A quasi experiment on group exercises to improve students’ resilience

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Abstract. Resilience is the ability to remain stable in maintaining balance after facing various difficulties and tribulations. The purpose of this study was to examine the effectiveness of group exercise techniques to develop student resilience. This study used a quantitative approach and quasi-experimental method with non-equivalent pretest-posttest control-group design. The study population was 421 high school students, and the research samples were selected by purposive sampling technique. The resilience level of Indonesia high-school student is mostly in the medium category. The findings showed that group exercises technique is effective to develop students’ resilience. Simple regression test results showed that the correlation between group counselling and group exercises techniques is quite strong. Program recommendation of group exercise techniques is aimed at schools that require group counselling programs with group exercise technique to develop student resilience, school counsellor and for future researchers to develop research with different subjects such as students in junior or elementary school or for adults.

1. Introduction
Resilience is the ability to remain stable in maintaining the balance after facing various difficulties and tribulations. The term resilience refers to the phenomenon of coping with stress or misery, since it is considered important as a competency that must be possessed by all people, so for the last twenty- or thirty-years studies of the concept of resilience have been developed [1]. The framework of resilience is based on contemporary views that emerge from the fields of psychiatry, psychology, and sociology about how children, adolescents and parents can recover and survive from stressful conditions, trauma and risk [2, 3], because stress, trauma and risk in life are conditions that tend to be experienced by all humans [3].

Conditions of stress, trauma, violence, and life-threatening situations are unpleasant experiences and lead to traumatic events for individual who have had. Unpleasant experiences and traumatic events that interfere with the normal functioning of individual life are known as adversity. It refers to experiences that have the potential to produce under-avoided outcomes by disrupting normal function.

Adversity is also not only experienced by teenagers. The problem of adolescence is often a problem that is difficult to overcome both by boys and girls [4]. Elkind and Postman mention the phenomenon of the late twentieth century, namely the development of similar treatment and expectations of children and adults [5]. The effects of the twentieth-century phenomenon caused today's children to experience a flood of stress that comes from rapid and confusing social change and the hopes of people who want them to play an adult role before they are psychologically mature to deal with it. These pressures have
some consequences such as failure at school, drug abuse, depression and suicide, somatic complaints and chronic sadness. Furthermore, it is said that people in the era of advanced technology today need to be very competent and skilled to manage the technology. The inability of adolescents to follow such rapid technological developments can make them feel failure, shame, loss of self-esteem, and emotional disturbances.

Bellak specifically discusses the influence of media pressure on adolescent development [5]. According to him, today's teens are faced with an environment where everything changes very quickly. They are flooded with information that is too much and too fast to absorb and understand. Everything continues to accumulate until it reaches what is called overload information. As a result, feelings of alienation, despair, absurdity, identity problems and problems related to cultural clashes arise.

The description above provides an illustration of how various problems experienced by teenagers today. Pressure as a result of physiological development in adolescence, coupled with pressure due to changes in socio-cultural conditions and the rapid development of science and technology often resulted in psychological problems in the form of self-adjustment or behavioral disturbances. In addition, children and adolescents around the world face various types of adverse, unpleasant and even traumatic experiences have potential to deal with developments, such as family disputes, weapons conflicts, homelessness, hunger, foster care in children, chronic diseases, loss of social problems, natural disasters and so on [6]. Teenagers who experience these events have survived but some are not. Teenagers who are not able to survive are vulnerable to deviations, this is due to frustration because they feel unable to get out or solve the problem. This is in line with the assumption that risky adolescents (at-risk adolescent) usually become a vulnerable teenager (troubled adolescent) [7]. It is not a coincidence that teenagers who experience psychological disorders due to being afflicted with misfortune or heavy pressure are still able to survive. Teenagers who are able to survive usually will rise again from the pressures of life faced and try to be better from before facing the pressure. The ability of people who are able to survive and rise again from the downturn is called resilience [8]. Resilience embodies personal qualities that allow a person to face difficulties.

The implication of the weak dimension of resilience has led to widespread suicide in adolescents [9]. Former drug addict teenagers who are returned to their families have the potential to return to being drug addicts (replace) if they are not resistant to obstacles in interacting with negative stigma.

Resilience is not only owned by a person or group of people, but everyone, including teenagers, has the capacity to become resilient. So, every individual, including teenagers, basically has the ability to learn dealing with unpleasant conditions in his life. Resilient adolescents are characterized as socially competent individuals, with life skills such as: problem solving, critical thinking, the ability to take initiative, awareness of goals and predictions of a positive future for themselves. They have special interests, targeted goals, and motivation to excel at school and in life [10]. Based on these expressions actual resilience is an ability that can be developed and trained. It is an integral part of education that play an important role in developing student resilience, so that in the future students can be better prepared to face and overcome all life's difficulties.

The development of resilience with the technique of group exercises is one alternative that can be developed because this technique is perceived as the most appropriate technique. In this technique there are various types of exercises depending on the type of group that is led, the variety of age and needs of the members and the topics or issues that will be discussed [11]. This is in accordance with the quality of resilience is not the same for everyone, as the quality of a person's resilience is largely determined by the age level, developmental level, intensity of a person in dealing with situations that unpleasant, and how much social support formed a person's resilience [10].

The group exercises technique is thought to be appropriate to use as one technique that can be given to students who have various resilience skills i.e. high, medium, or low. In addition, the aspects of resilience include social competence, problem solving, autonomy, and sense of purpose. All of this is completed in the group exercise technique [8]. So that it is expected that optimally students can experience the development and achieve significant improvement after conducting group counseling with the technique of the group exercises. Students who take part in group exercises activities can
directly practice creating group dynamics, namely training, working together, speaking, responding, listening, tolerating, empathy and so on in a group atmosphere. This activity is a means to develop themselves in the framework of learning for effective social interaction in small groups. From these activities later, students can apply into a larger group of real social life of the community.

One technique that can be used to help students develop resilience is group exercise techniques. Experts agree that group exercises play an important role in creating a group to be meaningful and interesting. Exercises can be quite powerful and cause members to gain insight into them. Certain exercises can cause members to get more in touch with who they are and how they interact [12]. Besides providing benefits for group members, the following are the reasons for using group exercises i.e. to increase comfort levels, to provide the leader with useful information, to generate discussion and focuses the group, to shift the focus, to deepen the focus, to provide an opportunity for experiential learning, to provide fun and relaxation [12].

2. Method
This study used a quantitative approach and the experimental method with a quasi-experiment design of non-equivalent control group design as the control and experimental groups were not chosen randomly. In this design, the research subjects were divided into two groups, namely the experimental group and the control group. The two groups were given pretest and posttest, then the results difference could later show whether or not the implementation of group exercises techniques was effective or not.

The population of this study is tenth grader of high school students that consist of 421 students. Sampling was done by purposive technique. In determining the participants in each group can be used as a reference, which the number of members in group counseling is between 2 and 15 people [13]. Based on the experts’ opinions, 22 students were taken to be participants in the study for convenience. So, the 22 people were divided into 2, one class 11 as a control group and 11 others as a group. The experimental group will be treated (intervention) while the control group was not treated.

3. Results and discussion
For testing the hypothesis this study used t-test as its parametric statistical techniques. Before testing the hypothesis, the data normality test was done by using a hypothesis test. It was examined by Shapiro-Wilk test to determine whether the data is normally distributed or not. SPSS statistical version 22.0 was employed for its calculation. The results revealed that the significance value of the experimental class is \( p = 0.290 \), so that \( p > \alpha \) and the significance value of the control class is \( p = 0.432 \), so that \( p > \alpha \). Thus, the sample population was normally distributed.

In addition, the normality test also carried out homogeneity test as a parametric statistical requirement. Homogeneity test is intended to show that two or more groups of sample data populations have the same variance. In regression analysis, the analytical requirements needed are as the regression error for each grouping based on the dependent variable has the same variance. The homogeneity was calculated by Levene test in SPSS. Levene test proposed that the data variation is homogeneous if the sig value > 0.05. The significance value (sig) of 0.107 was obtained which was higher than 0.05 (0.107 > 0.05). It shows that the results of the pretest of the experimental and the control group were homogeneous.

After having the normality and homogeneity of the data, hypothesis was assessed by parametric statistics. The results of the calculation are as follows:

| Group   | N  | Mean   | SD    | Std. Error Mean |
|---------|----|--------|-------|-----------------|
| Gain    |    |        |       |                 |
| Experiment | 11 | 14.1818 | 7.38672 | 2.22718         |
| Control | 11 | 2.9091 | 1.86840 | 0.56334         |

Based on table 1, the average value of the gain data in the experimental group utilized exercises technique is 14.18, while in the control group is 2.90. These results indicate that the experimental group
is greater than the average value of the gain data obtained from the pretest and posttest. The below table presented the results of the independent t-test of the experimental and the control group.

Table 2 shows that the Levene's Test for Equality of Variances data is homogeneous or the variance in the experimental and control groups is the same, as the significance value (sig)> 0.05 is 0.100. Independent t-test yielded \( t = 4.907 \) with degree (df) 20 and sig. (2-tailed) = 0.00. Based on the calculation results of sig. (2-tailed) (0.00) <\( \alpha \) (0.005), the experimental group has a significant change compared to the control group. So, this study rejected the null hypothesis (H0). Based on these results, it can be concluded that the use of group exercise techniques in counselling programs is effective to improve student resilience.

Table 2. T-Test result of gain independent data group of experiment and group of control independent samples test.

|                  | F   | Sig   | t    | df  | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference |
|------------------|-----|-------|------|-----|----------------|------------------|-----------------------|------------------------------------------|
|                  |     |       |      |     |                |                  |                       |                                          |
| Equal variances  | 2.972 | .100  | 4.907 | 20  | .000           | 11.2723          | 2.29732               | 6.480 – 16.064                          |
| assumed          |     |       |      |     |                |                  |                       |                                          |
| Gain             | 4.907 | 11.274 | .000 | 11.2723 | 2.29732 | 6.231 | 16.314 | 6.480 – 16.064 |
| Equal variances  |     |       |      |     |                |                  |                       |                                          |
| not assumed      |     |       |      |     |                |                  |                       |                                          |

Table 3 shows that the correlation between group counseling and group exercise techniques on student resilience is strong enough, this can be seen from \( R = 0.819 \). The positive relationship between variables \( X \) and \( Y \) revealed that the longer group exercise used, the higher the students’ resilience increase. The contributions supplied by group counseling with group exercise techniques on student resilience is \( 0.819 \) \( X \) \( 0.819 = 67% \), means that the remaining 37% is influenced by other factors. While the effective contribution is \( 0.819 \) \( X \) \( 0.671 \) \( X \) \( 100 = 55% \), means that the effectiveness of group counseling programs with group exercise techniques to develop student resilience is 55%.

The following is a test on the average differences seen from student resilience aspects to obtain a more detailed description of the effectiveness of the group exercise technique.

Table 3 below shows the 4 aspects of student resilience i.e. Sense of Purpose and Bright was not significant because it was sig. (2-tailed)> \( \alpha \) (0.05), while the other three aspects namely Social competence, Problem Solving, and Autonomy obtained significant increase due to the sig value. (2-tailed) <\( \alpha \) (0.05).

Table 3. T-test result of gain independent data group of experiment and group of based on resiliency of each aspect.

| No | Aspect                  | Group      | Mean  | SD    | t     | Sig (2-tailed) | Remark        |
|----|-------------------------|------------|-------|-------|-------|----------------|---------------|
| 1  | Social competence       | Experiment | 3.363 | 3.139 | 2.298 | 0.032          | Significant   |
|    |                         | Control    | 0.901 | 1.640 |       |                |               |
| 2  | Problem Solving         | Experiment | 5.363 | 6.946 | 2.182 | 0.041          | Significant   |
|    |                         | Control    | 0.727 | 1.190 |       |                |               |
| 3  | Autonomy                | Experiment | 5.727 | 4.776 | 3.119 | 0.005          | Significant   |
|    |                         | Control    | 1.090 | 1.221 |       |                |               |
| 4  | Sense of Purpose and    | Experiment | 0.363 | 1.026 | 0.388 | 0.702          | Not Significant|
|    | Bright                  | Control    | 1.818 | 1.167 |       |                |               |

Based on the results of preliminary research, the resilience level of Indonesia high school students is generally categorized as moderate i.e. 18.4% of students have high resilience, 68.4% have moderate categories, and 13.2% has low categories. That is why the research subjects in the control class also obtained an increase in scores even though not as much as the experimental class because the research subjects in the control class actually also have the ability to be strong and survive. So even without
intervention from guidance services they also learn to survive and be resilient because their innate resilience makes them able to bounce back from problems.

All Individuals Have the Power to Change. Many researchers and practitioners have attached to this personal attribute, creating a myriad of social and life skills programs to directly teach "resilience skills". This is the power of messages in resilience research. Personal strength from resilience, consistently resulting from the presence of care with a climate that attracts and encourages them to express themselves. Consistently identifies the strengths of three environmental protection factors that support risk and enable development, namely: relationship awareness, positive and high expectations, and opportunities to participate and contribute [8]. So personal strength is innate resilience and can actually be improved.

School can present an attractive climate and encourage them to express themselves. There are three factors that can actually be risky supporting factor. Those three factors are caring for relationships, positive and high expectations and opportunities to participate and contribute. Therefore, a significant increase in resilience scores in the experimental group identified a change in students' resilience scores in a positive outcome after being given treatment of group counseling services with group exercise techniques. This is due to the intervention of group exercise techniques which is one form of the three factors mentioned earlier, namely maintaining relationships, positive and high expectations and opportunities to participate and contribute.

The effectiveness of the group exercises technique contributes 55% to the development of high school students’ resilience. In addition, the contribution given by group exercise techniques is 67% for increasing the resilience level. This shows that there are other factors that can be supportive for developing student resilience; these factors are protective factors that come from families, the environment, and schools that collaborate to improve student resilience [8].

4. Conclusion
Based on the results of the study, it is known that the resilience level of Indonesia high school students viewed from students’ resilience level has 3 categories i.e. students with high resilience as much as 18.4%, students with moderate resilience as much as 68.4%, and students with low resilience as much as 13.2%. Referring to the resilience data above, it can be assumed that the school is considered to need group exercises techniques to improve student resilience. To make the program based on an analysis of the description of the needs of students per sub-aspect, group exercises program is focused on aspects that have sub-aspects with low categories, namely aspects of responsiveness, self-efficacy and mastery, humor, and faith, spirituality and sense of meaning. However, the intervention was carried out to develop all aspects of resilience. The results of the treatment given in the experimental class with group exercises technique can be seen in the experimental group which statistically obtained a significant increase. It can be seen from the total score before and after the intervention. The results of the t test shows that group exercises technique is effective for developing student resilience.

Simple regression test results show that the correlation between group exercises technique as an independent variable and student resilience as the dependent variable is strong enough seen from R = 0.819. The positive meaning is the relationship between independent and unidirectional variables revealed that the longer group exercises technique given the higher student resilience increase. The effective contribution of group exercises techniques program to develop resilience is 55%, while the contribution given from group exercises to develop student resilience is 67%. It means that there are still 33% who are influenced by other factors such as social support provided by the family, school, environment and community. Aside from this statistical calculation, behavior change can be seen through empirical observations and interviews conducted after the intervention. Based on this fact group exercises techniques can be concluded to be effective in improving students’ resilience.

References
[1] Rutter M 1999 Resilience concepts and findings: Implications for family therapy Journal of family therapy 21 2 pp 119-144
[2] Desmita D 2009 Mengembangkan resiliensi remaja dalam upaya mengatasi stress sekolah Ta’ dib 12 pp 1-10
[3] Bonanno G A 2004 Loss, trauma, and human resilience Journal of American Psychologist 59 pp 20-28
[4] Hurlock E 1980 Psikologi perkembangan: suatu pendekatan sepanjang rentang kehidupan (Jakarta: Erlangga)
[5] Retnowati S 2008 Remaja dan permasalahannya (Yogyakarta: Fakultas Psikologi Universitas Gajah Mada)
[6] Noltmeyer A and Bush K 2013 Adversity and resilience: a synthesis of international research Journal of School Psychology International 34 pp 474-487
[7] Schoon 2006 Risk and resilience. Adaptations in Changing Times (London: Cambridge University Press)
[8] Bennard B 2004 Resiliency: what we have learned (San Fransisco: WestEd)
[9] Nugroho W B 2012 Pemuda bunuh diri dan resiliensi: penguatan resiliensi sebagai pereduksi angka bunuh diri Jurnal Studi Pemuda 1 pp 31-45
[10] Desmita 2012 Psikologi Perkembangan Peserta Didik (Bandung: Rosda)
[11] Rusmana N 2008 Group exercice pelatihan tehnik-tehnik bimbingan kelompok menggunakan latihan kelompok
[12] Jacobs J 2012 Group counseling: interventions and technique 7 ed (California: Brooks/Cole Publishing Company)
[13] Rusmana N 2009 Bimbingan dan konseling kelompok di sekolah (Bandung: Rizki Press)