Original Research

The Effect of Brainstorming, Buzz Group and Simulation (BBS) Methods on Self Control in Adolescents

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Introduction: Adolescent self-control is the ability to regulate emotions, behavior, and thoughts when facing challenging or difficult situations. This study aims to determine the effect of the BBS method on self-control in adolescents.

Methods: This study used a quasi-experimental pre-test and post-test control design to determine the effect of the BBS method on self-control in adolescents. The population used is youth aged 15-21 years as many as 140 adolescents and the sample count is 120 adolescents in the village of Dukuhklopo using simple random sampling. The research instruments used were standard operating procedures for BBS and questionnaires to determine self-control abilities in adolescents. Data results have been analyzed with Wilcoxon and Mann-Whitney tests.

Results: Based on the results of the Wilcoxon test of intervention and control group showed that p= 0.000, which meant that there were differences in adolescent self-control before and after the intervention in the intervention group and the control group. Mann-Whitney test result shows the p-value in the treatment group showed p= 0.021 (p <0.05), this meant that there was a difference between before and after the intervention in the treatment group.

Conclusion: BBS method can be used as a way to improve self-control abilities in adolescents. This method can be used to provide nursing care to adolescents who have decreased self-control abilities, such as to increase emotional control, control deviant sexual behavior, control promiscuity, and all other forms of juvenile delinquency.

Keywords: brainstorming, buzz group, simulation, self-control, adolescent

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INTRODUCTION

Adolescence is a period of transition from childhood to adulthood. During this time, many changes occur in a person. These changes can be positive or negative, including in the ability of self-control in adolescents [1]. Self-control is a person’s ability to control their thoughts, emotions, and behavior in demanding situations. Self-control is very important in everyday life because it can help a person avoid unwanted or dangerous actions, and help a person achieve long-term goals. During adolescence, individuals are experiencing many physical and psychological changes that can affect their ability to control themselves [2]. But in fact, a higher score indicates more self-control problems in the Netherlands adolescents [3]. The results of another study in Serang Indonesia show that adolescents in the city of Serang have sufficient self-control skills or can be said to be able to control themselves enough [4]. Therefore, it is necessary to make efforts to improve the ability of self-control in adolescents.

According to Goldfried and Merbaum, the meaning of self-control is the individual ability to be able to bring individuals into things positive. Whether it’s managing, directing, composing, or guiding themselves. In this case, the individual must be able to control themself into positive things such as positive behavior, self-control in negative behavior, and change behavior to be better with what they want [5]. Furthermore, according to Hurlock quoted from M. Nur Ghufron and Rini Risnawati S. Self-control is related to emotions. Where they must be able to control their emotions as well as other impulses that exist in them. Individuals must be able to manage emotions according to the situation and conditions. This self-control can also make students aware of the dangers of emotion that cannot be controlled, with good self-control in students it will form a great character in them [5].

The results of the previous study show that adolescents who have a good level of self-control about self-control abilities, most of these adolescents have never committed harmful actions [5]. Another research states that exposure in the form of visual images is sufficient to provide changes for high school adolescents in exercising self-control [6]. However, in receiving a stimulus that is manifested in the form of a message contained in the slogan or picture, it is necessary to have support from other factors that strengthen the message regarding the ability to self-control so that it can be more convincing for adolescents to receive and understand the stimulus given [7].

Based on some of the things above, researchers are interested in doing this research. So, this study aims to analyze the effect of Brainstorming, Buzz group, and Simulation (BBS) methods on self-control in adolescents.

METHODS

This study uses a quasi-experimental pre-test and post-test control design. The population in this study were adolescents aged 15-21 years in Dukuhklopo Village, Peterongan District, Jombang Regency, as many as 140 adolescents. From 140 adolescents, the
researcher use Slovin’s formula with e value of 0.05 to get the sample and the result is 104 adolescents, to avoid missing observations the sample size is increased by 15% and the sample count is 120 adolescents who were divided into 2 groups, namely 60 treatment groups and 60 control groups.

The inclusion criteria in this study were that adolescents lived at the research location, could read and write and had at least junior high school education, were male and willing to be research respondents. Exclusion criteria in this study, namely: teenagers who refuse to be respondents and teenagers that just visit a while in the research area. The criteria for dropping out in this study were teenagers who withdrew as respondents and teenagers who were not fully present in activities. In this study, there were no respondents who experienced dropping out. The sampling technique used simple random sampling which is done by drawing lots to choose the respondent. The first step taken was to record the names of adolescents in the village of Dukuhklopo, then these names were compiled into a list of names, and 140 names were collected and then 60 people were randomly selected for the treatment group and 60 people for the control group.

This study used standard operating procedures (SOP) for BBS implementation that adopted from the research before [8] and questionnaires to assess self-control in adolescents which refers to aspects of self-control according to Averil 1973 which consists of 12 statements to assess the ability to control behavior, the ability to control cognition and the ability to control decisions. Based on the validity test using SPSS, all questions were declared valid and the value of the questionnaire reliability test was 0.756 so this instrument is valid and reliable. This research was conducted by giving Brainstorming, Buzzgroup, and Simulation treatment to the control group for 3 months divided into 6 meetings, so every two-week researcher collected the teenager to give Brainstorming, Buzz group, and Simulation to improve their self-control. In the first meeting before the BBS intervention, the teenagers must fill out the self-control instrument and after 3 months the teenagers must fill out the same questionnaire. The control group received counseling conventionally by giving a self-control questionnaire before and after the counseling.

Data was collected and analyzed descriptively and analytically. Descriptive analysis using SPSS and analytical analysis using Wilcoxon test to find out the difference in self-control before and after the intervention and Mann-Whitney test to determine different changes in adolescent self-control abilities in the control group and intervention group. This research ethics was done in Institut Teknologi Sains dan Kesehatan Insan Cendekia Medika Jombang with the number of ethics 034/KEPK/ICME/XI/2022.

RESULTS
Teenagers who were respondents were 120 students who were divided into 60 students in control and intervention groups. None of the respondents experienced a dropout, so all adolescents participated in the research process in both the intervention and control groups until it was completed.
The respondent demographic data show that almost all of the respondents were in middle adolescence age. In this period a teenager has a high curiosity and a period of searching for identity. Most of the youth have a senior high school education, a period that prioritizes friendship over anything else. The average education of the respondent’s parents is junior high school. In theory, this will affect the mindset and pattern of educating adolescents.

Based on Table 2, it can be seen that changes in adolescent self-control before and after the intervention were from those who previously had sufficient self-control abilities to be good. Whereas in the control group, the most changes in adolescent self-control before and after the intervention were from those who previously had low self-control ability to sufficient. Both the intervention group and the control group experienced changes in self-control abilities before and after treatment. This change was proven by the Wilcoxon test in the control and intervention groups which showed a value of $p = 0.000$, which means there were differences in self-control in adolescents between before and after being given the action in both the control and intervention groups.

Comparison of adolescent self-control before and after intervention in the treatment and control groups. Based on the results of the Mann-Whitney test, the $p$-value showed $p = 0.021$ ($p < 0.05$), this meant that the intervention group had better self-control changes than the control group.

Respondents in the treatment group experienced an increase in self-control abilities, respondents who initially had insufficient self-control abilities became 64.3% of respondents, and respondents who initially had sufficient self-control became good as many as 76.2% of respondents after being given the BBS method intervention.

Meanwhile, the results in the control group showed $p=0.021$ ($p<0.05$), this meant that there were differences before and after the intervention in the control group. Respondents in the control group experienced an increase in self-control abilities, respondents who initially lacked self-control abilities became sufficient there were 57.1% of respondents, respondents who initially had enough self-control became good as many as 50% of respondents. In the control group, there was a decrease in self-control from sufficient to less by 6.25%.
### Table 1
Respondent characteristics

<table>
<thead>
<tr>
<th>Respondent Characteristics</th>
<th>Intervention Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-18</td>
<td>56</td>
<td>93</td>
</tr>
<tr>
<td>19-21</td>
<td>4</td>
<td>0,7</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diploma/Bachelor</td>
<td>4</td>
<td>7,7</td>
</tr>
<tr>
<td>Senior High School</td>
<td>37</td>
<td>61,7</td>
</tr>
<tr>
<td>Junior High School</td>
<td>19</td>
<td>32,4</td>
</tr>
<tr>
<td><strong>Parents Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior High School</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>Junior High School</td>
<td>30</td>
<td>50</td>
</tr>
<tr>
<td>Elementary School</td>
<td>18</td>
<td>30</td>
</tr>
</tbody>
</table>

### Table 2
Pre and post-test Self-Control

<table>
<thead>
<tr>
<th>Group</th>
<th>Self-Control</th>
<th>Post-test</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Less</td>
<td>Enough</td>
<td>Good</td>
</tr>
<tr>
<td><strong>Intervention</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>Less</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Enough</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Good</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>9</td>
<td>22</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>Less</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Enough</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Good</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>16</td>
<td>25</td>
</tr>
</tbody>
</table>

### Table 3
The differences in self-control between intervention and control groups

<table>
<thead>
<tr>
<th>Self-control</th>
<th>Treatment group</th>
<th>Control group</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Increase</td>
<td>37</td>
<td>61.7</td>
<td>30</td>
</tr>
<tr>
<td>Constant</td>
<td>23</td>
<td>38.3</td>
<td>29</td>
</tr>
<tr>
<td>Decrease</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>100</td>
<td>60</td>
</tr>
</tbody>
</table>
DISCUSSION

Based on the results of the research above, respondents in the treatment group experienced an increase in self-control abilities, respondents who initially had insufficient self-control abilities became 64.3% of respondents, respondents who initially had sufficient self-control became good as many as 76.2% of respondents after being given the BBS method intervention. According to Pender in the theory of the Health Promotion Model (HPM), suggests that humans have the basic ability to learn from the experiences of others, self-reflect, think about one’s thought process, and actively modify it in forming future thoughts to anticipate certain events that will arise. This means that a human being continues to make changes to themselves as a result of interactions between themselves and other people or the environment, and health workers can become part of that environment. The end result of this theory is self-improvement in a person. Self-advancement is a person’s ability to perform certain actions that develop through experience, learning from other experiences, verbal persuasion and bodily responses to certain situations. Self-improvement is a function of excessive capabilities that shape competence and self-confidence. Progress is a central construct of HPM. In accordance with the assumptions in the HPM theory, in this study the researcher hopes for self-improvement in one’s self-control. Self-advancement in a person can be formed with training or health education. The training or education can be done using a variety of methods. The educational methods used in this research are Brainstorming, Buzz Group, and Simulation (BBS). This method can improve one’s self-control with a combination of three methods at once, namely stimulating one’s critical thinking with brainstorming, recalling one’s self-control using a buzz group and strengthening self-control using the simulation method [9].

Characteristics of respondents based on age, both in the treatment and control groups were almost all aged between 15-18 years, namely 56 respondents (93%) in the treatment group and 54 respondents (90%) in the control group. In this age period, we must choose the best method to involve them. The brainstorming method is a method of collecting a large number of ideas from a group of people in a short time, this method is often used in creative problem-solving and can be used alone or as part of other strategies [10]. Some of the advantages of applying the brainstorming method are as follows, namely providing opportunities for participants to express opinions, training participants’ critical and analytical skills, encouraging participants to be able to respect the opinions of others, and stimulating participants to think holistically [11]. So, this method is suitable for adolescents.

Based on education in both the treatment and control groups, most of them had senior high school education, namely 37 respondents (61.6%), while in the control group, there were 38 respondents (63.3%). This show that their critical thinking is at the best age. Critical thinking is a process of reflective thinking that focuses on deciding what to do. The characteristics of critical
thinking are as follows, identify in detail the parts of the decision; good at detecting problems; able to distinguish relevant ideas from irrelevant ideas; able to distinguish fact from fiction or opinion; can distinguish between constructive and destructive criticism; able to identify the attributes of people, places, and objects, such as in nature, shape, form, and so on; able to register all possible consequences or alternatives to solving problems, ideas and situations; able to make sequential relationships between one problem and another; able to draw generalization conclusions from data that has been available with data obtained in the field; able to make predictions from available information; be able to distinguish wrong and correct conclusions from the information received; able to draw conclusions from existing and selected data [12].

Based on the theory above, it can be concluded that the brainstorming method is the right method to improve one's critical thinking. In this study, respondents expressed their opinions related to self-control, collected them in their minds, analyzed the opinions of each participant, and concluded the results of the analysis they carried out. This condition is a characteristic of critical thinking according to the concept put forward by Ennis. This process can significantly increase the respondent’s self-control because all respondents feel they have a stake in determining the answer to the statement so that it will be easier to remember and self-control will also increase by itself. But the increase in experience to increase self-control that occurs at this stage is a maximum of 50%, because at this stage the participants are involved in the discussion process [13].

Respondents in this study after participating in the brainstorming then took part in the buzz group as a continuation of the intervention to increase the progressiveness of self-control. In this method, respondents will be asked to recall how to exercise self-control regarding a given theme by writing it alternately on a blackboard and then explaining the reasons why they wrote it on the blackboard. This method makes each respondent try to recall related themes that they have previously learned in brainstorming. In this stage, one's self-control can increase to a maximum of 70% because participants present their opinions to others in written form and present them by giving reasons [14].

The last method invites respondents to see and demonstrate using simulation methods related to existing themes. After being invited to think critically and then remember again, in this method the researcher shows the reality in life related to the themes that have been studied before. At this stage, the provision of information is no longer only in oral or written form but in the form of simulations or demonstrations of artificial situations that exist in the real world which are carried out by each respondent. In accordance with Dale's statement, going through several stages in the BBS method means that someone gets information verbally, visually and performs simulations or does something real. So, this will increase one's experience by 90% and in the end can significantly increase one's self-control [15].
The results of this study are in line with the statement of Dale (1946). This was proven by an increase in self-control that occurred in the treatment group, wherein the self-control treatment group the respondents experienced an increase of 76.2%. This was because, in the intervention group, the researchers used the BBS method, namely brainstorming, buzz groups, and simulations which caused respondents to be exposed to the material presented more intensely than the control group which only did conventional counseling. There was also an increase in the control group, although not as big as the treatment group, which was 57%. In addition to increasing self-control, the control group also experienced a decrease in self-control, which was 6.25%. This fact shows that conventional counseling cannot improve self-control consistently. There are times when participants cannot understand well what is conveyed by the instructor, it can have the opposite effect, namely a decrease in self-control. This is because in the control group, only conventional counseling was carried out. In accordance with Dale’s theory (1946), carrying out the simulation stage will increase a person’s chance to remember up to a maximum of 90%, whereas using counseling alone can only increase self-control by a maximum of 50% [16].

Respondent characteristics also play a role in determining the results of this study. Based on the results of the study, almost all of the respondents' characteristics based on age in the treatment group were aged between 15-18 years. This age is the age stage where a teenager prefers to gather and play with his friends rather than study. Therefore, to increase adolescent self-control, it is necessary to carry out a special approach that is suitable for adolescents. An appropriate approach will easily increase adolescent self-control because adolescence is a period when one can easily learn. This statement is in line with the other research which states that self-control is influenced by several factors, namely age, gender, information sources, information exposure, and environment [17]. Age is one of the factors that affect the level of self-control. At this age, the level of self-control based on age results is less before the intervention. This period is characterized by negative traits in adolescents so that they are often restless, do not like to learn, and are pessimistic [18]. Broadly speaking, these negative traits can be summarized, namely negative in academic and non-academic achievements. At this time, teenagers generally prefer to play compared to looking for information related to self-control abilities. This is in accordance with the other expert opinion that at this age teenagers prefer to play than study [19].

The characteristics of respondents based on education in the treatment group mostly have high school education. SMA education is senior secondary education in Indonesia. High school education is sufficient education, wherewith adequate education can increase one’s self-control. This is because during the process of taking education, there is a learning process, so if the process can be passed properly it can increase one’s self-control. Various studies show that education is a protection for health [20].

Based on the research results, it was found that most of the respondents had
received information related to self-control abilities, whether from the internet, teachers, or family. Information is something that is very important in increasing one's self-control [21]. Adequate and appropriate information will make it easier for someone to understand something so that one's self-control can increase. Adequate self-control will cause a person to be wiser in his behavior [22].

The control group in this study also experienced an increase in self-control, although not as big as the intervention group. The increase in self-control in the control group occurred only in the aspect of the definition of self-control. This is because, in the control group, an intervention was also carried out, namely conventional counseling related to self-control. Providing counseling is a means of obtaining information for respondents so that with adequate information one's self-control will also increase. According to Dale (1946) providing counseling conventionally only increases a person's experience by up to 30% so that the increase in self-control is less significant. This is because conventional counseling only provides information verbally and visually without any active discussion. So that the output of one's self-control at this stage is only limited to knowing, namely remembering the material that has been studied before. The indicators are mentioning, describing, identifying, and stating. This is of course very different from the intervention group which can increase their self-control at least to the application stage, namely the ability to use the material that has been studied in actual situations [23].

LIMITATION

There are some limitations that can be given more attention to future researchers in further perfecting his research because this research itself of course has deficiencies that need to be continuously improved in research in the future. Some of the limitations in this study include time. In the intervention process researcher must wait until all of the respondents come before starting the intervention, and most of the respondents came late. In the data collection process, the information provided by the respondent through a questionnaire sometimes does not show the opinion of the respondent actually, this happens because sometimes there are differences in thinking, assumptions, and different understanding of each respondent, as well as other factors such as honesty factor in filling out the opinions of respondents in the questionnaire.

CONCLUSION

Self-control is a person's ability to control their thoughts, emotions, and behavior in a demanding situation. Self-control is very important in everyday life because it can help a person avoid unwanted or dangerous actions, and help a person achieve long-term goals. During adolescence, individuals are experiencing many physical and psychological changes that can affect their ability to control themselves. The suggestion for the next researcher is to control the confounding factor of the research, so the accuracy of the research can be better. Based on the fact that the BBS method can increase self-control in adolescents, it can be suggested
that this method can be used to provide nursing care to adolescents who have decreased self-control abilities, such as to increase emotional control, control deviant sexual behavior, control promiscuity and all other forms of juvenile delinquency.

CONFLICT OF INTEREST

There is no conflict of interest in this research.

REFERENCES


