

## Application of Health Education and *Pappasang* to Optimize the Psychosocial Development of Adolescents Engaged in Online Gaming

Boby Nurmagandi<sup>1</sup>, Risna Damayanti<sup>2\*</sup>

<sup>1,2</sup> Faculty of Health Science, Universitas Sulawesi Barat

\*Author correspondence: risnadamayantiharis86@gmail.com

**Keywords :** Online Game, Pappasang, Health Education, Psychosocial, Adolescent

**Info Artikel:**

**Date sent:**  
October 31, 2024

**Date received:**  
January 31, 2025

**Article DOI:**  
10.33862/citradelima.v9  
i1.498

**Page:** 1-8

### Abstract

Excessive online gaming among adolescents can lead to the development of addiction, which is often compounded by psychosocial problems such as depression and anxiety. To address these concerns, interventions aimed at improving psychosocial development especially in areas related to behavior, peer groups, and extracurricular activities can be implemented through health education and the *pappasang* approach. The purpose of this study is to examine the impact of health education and *pappasang* in improving the psychosocial development of adolescents, to prevent online gaming addiction. This research employed a quasi-experimental design with a pre-post test and a control group. The sample for this study consisted of 57 respondents. The sample for this study was determined using total sampling. The instrument used to assess psychosocial development was the Strength And Difficulties Questionnaire (SDQ). The results of the study indicated that the implementation of health education and *pappasang* was effective in improving adolescent peer group dynamics within the intervention group, with a p-value of 0.001, which is less than the 0.05 significance threshold. Additionally, the intervention was effective in addressing hyperactivity, it was effective after therapy, with a p-value of 0.014, which is also less than 0.05. Furthermore, the intervention effectively improved the behavioral aspect after treatment, with a p-value of 0.014, again meeting the significance criteria. In conclusion, the application of health education and *pappasang* was found to be effective in improving the psychosocial development of adolescents who engage in online games.

### INTRODUCTION

Excessive engagement in online gaming among adolescents can have detrimental effects, leading to addiction. Online game addiction is a psychological disorder experienced by adolescents, characterized by adolescents' inability to control excessive online gaming behavior (Erida Fadila et al., 2022). This addiction is often exacerbated by psychosocial issues such as depression and anxiety (Nurmagandi & Hamid, 2020; Widyaningrum et al., 2023). Adolescents affected by online gaming addiction may experience cognitive difficulty, social withdrawal, impaired focus on daily activities, and heightened feelings of anxiety and depression (Lusiana, 2023; Maulida et al., 2019). For some, online gaming serves as a coping mechanism to escape from the psychosocial problems experienced by adolescents, which, in turn, can worsen their mental health condition (Celik et al., 2022; Grajewski & Dragan, 2020).

Adolescent psychosocial development is primarily characterized by the formation of self-identity, where they establish a distinct identity separate from

others (PH & Arisdiani, 2020). Optimal psychosocial development makes adolescents gain self-awareness, recognize their strengths and weaknesses, set personal goals, and determine effective strategies to achieve them. In addition, adolescents must also be able to apply moral and ethical values in their behavior (Arifuddin & Pangaribuan, 2021; PH & Arisdiani, 2020). Adolescents with optimal psychosocial development outcomes have positive coping mechanisms when faced with psychosocial problems, such as depression, anxiety, and social withdrawal (Hartini et al., 2022). The achievement of psychosocial development is in line with the values inherited from the ancestors of the Mandar tribe, as embodied in *pappasang* a cultural framework aimed at nurturing qualities such as intellectual are intellectual, honesty, loyalty, bravery, wisdom, strong work ethic, cooperation, firmness, and uphold for unity, community, and religion (Ilyas, 2019).

Psychosocial development, especially in behavioral aspects, peer groups, and optimal activities, plays an important role in preventing excessive online gaming behavior among adolescents. Adolescents who

exhibit positive behavior are better equipped to manage their actions and navigate problems, such as demonstrating responsibility for their role, discipline, respect for others, self-control, and honesty. A positive peer group dynamic is also essential for adolescent development, where peer groups offer mutual support and guidance (Asyia et al., 2022; Rahmasari et al., 2024). In addition, psychosocial development in the aspect of positive activities ensures that adolescents can maintain their activities positively for their personal growth, even though they are in trouble (Esti et al., 2021; Sarfika et al., 2023).

The three attitudes mentioned above responsibility, discipline, and self-control can empower adolescents' self-control over the problems they face, preventing online gaming from becoming a form of escapism that leads to addiction. Interventions aimed at improving psychosocial development, especially in the aspects of behavior, peer groups, and constructive activities can be carried out through health education and *pappasang*. Health education focuses on adolescent psychosocial development, especially behavior, peer group, and constructive activities, which is essential. This statement is in line with previous research which states that health education regarding adolescent psychosocial development can improve optimal adolescent psychosocial development (Nurmagandi et al., 2022). Other research also states that health education on online game addiction effectively reduces the intensity of playing online gaming among adolescents (Novrialdy, 2019).

*Pappasang* can also improve adolescent psychosocial development, particularly in the aspects of behavior, peer group, and constructive activities. *Pappasang* is a cultural mandate or guidance passed down by the ancestors of the Mandar tribe, akin to advise, but emphasizes moral teachings that should be obeyed. *Pappasang* contains ancestral messages that can be practiced in daily life. The cultural values contained in *pappasang* include scholarship, honesty, loyalty, courage, wisdom, work ethic, mutual cooperation, firmness, *siriq*, solidarity, religion, unity, harmony, trustworthiness, and deliberation (Ilyas, 2019). The values in *pappasang* can play a crucial role in fostering character building in adolescents, especially in shaping positive behavior, constructive activities, and the formation of ethical peer groups that aligns with societal norms and values.

Preliminary studies conducted on adolescents using online games at SMAN 2 Majene Regency found that adolescents spend an average of more than two

hours per day playing online games. In addition, adolescents at SMAN 2 Majene Regency are still in the process of achieving adolescent psychosocial development. In light of this, the researchers aim to implement health education and *pappasang* as interventions to optimize adolescent psychosocial development, with the goal of preventing online game addiction among adolescent users.

## METHOD

This study employed a quasi-experimental quantitative research design with a pre-posttest and control group. The population in this study were students of SMAN 2 Majene, West Sulawesi who used online games regularly for more than two hours per day over the past year, with a total population of 60 students. The sample was determined using total sampling, with all 60 students included, and divided into intervention groups and control groups. During the implementation, three participants dropped out, one from the intervention group and two from the control group, resulting in a final sample of 57 respondents. The inclusion criteria in this study were adolescents aged 15-17 years, who played online games regularly for the past year, for more than 2 hours per day, and did not have any psychosocial problems. The study implementation began with a pretest to assess participants' knowledge about online game addiction and assess the psychosocial development in both the intervention and control groups. This was followed by the delivery of health education and *pappasang* in two separate meetings, with a one-day break between the first and second meetings to allow adolescents to internalize the material. The control group received health education and had the same opportunity to internalize the material. After both groups received the intervention, a posttest was conducted on the day following the second meeting of health education and *pappasang* for both groups.

The instrument used in this study was the Strengths And Difficulties Questionnaire (SDQ) to assess adolescent psychosocial development across the dimensions of behavior, peer group, and hyperactivity. The implementation of health education and *pappasang* was based on adolescent psychosocial development booklets compiled by the research team, which conducted expert testing prior to use. Informed consent was obtained from all adolescents before they participated as respondents. This study has received ethical approval from the Bioethics Commission for Medical/Health Research, Faculty of Medicine, Sultan

Agung Islamic University Semarang, under approval number No.285/VII/2024/Bioethics Commission.

Data analysis in this study consisted of univariate, bivariate, and multivariate analysis. Univariate analysis is used to assess the characteristics of respondents through central tendency measures. A normality test was conducted to assess the distribution of adolescent psychosocial development data on aspects of behavior, peer group, and hyperactivity using the

Saphiro Wilk test. Bivariate analysis employed non-parametric tests because the data were not normally distributed. A comparison of psychosocial development variables (behavior, peer group, and hyperactivity) between the intervention and control groups, both before and after health education therapy and *pappasang* interventions, was conducted using the marginal homogeneity test.

**RESULT AND DISCUSSION**

**Result**

**Table 1. Characteristics of psychosocial development among respondents in the intervention and control group, both before and after health education and pappasang intervention**

Variable		Before therapy		After therapy	
		n	%	n	%
<b>Peergroup of Intervention Group</b>	Normal	8	27,6	18	62,1
	Borderline	19	65,5	11	37,9
	Abnormal	2	6,9	0	0
	<b>Total</b>	<b>29</b>	<b>100</b>	<b>29</b>	<b>100</b>
<b>Hyperactify of Intervention Group</b>	Normal	17	58,6	23	79,3
	Borderline	11	37,9	5	17,2
	Abnormal	1	3,4	1	3,4
	<b>Total</b>	<b>29</b>	<b>100</b>	<b>29</b>	<b>100</b>
<b>Behaviour of Intervention Group</b>	Normal	19	65,5	21	72,4
	Borderline	6	20,7	8	27,6
	Abnormal	4	13,8	0	0
	<b>Total</b>	<b>29</b>	<b>100</b>	<b>29</b>	<b>100</b>
<b>Peergroup of Control Group</b>	Normal	2	7,1	4	14,3
	Borderline	3	10,7	12	42,9
	Abnormal	23	82,1	12	42,9
	<b>Total</b>	<b>28</b>	<b>100</b>	<b>28</b>	<b>100</b>
<b>Hyperactify of Control Group</b>	Normal	17	60,7	18	64,3
	Borderline	5	17,9	5	17,9
	Abnormal	6	21,4	5	17,9
	<b>Total</b>	<b>28</b>	<b>100</b>	<b>28</b>	<b>100</b>
<b>Behaviour of Control Group</b>	Normal	18	64,3	20	71,4
	Borderline	7	25,0	7	25,0
	Abnormal	3	10,7	1	3,6
	<b>Total</b>	<b>28</b>	<b>100</b>	<b>28</b>	<b>100</b>

Source: primary data 2024

Table 1 shows that, in the peer group aspect of psychosocial development, the majority of adolescent respondents in the intervention group initially fell within the borderline category (65.5%). However, following the implementation of therapy, the majority transitioned to the normal category (62.1%). In the hyperactivity aspect, most adolescent respondents in the intervention group were categorized as normal (56.8%) before the therapy, and after the intervention, the majority of respondents in the intervention group

were categorized as normal (79.3%). Regarding the behavioral aspects of psychosocial development, the

majority of respondents in the intervention group were initially categorized as normal (65.5%), with a subsequent increase in the proportion of respondents categorized as normal (72.4%) after the therapy.

Based on Table 1, it is also evident that the psychosocial development characteristics of adolescent respondents in the control group, in the peer group aspect, were predominantly categorized as

abnormal (82.1%) before the therapy. However, after the therapy, a shift was observed, with 42.9% of respondents remaining in the abnormal category, and 42.9% moving to the borderline category. In the hyperactivity aspect, the majority of adolescent respondents in the control group were categorized as normal (60.7%), and after the therapy, the majority

continued to fall within the normal category (64.3%). In the behavioral aspect of psychosocial development, the majority of respondents in the control group were mostly in the normal category (64.3%), with a subsequent increase to 71.4% in the normal category following the implementation of the therapy.

**Table 2. Changes in the psychosocial development of adolescents in the intervention and control groups, before and after health education and pappasang intervention**

Peergroup of Intervention Group		After Therapy			Total	P Value	
		Normal	Borderline	Abnormal			
		n	n	n			
Before Therapy	Normal	n	8	0	0	0,001	
		%	27,6	0,0	0,0		27,6
	Borderline	n	10	9	0		19
		%	34,5	31,0	0,0		65,5
	Abnormal	n	0	2	0		2
		%	0,0	6,9	0,0		6,9
Total		n	18	11	0	29	
		%	62,1	37,9	0,0	100	
Hyperactify of Intervention Group		After Therapy			Total	P Value	
		Normal	Borderline	Abnormal			
		n	n	n			
Before Therapy	Normal	n	17	0	0	17	0,014
		%	58,6	0,0	0,0	58,6	
	Borderline	n	6	5	0	11	
		%	20,7	17,2	0,0	37,9	
	Abnormal	n	0	0	1	1	
		%	0,0	0,0	3,4	3,4	
Total		n	23	5	1	29	
		%	79,3	17,2	3,4	100	
Behaviour of Intervention Group		After Therapy			Total	P Value	
		Normal	Borderline	Abnormal			
		n	n	n			
Before Therapy	Normal	n	19	0	0	19	0,014
		%	65,5	0,0	0,0	65,5	
	Borderline	n	2	4	0	6	
		%	6,9	13,8	0,0	20,7	
	Abnormal	n	0	4	0	4	
		%	0,0	13,8	0,0	13,8	
Total		n	21	8	0	29	
		%	72,4	27,6	0,0	100	
Peergroup of Control Group		After Therapy			Total	P Value	
		Normal	Borderline	Abnormal			
		n	n	n			
Before Therapy	Normal	n	2	0	0	2	0,002
		%	7,1	0,0	0,0	7,1	
	Borderline	n	0	3	0	3	
		%	0,0	10,7	0,0	10,7	
	Abnormal	n	2	9	12	23	
		%	7,1	32,1	42,9	82,1	
Total		n	4	12	12	28	
		%	14,3	42,9	42,9	100	

Hyperactivity of Control Group		After Therapy			Total	P Value	
		Normal	Borderline	Abnormal			
		n	n	n			
Before Therapy	Normal	n	17	0	0	0,157	
		%	60,7	0,0	0,0		60,7
	Borderline	n	1	4	0		5
		%	3,6	14,3	0,0		17,9
	Abnormal	n	0	1	5		6
		%	0,0	3,6	17,9		21,4
Total		n	18	5	5	28	
		%	64,3	17,9	17,9	100	

  

Behaviour of Control Group		After Therapy			Total	P Value
		Normal	Borderline	Abnormal		
		n	n	n		
Before Therapy	Normal	n	18	0	0	18
		%	64,3	0,0	0,0	64,3
	Borderline	n	2	5	0	7
		%	7,1	17,9	0,0	25,0
	Abnormal	n	0	2	1	3
		%	0,0	7,1	3,6	10,7
Total		n	20	7	1	28
		%	71,4	25,0	3,6	100

Source: primary data 2024

Table 2 shows the results of bivariate analysis using the non-parametric marginal homogeneity test. The findings indicate that the implementation of health education and *pappasang* significantly improved the peer group aspects of psychosocial development among adolescent respondents in the intervention group, with a p-value of 0.001 ( $p < 0.05$ ). Similarly, in the hyperactivity aspect, health education and *pappasang* were effective in improving the hyperactivity behavior of adolescents in the intervention group post-therapy, with a p-value of 0.014 ( $p < 0.05$ ). In terms of behavioral aspects, the intervention also proved effective in improving the behavioral aspects of adolescent behavior in the intervention group, with a p-value of 0.014 ( $p < 0.05$ ).

In contrast, the result of the bivariate analysis using the non-parametric marginal homogeneity test for the control group indicates that the implementation of health education was not effective in improving the peer group aspects of psychosocial development among adolescents respondents, with a p-value of 0.001 ( $p < 0.05$ ). In the hyperactivity aspect, health education is not effective in improving the hyperactivity aspect of adolescent respondents in the control group after therapy with a p-value of 0.157 ( $p > 0.05$ ). However, in behavioral aspects, health education is effective in improving the behavioral development of adolescent respondents in the control group after therapy with a p-value of 0.046 ( $p < 0.05$ ).

## Discussion Peergroup

The implementation of health education on psychosocial development, online gaming, and *pappasang* has been effective in enhancing adolescents' ability to interact with their peers or groups. The researchers suggest that the improvement in peer group interactions is due to the group-based format of the therapy, which fosters greater interaction and closeness among adolescents. In addition, the health education and *papassang* materials were designed to increase adolescents' awareness of the importance of socializing, starting from the smallest group and extending to the broader community. These materials also aimed to educate adolescents on the ethics and norms of social interactions, particularly through the *pappasang* method.

These findings is in line with the results of other studies, which suggest that health education on adolescent psychosocial development can improve adolescents' ability to build relationships in groups (Hanafi et al., 2023). The health education material provided teaches about the importance of good communication with others, proper emotional management, and how to maintain and improve physical development. This approach is followed by direct implementation, allowing adolescents to better understand and apply the material. Furthermore, conducting health education in group settings has been



shown to improve the peer group interactions among adolescents (Kusuma et al., 2022).

The application of *pappasang* has also proven effective in improving adolescent psychosocial development, particularly in the peer group aspect. *Pappasang*, a tradition passed down through generations in Mandar, conveys messages that encompass values, morals, ethics, and religious teachings, with the aim of being understood and applied to all generations with the intention of being understood and applied by all generations within Mandar community (Ridwan et al., 2022). The values embedded in *pappasang* can be implemented by adolescents in interacting with peers or groups. Adolescents with attitudes, ethics, and religious values will establish positive interactions with peers and foster mutual respect (Listari, 2021; Sanger & Kasingku, 2023).

The material on online games provided in this health education significantly increases adolescents' understanding of the potential dangers or negative impacts of using online games. Adolescents who possess strong peer group skills, along with positive attitudes, values, and adherence to social norms, are better equipped to prevent online game addiction (Khairani & Yusri, 2023). Positive peer relationships can be a source of social support for adolescents when facing problems, so they do not make online games an escape (Faizal et al., 2024).

### Hyperactify

The application of health education and *pappasang* has been effective in reducing the level of hyperactivity among adolescents in this study. The researchers suggest that the decrease in hyperactivity is likely due to health education, which includes material on typical adolescent activities that support their development. Additionally, the group-based nature of the activities encourages adolescents to exercise self-restraint and avoid excessive behavior. Health education regarding psychosocial development also teaches the ability to control emotions, adolescents with stable emotions are better able to control their activities in accordance with established ethics and norms. The *pappasang* material provided further reinforces these ethics and norms, helping adolescents regulate their behavior, particularly in terms of social interactions and conduct.

The findings of this study align with the previous research which suggests that health education related to adolescent psychosocial development effectively promotes the regulation of adolescent

activities (Sarfika et al., 2024). These activities focused on fulfilling their psychosocial development such as maintaining a balanced diet, engaging in regular physical exercise, enhancing personal skills and hobbies, and fostering positive social interactions (Elisabeth et al., 2021). In addition, health education about online games also increases adolescents' understanding of the dangers of excessive use of online games which can trigger health problems such as emotional instability, anxiety, and depression (Faraci et al., 2023; Satria et al., 2024; Widyaningrum et al., 2023). Some studies indicate that the inability to manage emotions contributes to an increase in uncontrolled behaviors (Cabelguen et al., 2021).

Materials about *pappasang* are also effective for controlling adolescent activities. *Pappasang* teaches norms and ethics that guide behavior in everyday life (Ilyas, 2019). This teaching can positively influence adolescents, helping them control their activities in alignment with established ethical standards and social norms. Excessive or uncontrolled behavior among adolescents can lead to discomfort and disturbances within their social environment. Therefore, the ethical and moral guidance provided by *pappasang* is crucial in preventing such issues (Budi Ismanto et al., 2022).

### Behaviour

The implementation of health education on psychosocial development and *pappasang* is effective in improving adolescents' ability to control behavior positively. This is in line with the results of other studies which state that health education on adolescent psychosocial development can improve good behavior. The health education material provided is related to good behavior as an adolescent. In addition, adolescents are also encouraged to implement positive behavior, helping to integrate them into their character development (Asyia et al., 2022; Sarfika et al., 2024).

The application of *pappasang* has also proven effective in improving adolescent psychosocial development, particularly in fostering positive behavior. The values contained in *pappasang* can guide adolescents toward positive behavior, such as mutual respect, helping others, and avoiding harm (Ilyas, 2019; Ridwan et al., 2022). Adolescents with positive behavior demonstrate significant progress in their psychosocial development.

Positive behavior is considered as an essential skill for adolescents in managing challenges, preventing self-destructive behavior, avoiding harm to others and

the environment, and engaging in reasonable activities when facing problems by asking others for help (Pangaribuan et al., 2019). Such positive behavior and productive activities indicate an achievement of adolescent psychosocial development (Elisabeth et al., 2021). Conversely, negative behavior and activities in adolescents are often associated with online game addiction (Erida Fadila et al., 2022; Jeong et al., 2020). Adolescents with positive behaviors and activities are more likely to employ effective coping strategies when addressing problems, rather than resorting to online games as an escape, which can heighten the risk of addiction (Bender & Gentile, 2019).

## CONCLUSION

The application of health education and *pappasang* in the intervention group effectively improves the aspects of peer group, hyperactivity, and behavior in adolescents after the therapy. In contrast, the control group did not show significant improvement in the aspects of peer group and hyperactivity after the therapy, although there was a notable increase in behavioral aspects after the intervention.

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