education is a risk factor for gamblers with better individual skills. Considering that there are varieties of games, education is not always a predictor. Therefore pathological gambling should be addressed regardless of education.

According to our results, severity of gambling is not affected by socio-economical level. However, in literature there are contradictory findings. For instance, Bonfoli et al. (2000) showed that high income level is a risk factor in the emergence of problems with gambling, while Petry (2005) found that financial problems experienced by a gambler are a significant risk factor for pathological gambling. The reason why socio-economic status did not predict pathological gambling in our study may be due to the participants mostly (59.2%) belonged to the middle socio-economic class.

Another finding of this study is that the weekly amount of money spent on gambling is a positive and significant predictor of pathological gambling. In literature, there exist similar findings with our results (Echeburúa et al. 1996, Petry and Mallya 2004). In addition, spending more money on gambling causes more excitement and arousal which increases the expectations of winning (Ladouceur et al. 2003, Roby and

Lumley 1995). Therefore, the amount of money bet is expected to predict pathological gambling.

In conclusion, in addition to the levels of alexithymia, the presence of the difficulty in emotion regulation process can be argued to lead to significant pathological gambling behavior. In this context, we argue that alexithymia, emotional dysregulation, and pathological gambling should be taken together. Pathological gambling should not be examined only in terms of alexithymia, but also in terms of emotional regulation difficulties. It is necessary to know and acknowledge the mediator role of emotional dysregulation when clinically approaching individuals with both pathological gambling and alexithymia. This should be considered in the process of diagnosis and treatment of difficulties in emotion regulation. The ability to regulate emotions is important and necessary in order to cope with anxiety and challenges (Jazaieri et al. 2013).

If we consider the fact that addictive behaviors that result from emotional dysregulation are comorbid with other psychological symptoms, it is important that we take addictive behaviors into account through addressing cognitive emotional regulation during the diagnosis process. This can also present a new dimension to the treatment process.

One important limitation of the study is that it was only conducted with male participants and used self-report scales. Furthermore, sampling was based on online and face-to-face survey. While this creates a heterogeneous sampling, at the same time it provides a rich sample of participants which could otherwise be difficult to reach. Also, substance addiction, which is highly comorbid with pathological gambling, has not been examined thoroughly. Therefore, further research discovering the relationship between substance addiction and pathological gambling should occur. There is a lack of research examining pathological gambling in Turkey. We believe that studies looking into cultural and social variables have the potential to offer a lot to the discovery of new insights about pathological gambling.

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