



## **Factors Associated with Emotion Regulation among Adolescent Online Game Users in Indonesia**

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### **Article info**

#### **Article history:**

Received; 30 June 2019

Revised: 22 July 2019

Accepted: 10 August 2019

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#### **DOI:**

10.35654/ijnhs.v3i1.193

**Abstract.** Increasing the number of online game users in adolescence can disrupt the aspects of education, health, and social. The purpose of the study was to determine the factors that influence the emotion regulation of adolescent online game users to prevent Internet Gaming Disorder. A cross-sectional study was applied in this study. We recruited 200 adolescents using multistage sampling, including 130 males and female-only 70 persons. Data were analyzed using chi-square with a significant level of  $p < 0.05$ . The results of the study showed that age has a significant effect on emotion regulation of adolescent online game users with  $p$ -value 0.041 ( $p < 0.05$ ). The gender of online game users has a significant impact on emotion regulation with a  $p$ -value of 0.035 ( $p < 0.05$ ). The duration of used online games has a significant effect on emotion regulation with a  $p$ -value of 0.013 ( $p < 0.005$ ). The length of online game users has a significant impact on emotion regulation with a  $p$ -value of 0.044 ( $p < 0.05$ ). The theme of online games has a significant effect on emotion regulation with a  $p$ -value of 0.006 ( $p < 0.05$ ). Online game media have a substantial impact on emotion regulation with a  $p$ -value of 0.001 ( $p < 0.05$ ). Emotion regulation must be increased to prevent Internet Gaming Disorder by controlling self in adolescents, especially in the adolescent male group towards the use of online games.

**Keywords:** adolescents, orphanage, self-confidence.



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## **INTRODUCTION**

The phenomenon of the Internet user has a positive and negative effect on adolescents. Prevention efforts have been carried out, but an increase in promotion has caused internet use to become an essential problem in adolescents (1). Internet use in the world has increased to reach 3.8 billion per year, with penetration of 51% of the total population (2).

Enhanced internet used was associated with an increase in the use of online games (3). The use of online games has pathological effects such as impulsive behavior and aggression, Internet Gaming Disorder, feeling instability, decreased performance, and reduced health in individuals (4-6). Increased Internet Gaming

The disorder often occurs in adolescents (7). That was due to a lack of emotion regulation skills (8). Emotion regulation was the most potent factor affected the incidence of Internet Gaming Disorder (9-11). Skills in carried out emotion regulation were needed to reassess situations that involve emotions and cognition, thereby reduced negative impacts. Emotion regulation can prevent Internet Gaming Disorder (1,12). The results of previous studies have found that increased regulation of emotions was able to avoid Internet Gaming Disorder (1). Individuals able to prevent negative behavior, able to influence psychology due to vigorous emotion intensity, focus attention, and organize them in regulating behavior to achieve a goal, indicated prevention. Research on factors that influence emotion regulation was still a little bit. Thus this study presents factors that can affect the emotion regulation of adolescent online game users

## **OBJECTIVE**

This study aims to explain the factors associated with the emotion regulation of adolescent online game users.

## **METHOD**

This study used a descriptive-analytical cross-sectional design. The participants were recruited based on the agreement made at each selected junior high school. The research sample was 200 adolescents who used online game users and scattered throughout the City of Surabaya. Samples were taken by a multistage random sampling method.

Data was collected using a questionnaire. The questionnaire used was a modification of the ERQ (Emotion Regulation Questionnaire). The researcher modified the questionnaire according to the study respondents and according to the approved permit. The questionnaire consists of indicators of assessment of the problem and emphasis on the solutions used.

Ethics tests have been carried out at Airlangga University with no 320-KEPK ethical pass test certificate.

## **RESULTS**

### **Characteristics of respondents**

Table 1 showed that most of patients were 14 years old (58%). More than half of them were male (65%). Regarding of duration of online game used, more than half of them played online games  $\geq$  two years (64%). They played online games within 2 hours each day (26.5%). Most of them played the online game with MMORPGs themes (78.5%). and through handphone media. They played the game by using a handphone (90%) and 10% of them played the online game at game shop.

Table 1 Characteristics of respondents

Characteristics	N	%
Age		
13 year	42	21.0
14 year	116	58.0
15 year	42	21.0
Gender		
Male	130	65.0
Female	70	35.0
Duration used of online games		
< 2 years	72	36.0
≥ Two years	128	64.0
Use of online games each day		
1 hour	45	22.5
2 hours	53	26.5
3 hours	35	17.5
4 hours	17	8.5
5 hours	30	1.5
6 hours	10	5
7 hours	1	0.5
8 hours	4	2
10 hours	3	1.5
15 hours	2	1
The theme of the game online		
MMORPGs	157	78.5
MMOFPs	4	2
MMORTs	39	19.5
Media used		
Handphone	180	90.0
Online game shop	20	10.0

### Relationship between age with emotion regulation of online game users

Table 2 showed that most of 14 years (29%) have a proper emotion regulation. The results of the chi-square test obtained p-value 0.041 ( $p > 0.05$ ). It was concluded that age was related to the emotion regulation of adolescents' online game users.

Table 1 Relationship between age with emotion regulation of online game users

Age (years)	Emotion Regulation				Total	P-Value
	Good		Poor			
	n	%	n	%		
13	20	10	22	11	42	0.041
14	57	29	36	18	93	
15	25	12	40	20	65	
Total	102	51	98	49	200	

### Relationship between gender with emotion regulation of online game users

Table 3 showed that most male (68%) has proper emotion regulation compared to female. The results of the chi-square test obtained p-value 0.035 ( $p > 0.05$ ), it was concluded that gender was related to the emotion regulation of adolescent online game users.

Tabel 3. Relationship between gender with emotion regulation of online game users

Gender	Emotion Regulation				Total	P-Value
	Good		Poor			
	n	%	n	%		
Male	68	34	62	31	130	0.035
Female	34	17	36	18	70	
Total	102	51	98	49	200	

#### Relationship between duration with emotion regulation of online game users

Tables 4 showed that most adolescents have used online games for more than two years (34%) and have poor emotion regulation. The chi-square test results obtained p-value 0.013 ( $p > 0.05$ ), it was concluded that the duration used of online games related to the emotion regulation of adolescent online game users.

Tabel 4. Relationship between duration with emotion regulation of online game users

Duration (years)	Emotion Regulation				Total	P-Value
	Good		Poor			
	n	%	n	%		
< 2	44	22	28	14	72	0.013
≥ 2	58	29	67	35	124	
Total	102	51	98	49	200	

#### Relationship between online games used per day with emotion regulation of online game users

Table 5 showed that most adolescents who used online games every day of two hours (13.5%) and have lousy emotion regulation. The chi-square test results obtained p-value 0.044 ( $p > 0.05$ ), it was concluded that the duration of game usage each day was related to the emotion regulation of adolescent online games users.

Used Each Day (Hours/Day)	Emotion Regulation				Total	P-Value
	Good		Poor			
	n	%	n	%		
1	25	13	20	9	45	0.044
2	24	12	29	13,5	53	
3	15	8	20	9	35	
4	8	4	9	5	17	
5	20	10	10	5	30	
6	5	3	5	3	10	
7	1	0,5	0	0	1	
8	4	2	5	3	9	
Total	102	52,5	98	47,5	200	

#### Relationship between online games theme with emotion regulation of online game users

Table 6 showed that most adolescents used theme MMORPGs (42%) and have proper emotion regulation. The results of the chi-square test obtained p-value of 0.006 ( $p > 0.05$ ), it

was concluded that the theme of online games was related to the emotion regulation of adolescent online game users.

Theme	Emotion Regulation				Total	P-Value
	Good		Poor			
	n	%	n	%		
MMORPGs	83	42	74	36	157	0.006
MMOFPs	0	0	4	2	4	
MMORTs	19	10	20	10	39	
Total	102	52	98	48	200	

#### Relationship between media online games with emotion regulation of online game users

Table 7 showed that most adolescents used handphone media to play online games (47%) and have proper emotion regulation. The chi-square test results obtained p-value 0.001 ( $p > 0.05$ ), it was concluded that the online game media was related to the emotion regulation of adolescent online game users.

Media	Emotion regulation				Total	P-Value
	Good		Poor			
	n	%	n	%		
Handphone	94	47	86	43	180	0.001
Online game place	8	4	12	6	20	
Total	102	51	98	49	200	

## DISCUSSION

Adolescents with poor Emotion regulation can cause maladaptive behavior to escape emotions and various risks of mood disorders and addiction. The results showed that age, gender, duration of online game used, a period of use each day, theme, and online game media related to emotion regulation in adolescent online game users. The adolescent has low emotion control abilities. The adolescent has not been able to describe themselves in the situation (13). Emotion regulation in adolescents was smaller than the rule of adolescent emotions in adults. The results of previous studies found that LPP (Late Positive Potential) in adolescents has a low value than the value of LPP in adults (14). LPP was a marker nerve that was related to one's attention to the emotion being faced. Low attention to emotions can cause low regulation in adolescents, especially in regulating emotions.

Adolescents' decision to use online games was influenced by gender. Gender differences are known that men tend to use online games more than women. Men consider online gaming to be a game that matches their gender. Women use online games to communicate and share information through instant messaging and visit personal websites (15-17). Higher search levels and challenged feelings tend to occur in men, thus caused men to have impulsive behavior that can cause emotion regulation in low adolescents.

The duration of the used online games affects the regulation of the deep emotion of adolescents. Disorders such as Internet Gaming Disorder in adolescents can occur if adolescents used online games for more than two years (18). Long-term use can affect a person's behavior due to progressive brain damage. Brain damage was caused by changes in dopamine in adolescents who used online games. Increased dopamine in the brain causes adolescent satisfaction to get happiness through the use of uncontrolled online games and an

increase in the amount of playing time. Addiction caused by the use of online games that are not controlled can cause brain damage without realizing it (1,9,19). Brain damage was more dangerous than drug users due to a lack of tolerance in adolescents who use online games.

The use of online games each day was a factor supporting low emotion regulation. The use of online games more than 30 hours per week or about 4 hours each day can cause a person to experience a disruption in the development of aspects of education, health, and social adolescents (20). Uncontrolled and repetitive playing time, faster results in further negative consequences (1). This condition can create an unbroken vicious cycle that causes repeated involvement in the use of online games to cause addiction.

The theme of the use of online games influences the emotional regulation of adolescent online game users. The most used theme was the theme of the game with the types of MMORPGs. The types of MMORPGs can cause adolescents to be unable to carry out adaptive coping strategies (21). Inappropriate coping strategies were a consequence of the regulation of weak adolescent emotions. That was because MMORPGs tend to stimulate individuals to have wishful thinking patterns. This pattern of thinking causes adolescents to be unrealistic in responding to a problem caused by the regulation of harmful emotions.

Media can increase the use of online games that affect Emotion regulation in adolescents. The results showed that mobile phones were the most used media by an adolescent in playing online games. The handphone was considered as the most accessible media to use anywhere and in any period (22). The results showed that uncontrolled cellphone use could cause daily difficulties, withdrawal symptoms, and low tolerance (22). Difficulties in undergoing daily activities, learning about withdrawals and the existence of low warranty are characteristics of Internet Gaming Disorder disorders caused by low emotion regulation

## CONCLUSION

The most crucial factor that influences emotion regulation to prevent Internet Gaming Disorder was to control adolescents, especially on male adolescents, to control the used online games each day, the themes, and the media used. Parents must supervise children in the use of online games.

## LIMITATION

The researcher did not include parenting factors in the study and only used chi-square analysis. Further research needs include the parenting factors as the predictors and use multivariate analysis.

## ACKNOWLEDGMENT

Thank you to the junior high school in the City of Surabaya, who was willing to become respondents. Thank you to Nursing Faculty Universitas Airlangga who has provided opportunities to conduct this research

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