RESEARCH ARTICLE

The Influence of Health Education and Group Therapy on Adolescent Online Gamers' Self-Concepts

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Introduction: The rapid development of online games is currently marked by the increasing number of adolescent game players. This was particularly true during the COVID-19 pandemic that forced all activities to be done at home. Adolescents who play online games excessively, however, can risk their self-concept. Adolescents' ability to control the increasing habit of playing online games can help them reduce the risk of self-concept problems by enhancing their adaptive behavior at their crucial psychosocial development stage. Health education and group therapy can be employed to attain this goal.

Aims: The authors of this study aim to determine the effectiveness of health education and group therapy regarding the self-concept of adolescents who play online games excessively.

Methods: As the research design, this study applied a quasi-experimental pre-posttest with a control group. The research respondents were selected using the stratified, proportional, and simple random sampling techniques. Seventy-six adolescents comprised the respondents of this study, divided into two groups. The respondents' inclusion criteria were adolescents aged 15–16 years old who had played online games for at least the last 12 months.

Results: The self-concept of adolescents in the intervention group has increased after implementing health education and group therapy ($p < .05$). In contrast to this, the self-concept of adolescents in the control group has not changed after implementing health education and group therapy ($p > .05$).

Conclusions: Health education and group therapy effectively improve the self-concept of adolescent gamers.

Keywords: self-concept, adolescence, health education, group therapy, online games addictions

Introduction

Online game development has rapidly increased among adolescents, especially during the COVID-19 pandemic, public health responses to which forced all activities to be done at home in order to avoid the transmission of the COVID-19 virus. Online games can be a major medium to entertain adolescents when they lack social activities at home. Indonesian adolescents playing online games ranked the highest in ASEAN in 2017 (Osborn, 2016). Unfortunately, excessively playing online games can endanger adolescents' developmental age and their self-concept.

Psychosocially, the developmental stage of adolescence refers to the phase of forming a self-identity that needs to be achieved based on the goals, roles, and characteristics that exist in adolescents. Adolescents who are able to adapt to changes during their psychosocial developmental stage will have a more positive, better self-concept. Self-concept constitutes an adolescent's intact, structured, and dynamic thinking based on learning, behavior, and other people's opinions about him (Berman et al., 2016). Moreover, self-concept refers to perception and a way of thinking that shapes individual beliefs and ideas about oneself (Ducasse et al., 2019). The formation of self-concept in adolescent boys and girls is not significantly different. One study has shown that adolescent girls possess a better self-concept than do adolescent boys (Nurliana, 2015). Adolescent boys tend to be attracted to challenges, such as online games; thus, they are more likely to suffer from mental health problems. Conversely, another study describes how adolescent boys possess a better self-concept than adolescent girls because girls focus more on physical development and body image (Widiarti, 2017). Although these two studies show different perspectives, it is believed that a positive self-concept in adolescents stands always in line with healthy physical and mental conditions (Berman et al., 2016).

Excessive online gaming behavior can lead to self-concept problems and a corresponding behavior. Some studies have revealed that engaging in online games tends to increase adolescents' maladaptive self-concept (Beard & Wickham, 2016). Furthermore, excessive online gaming activities can negatively influence the formation of self-concept and real social interaction (Ayu & Saragih, 2016). Isolating behavior in adolescents increases online gaming activities (Chen et al., 2018). Individuals who experience low self-esteem tend to experience internet addiction (Sariyska et al., 2014). Low self-esteem makes them withdraw from their environment; consequently, they play online games to escape from reality and to reduce perceived stressors (Kaptsis et al., 2016). Low or negative self-concept drives adolescents out of control when playing online games; such a condition can cause mental health problems including addiction, clinical distress, bullying, all of which adversely affect adolescents mental health status, creating psychosocial problems, including decreased life satisfaction levels, anxiety, and depression. (Altintas et al., 2019; American Psychiatric Association, 2013; Bargeron & Hormes, 2017; Choi, 2014; Weinstein, 2010).

Health education and group therapy can help establish a good self-concept by optimizing the stage of adolescent psychosocial development. Establishing self-identity is one of the stages of adolescent psychological development. Adolescents are supposed to be able to understand themselves in their entirety, including their distinctions from others, recognize gender, be able to view all elements of themselves as a whole, judge themselves based on society's judgment, actualize themselves in previous, present, and future relationships, as well as set future values and goals consciously (Yusuf et al., 2015).

Health education is a method of guiding adolescents in making decisions that would lead to the development of a positive self-concept. Adolescents' understanding of how to maintain a positive self-concept could be improved by health education (Junike et al., 2015). Health education is conducted by providing information and behavioral methods. Providing information can be performed using various media, such as mass media, electronic media, and social media, and providing health service systems, whereas the behavioral method tries to encourage adolescents to behave healthily based on instructions or forms of training (Sarafino & Graham, 2006).

Adolescent group therapy constitutes a nursing intervention that is carried out in adolescent groups to stimulate the formation of self-concept through optimizing the stages of development. Group therapy is used because teenageers are interested in working in groups. (Purwati & Sulastri, 2019). They will feel secure in the group and that they are in the right place to express emotions (Sarfika et al., 2018). Group therapy can improve adolescents' adaptive behavior toward change and experience during adolescent development. Adolescents' response abilities to psychosocial, cognitive, spiritual, and creative development can be increased through group therapy (Fernandes, 2014). Providing therapy in the form of a group can offer support to group members, in this case adolescents, when an individual enters a period of chaos, has temporary decompensation, undergoes recovery, strengthens defense, and begins to include his or her classmate, who is also experiencing disorders, into the group (Sadock, 2010).

The description above denotes that the behavior of playing excessive online games can cause self-concept problems in adolescents due to a failure at the stage of adolescent psychosocial development. Several previous studies have revealed that health education and group therapy for adolescents can optimize the stage of their psychosocial development. However, these studies did not specifically or directly assess adolescents' self-concept, especially regarding adolescents who play online games. Therefore, this study aims to assess the effectiveness of health education and group therapy concerning the self-concept of adolescents who played online games excessively during the COVID-19 pandemic.

Methods

The quantitative quasi-experimental pre-posttest with control group method was employed in the study. The sample of this study consisted of 76 students made up of 71 males and five females from two state senior high schools in Indonesia's Morowali Regency, Sulawesi. The samples were selected using the stratified sampling, proportional sampling, and simple random sampling methods. The stratified sampling was implemented because the sample comprised only grade two students of senior high schools. Meanwhile, proportional sampling was employed because several subclasses existed in the 2nd grade of senior high schools. Finally, simple random sampling was selected to determine samples in each class based on the number according to the inclusion and exclusion criteria. The inclusion criteria were adolescents aged 15–16 years who had played online games for the last 12 months using a smartphone, but who had not been addicted to the games. The online gaming addiction in adolescents was assessed using the internet gaming disorder scale, containing questions about playing online games, problems caused by playing online games, symptoms of withdrawal in playing online games, and impacts on social activities when playing online games (Pontes & Griffiths, 2015). If some teenagers in the screening process had been diagnosed as addicted, further treatment would be performed to overcome the online game addiction. Before participating in the study, all the adolescents involved had submitted informed consents from themselves and their parents.

The therapy used in this study is health education and group therapy in adolescence. This investigation began with determining the research sample based on inclusion criteria and it continued with screening using an internet gaming disorder questionnaire instrument to assess addiction levels among adolescent online gamers. Adolescents who were addicted to online games were not included in this research; they were referred to medical treatment. The therapy was performed for three weeks by means of conducting a pre-test, health education, post-test 1, group therapy, and post-test 2. Health education was provided to both groups and continued with implementing group therapy in the intervention group. Meanwhile, the control group was left with free ordinary activities.

Health education consisted of two meetings in each group. The material was provided on health education regarding adolescent development, assertive communication, and online game addiction. Health education was conducted by means of lectures and discussions. Group therapy consisted of six meeting sessions: stimulating adaptation to changes in biological and psychosexual aspects at the first meeting, stimulating adaptation to changes in cognitive and language aspects at the second meeting, stimulating adaptation to changes in moral and spiritual aspects at the third meeting, stimulating emotional and psychosocial development at the fourth meeting, stimulating the development of talents and creativity at the fifth meeting and the sixth meeting, and finally, monitoring and evaluating experiences and the benefits of the training. Each group therapy session included lectures, roleplay, and independent exercises during the next session's meeting. Each therapy session lasted for 60 minutes with a two-day gap between meetings.

This study employed the self-concept clarity scale to assess self-concept (Campbell et al., 1996) that were translated into Indonesian and tested using the validity and reliability test with the item-total correlation value ≥ .3610 (r = .363 – .771). The self-concept clarity scale questionnaire refers to the structural aspects of self-concepts and the extent to which adolescents can define their self-confidence externally and internally (Campbell et al., 1996).

The characteristics (age and gender) of adolescent respondents in the control and intervention groups and their self-concepts were analyzed using descriptive statistics and different statistical tests. The normality test was conducted using a Kolmogorov-Smirnov method to examine the self-concept of both groups before and after the therapy. In the bivariate analysis, the homogeneity test was conducted using Levene's test to examine the adolescents' self-concept in both groups before and after the therapy. Changes in self-concept before and after the therapy's implementation were analyzed using a parametric dependent t-test in the control group. This test was employed because the data demonstrated that the self-concept of adolescent respondents in the control group was normally distributed before and after the implementation of health education and therapy of the group. Meanwhile, changes in the self-concept of adolescent respondents in the intervention group before and after the implementation of therapy were analyzed using the Wilcoxon non-parametric test. This test was employed because the data on self-concept descriptions of adolescent respondents in the intervention group were not normally distributed before and after the implementation of health education and group therapy.

Results

All of the respondents in the intervention group were male. Meanwhile, the control group consisted of 86.8% male respondents and 13.2% female respondents. The average age of respondents in both groups came to 16 years, with the youngest respondents' age being 15 years and 17 being the oldest age.

Table 1. Characteristics of Respondents' Age

Groups	n	Mean	Min-Max	SD	SE	95% CI	p
Intervention	38	16.11	15–17	0.727	0.118	15.87-16.34	.876
Control	38	16.05	15–17	0.733	0.119	15.81-16.29	

Table 2. Characteristics of Respondents' Gender (n = 76)

Groups	Male		Female		Total	
	n	%	n	%	n	%
Intervention	38	100	0	0.0	38	100

Table 3. Description of Changes in Respondents' Self-Concept before and after the Implementation of Health Education

Self-Concept	n	Mean	SD	SE	95% CI	p
Intervention Group						
Before	38	29.47	4.164	0.675	−0.332–0.121	.346
After		29.58	4.071	0.653		
Control Group						
Before	38	27.08	4.675	0.758	−0.359–0.464	.797
After		27.03	4.103	0.666		

Table 4. Changes in Respondents' Self-Concept before and after the Implementation of Health Education and Group Therapy

Self-Concept	n	Mean	SD	SE	95% CI	p
Intervention Group						
Before	38	29.47	4.164	0.675	−1.628-(-0.635)	.0001
After		30.61	4.071	0.660		
Control Group						
Before	38	27.08	4.675	0.758	−0.725-0.725	1.000
After		27.08	3.872	0.628		

Table 3 shows that the intervention group had no significant changes in the average self-concept value before therapy implementation and after the implementation of health education, with a p of .346 ($p > .05$). This result is derived from the Wilcoxon statistical test. The same condition is also found in the control group that does not have changes in the average value of self-concept before the implementation of therapy and after the implementation of health education with a p of .797 ($p > .05$). This result is derived from the dependent t-test statistical test.

Table 4 shows that the intervention group has a significant change in the mean value of self-concept after the implementation of health education and group therapy with a p of .0001 ($p < .05$). This result is derived from the Wilcoxon statistical test. However, the dependent t-test and statistical test have revealed that the control group does not show a significant change in the mean value of self-concept after the implementation of health education and group therapy with a p of 1.000 ($p > .05$).

Discussion

Health education and group therapy provided the improvement of adolescent self-concept in the intervention group. Although there was a significant change in self-concept in the intervention group, the increase in self-concept scores was not huge. On the other hand, the adolescents in the control group who simply received health information, did not improve their self-concept at all. Health education is a process of shaping and changing lifestyles to assist individuals

or communities with making decisions related to health maintenance and improvement (Aziz & Soewondo, 2008). Health education in adolescents has not effectively improved their self-concept because health education only effectively targets their knowledge (Setiowati, 2014), especially when it utilizes leaflets (Sari, 2019) to change their beliefs, understanding, and attitudes towards health (Aziz & Soewondo, 2008). Health education effectively optimizes stages of adolescence development, but it has not been able to improve the ability of adolescents to control their emotions (Dinarwiyata, 2014). Self-concept formation must begin with the development of youth knowledge and skills.

Further exercises on the topic of health education materials are necessarily conducted using group therapy so that this therapy can be internalized, moving towards the formation of self-concept. Group therapy for adolescents constitutes a part of group therapy of which the main focus is to prevent disorders through teaching and effectively deal with emotional stress in a situation or developmental crisis (Townsend & Morgan, 2018). Group therapy targets adolescents' self-concept because it is implemented by means of discussing changes experienced during adolescent development and training. As a result, the adolescents can be creative in adapting themselves to the change they have experienced. Adolescents can apply their knowledge, acquired during health education, in the form of independent practical exercises to improve development psychomotoric and perceive the effects and benefits of the therapy (Rukmini, 2008). Group therapy was offered in several stages from Session 1 to Session 6 in order to stimulate adaptive behavior and change biological, psychosexual, cognitive, linguistic, moral, spiritual, emotional, psychosocial, talent-related, and creative aspects.

The group therapy implemented in the groups is effective because the respondents feel secure (Stuart, 2016). The group therapy could effectively increase the adaptive behavior of adolescents at the development stage. This finding lines up with other studies, which have revealed that group therapy can stimulate all development aspects and tasks of adolescents (Hasanah, 2015), improve adolescents' self-identity (Bahari, 2010), and enhance aspects of adolescent development abilities (Maryatun, 2014).

Stimulus and increased adaptation to biological aspects in the implementation of group therapy aims to assist adolescents in increasing their adaptive behavior regarding their biological changes, and their efforts to maximize their biological development. The increasing changes in adolescents' biological aspects of adolescents can be noted from the secondary sex development, such as breast growth in women, testes growth in men, and growth of armpit hair and pubis (Wulandari, 2014). Other changes include an increasing penis size, voice changes, thicker hair, changing face size, ejaculation, and an increased production of glands that trigger acne (Sarwono, 2016). Adolescents' biological aspects of development indirectly affect psychosexual aspects because changes in the biological aspects due to puberty can lead to sexual attraction to the opposite sex (Stuart, 2016). Through group therapy, adolescents can improve their understanding and optimally adapt to biological and psychosexual development.

Group therapy also provides adaptation stimuli to develop cognitive and language aspects. The cognitive enhancement adolescents experience can be assessed by explaining or proving a theory or fact as well as interpreting the objectives (Putro, 2017). According to Piaget, adolescents' cognitive development is a formal operational evolution characterized by abstract, inductive, deductive, and logical thinking and probability (Fontaine & Fletcher, 2003). The stimulus given to adolescents is intended to enrich insight and vocabulary knowledge when interacting with their environment so that the stimulus impacts adolescents' ability to develop abstract thinking. Rahayu et al. (2019) have proved that the implementation of group therapy could improve children's cognitive abilities.

Furthermore, the adaptation of stimuli to the moral and spiritual aspects of group therapy can make adolescents understand the moral rightness, wrongness, or badness of actions they do. Teens must be able to recognize such values and rules that apply in their environment. Every adolescent's behavior and actions must follow the prevailing values and norms (Putro, 2017). Adolescents also need spiritual values to shape their identity to avoid deviant behavior (Innayati, 2012). Group therapy can develop their attitudes or views as a basis for restructuring the achievement of positive self-concepts, especially the formation of self-identity based on values, rules, and environmental views (Zsakai et al., 2017).

The emotional and psychosocial development adaptations that the group therapy provides aids adolescents in recognizing their emotional condition and positively interacting with their environment. Meanwhile, adolescents' good relationships enable them to develop greater health (Yoo, 2019). Teens are expected to be able to recognize and control their emotions when interacting with others. Group therapy can improve adolescents' emotional intelligence (Dinarwiyata, 2014). Moreover, group therapy stimulates aspects of development and adaptive behavior to improve adolescents' talents and creativity since they are beginning to prepare for future goals based on their talents (Putro, 2017).

The increase in self-concept in adolescents after undergoing group therapy can be seen from changes in the ability of adolescents to assess their self-image. After therapy, adolescents are able to see their positive self-image

including aspects of shape, size, function, meaning, limitations they have, as well as other objects attached to their bodies. A positive self-image in adolescents can be built through a healthy lifestyle, such as doing regular physical activities, having a positive relationship with others, avoiding negative self-assessments, and developing an adaptive self-image (Koulanova et al., 2021).

Group therapy also enhances adolescents' self-perception as an intact or ideal personality who behaves via following certain standards, aspirations, goals, and values. Adolescents obtain the opportunity to determine or improve the standards, aspirations, goals, and values which they have owned or believed throughout their lives. Self-ideals are sometimes realistic; conversely, an individual's position or role will not be much different from what has already been believed (Berman et al., 2016). Adolescents' self-ideal depends on their perception of behaving according to their standards (Agustin et al., 2018). The better and more positive standards of values there are for them, the more positive and increasingly ideal their self-concept is.

The role in self-concept bears a positive impact on adolescents after administering group therapy. A role consists of a series of patterns in behavior, attitudes, values, and goals that the environment desires for people based on an individual's position or achievements in society and social groups (Yusuf et al., 2015). Group therapy, therefore helps adolescents find their identity and understand their role as students; moreover, they should play their roles by means of learning to achieve something as children. Finally, they should perform their roles in helping their parents do the chores.

Self-identity is an individual's awareness, based on the observations and judgments of himself and others. Group therapy assists the adolescents in understanding that they are entirely different from others. Moreover, the therapy allows adolescents to express emotions to strengthen their self-identity (Gu et al., 2020). An individual's ability to recognize his ideal role and self-image can increase his self-esteem. Increased self-esteem may also occur in individuals with high self-concepts because they are able to adapt to interpersonal relationships. (Yang et al., 2021).

Improving the respondents' self-concept can prevent the addictive behavior of playing online games. Increasing self-concepts raises coping teenagers' ability to avoid addiction to online games. Adolescents can still play online games but only to entertain themselves and spend their free time. They should not be addicted because they have priorities and goals to achieve. Good self-concept can reduce problematic behavior (Ducasse et al., 2019). Adolescents are able to focus on aspects of improving themselves and their social environment and should reject excessively playing online games. Physical activities, extracurricular programs at school, habitual book reading and playing music can become protective factors against the risk of online gaming addiction (Hong et al., 2019). Adolescents who partake in constructive outdoor activities, such as sports and recreation, can reduce the intensity of playing online games (Kapoh, 2015). Moreover, adolescents with high levels of physical activity tend to have good academic grades (Haapala et al., 2020). Good self-concept also enables adolescents to control their emotions and prevents psychosocial problems that are risk factors for addiction (Laconi et al., 2017; Wartberg et al., 2019; Yu et al., 2018). Strengthening self-identity in adolescents can protect them against privacy violations in online social media, such as online games (Elsayed, 2021).

Good self-concept in adolescents imparts an effect on good physical and mental health that facilitates them to perceive, think, and form positive beliefs and ideas about themselves (Ducasse et al., 2019). Adolescents' knowledge enables them to recognize themselves consciously and thoroughly, realizing that they are distinct from others, recognizing and accepting their gender, viewing all self-aspects in harmony, accepting and recognizing themselves as a whole without environmental influence or assessment (Yusuf et al., 2015). Adolescents' good self-confidence and attitude may demonstrate a strong stability in their self-concept (Krol et al., 2020). They can adjust and perform their duties and roles as children, students, and as members of their environment. Their ability to perform these roles will prevent them from frustration that could decrease their self-esteem (Yusuf et al., 2015).

Strength and Limitations

The strength of this study is that it provides problem solutions in the field of adolescent self-concept, a self-concept that can be disrupted due to excessive online gaming behavior during the COVID-19 pandemic, resulting in online game addiction. The solution lies in the form of implementing health education and group therapy for adolescents.

This study carries several limitations. First, the interventions, namely health education, and group therapy, were implemented at school during the school hours and in the course of the COVID-19 pandemic in Indonesia because the school did not allow the researchers to involve students outside of school hours. This policy affected the adolescents' focus on the research and their learning process in classrooms. Moreover, their focus on learning and exercising

their developmental tasks based on group therapy was also hampered because they had to complete school assignments. Second, respondents' demographic characteristics were not evenly distributed between the intervention and control groups. The control group had five females while the intervention group did not have any. This was due to the sampling technique carried out randomly on all students who met the study's inclusion and exclusion criteria. So, the researchers could not equally divide the respondents between the intervention and control groups based on gender.

Conclusion, Implications, and Future Directions

Health education and group therapy are effective in improving the self-concept of adolescent online gamers. A good self-concept aligns with optimal physical and mental health so adolescents can focus more on constructive activities that are beneficial for themselves and the environment, and it also enables them to abstain from excessively playing online games to avoid health problems.

This article is expected to have an impact on efforts to prevent online game addiction in those adolescents who play online games. The authors hope further research will be suitable for assessing how much influence online game addiction has on changes in the self-concept of adolescents who excessively play online games.

Author contributions
Boby Nurmagandi: conceptualization, design, methodology, investigation, project administration, data management, formal analysis, interpretation, supervision, writing original draft, writing review and editing.
Achir Yani S. Hamid: conceptualization, design, methodology, funding acquisition, project administration, interpretation, supervision, writing original draft.
Ria Utami Panjaitan: conceptualization, design, methodology, data management, formal analysis, interpretation, writing original draft.
All authors gave final approval of the version to be published and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Declaration of interest statement
The authors have no conflicts of interest to disclose.

Ethical statement
This manuscript is the authors' original work.
The authors confirm that their research was approved by Prof. Dra. Setyowati, S.Kp., M.App.Sc, Ph.D and by the Ethics Committee of the Faculty of Nursing, University of Indonesia, Depok City, Indonesia, license number: SK-68/UN2.F12.D1.2.I/ETIK.
The authors declare that all participants participated in the research voluntarily and anonymously. The participants provided their written informed consent to participate in this study. Their data are stored in coded materials and databases without personal data, and they have policies in place to manage and keep data secure.

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