

Enhancing Adolescent's Emotion Regulation with Dialectical Behavior Therapy's Skill Training: The Applications across Borderline, Mild, and Moderate Intellectual Disability

Shahnaz Safitri*

Faculty of Psychology, Universitas Indonesia, Kampus UI Depok, West Java, 16424, Indonesia

Abstract: Intellectual disability (ID) is characterized by significant limitations in intellectual and adaptive functioning emerging before the age of eighteen-years-old. Known as a pervasive developmental disorder, the disability disturbs the individual's functioning on a wide range of cognitive and social realms, which further result in failure at school and interpersonal relationships. Nonetheless, the capacity for emotion regulation (ER) serves as a key role in supporting the individual's adaptation despite having a disability. Researches have found that ER can be taught as a skill for those with ID, specifically using Dialectical Behavior Therapy's (DBT) skill training as the basis for the program. Therefore, this study aims to examine further the application of this DBT program and its effectiveness in enhancing ER skills. The programs were delivered to three participants of adolescent aged (9-17 years old) in Indonesia, each having a moderate ID, mild ID, and borderline intellectual functioning (BIF). Using a single case study design (A-B-A procedure) where participants' ER skills were measured before and after the program, these studies showed the program was effective. However, in terms of application, it is noteworthy to highlight the adjustments needed during the program's delivery, considering the degree of disability. These adjustments are found in the program sequences, modality used for the program, the evaluation method used to record the participants' improvements, and the degree of skills developed. This paper examines these variations in depth to shed light on the applicability of DBT's program as in improving ER for individuals with ID and BIF.

Keywords: Borderline Intellectual Functioning, Dialectical Behavior Therapy, Emotion Regulation, Mild Intellectual Disability, Moderate Intellectual Disability.

INTRODUCTION

Emotion is part of human life, in which in our daily communication, we continuously convey emotions as nonverbal messages to be interpreted. Thus, it is not surprising that there are various definitions of emotion to describe this daily phenomenon of human interaction. Commonly referred to individual's affective side, in fact, emotion also includes the cognitive aspect as an individuals' attempt or readiness to establish, maintain, or change their relation to other individuals or surroundings according to their own needs [1]. This cognitive-based definition of emotion further leads to a concept of emotion regulation. Firstly introduced and defined by Gross and Thomson in 2007, emotion regulation is the process enacted by individuals to adjust their emotional experiences actively, in which it is done by considering the type of emotions, the time of and for experiencing those emotions, and how those emotions are channeled as a behavior [2,3].

Emotion regulation plays a role as part of the overall individuals' adjustment to their environment [3] and is also part of the individual general self-regulation. Emotion regulation enables people to respond with flexibility toward the change in the environment without

losing track of their intended goals [4]. Therefore, it allows individuals to adapt to unpredictability while persisting in goals pursuit. Further, it is said that mastering emotion regulation increases the likelihood of an individual's skill improvement in other realms of life. Among them is on the social skill, where it is found that emotion regulation enforces for the formation of social competences in adolescents for short-term and long-term gain [5]. This comes from the fact that the basis of emotion regulation is the ability to distinguish the type of emotion [6], where this capacity allows individuals to behave accordingly. Those who are more aware of their emotional state will be easier to regulate their emotional experience [7]. Further, social competences influence adolescents' learning performance through a positive student-teacher relationship. With emotion regulation skills, students become a more cooperative learner with the teachers and building their achievement motivation despite facing difficulties [8].

It is known that emotion regulation emerges from as early as kindergarten when the children learn to express their emotions [9], and then continues to develop into adulthood [10]. During this development, the skill mastered from kindergarten is an important building block for the emotion regulation skill development in childhood and adulthood [10]. The differences of individuals with the mastery or lack of

*Address correspondence to this author at the Faculty of Psychology, Universitas Indonesia, Kampus UI Depok, West Java, 16424, Indonesia; Tel: +6282112095602; E-mail: shahnazsafitri@ui.ac.id

emotion regulation skills are not only salient after adulthood but can also be found right from an early age. It is found that children who master emotion regulation, by successfully identifying their emotions and then act accordingly, are usually favoured by their social circles, are better in handling conflict, and also have better interpersonal competence [9].

Among adolescents in general, the need to adapt adequately in the physical and social surroundings becomes the main issue for the youth with borderline intellectual functioning (BIF) up to intellectual disability (ID) [11,12]. Youths with BIF are those who classified as having an intelligence score ranging from 70 to 85 [12], while the youths with ID are those whose conditions are marked by significant limitation in intellectual functioning (with intelligence score below 70) and adaptive behaviour emerging before the age of 18 years old [11]. Due to their limitations in intellectual functions and adaptive behaviors, both the BIF and ID are having difficulties in their daily life functioning.

Research concerning the youths with BIF found that the difficulty they faced is centered on the problems at school, which consists of academic and social challenges. Academically, they have limited self-regulation to ease their process for mastering basic academic skills, which makes them need more time to comprehend the materials compared to their peers [12,13]. Besides, they also have difficulties in the social realm in which they often are rejected by peers. The reasons are coming from their inability to understand social cues to respond accordingly by showing inappropriate responses. For instance, they often act aggressively and conduct anti-social behaviors [12], in which these behaviors are summed up as the result of a deficiency in emotion regulation skills [14].

Regarding the youth with ID, their severe intellectual functioning makes learning a difficult process. Academically, even though the materials given are all matched to their level of ability, most of the time, the learning itself brings out negative emotions for them since it is perceived as difficult [5]. Therefore, the need for emotion regulation is more crucial for youth with ID, since the ability to regulate the negative emotions can foster their school adjustment to survive the learning process [15] and relates to their long-life adjustment [16]. Besides academics, it is unique to them for having an asynchronous development among physical, cognitive, and social-emotional aspects. They often have typical physical growth as their peers but are delayed in the cognitive and social-emotional

development as happening from birth to adulthood [17]. These discrepancies fail in meeting the social expectation for adequate social interaction due to their physical appearance, leading to peer rejection, social isolation, and also negative self-concept and stress [17,18].

Further, it also plays a role in the youth's difficulty for developing another life skill; one of them is on regulating emotion [3]. As in youth with BIF, the youths with ID tend to show aggressive and violent behavior [12,14,18], but they can also become the target of social isolation, bullying, and victimization [18]. All of these issues can be avoided if the youths master the emotion regulation skill in the first place [14,19].

From the description above, we can see that both youths with BIF and the youths with ID are having an underdeveloped skill in regulating emotions. This lack of emotion regulation is the main factor of their difficulty in social functioning and also impacting their performance in academic realms [12,14]. Fortunately, recently it is found that this lack of skill in emotion regulation can be improved gradually as the youths themselves grow older [3], especially if the skill is taught within a personalized intervention program [20-22].

Several intervention programs are aiming for developing emotion regulation skills (e.g., Attention Modification, Affect Regulation Training/AFT, Emotion Regulation Therapy/ERT, Mindfulness Training/MT) [7]. However, the only respective program which is suitable for youths with BIF and ID is Dialectical Behavior Therapy (DBT) [21,22]. DBT is originally developed as a treatment of emotional dysregulation for borderline personality disorder [23]. In contrast to the other, DBT addresses individuals' personal and environmental factors in the difficulties of regulating emotions [24]. In this case, the personal element includes cognitive capacity in which there is less need for high cognitive function during the program enrollment. The environmental factor consists of a consideration for the lack of opportunity and feedback from the social surrounding to exercise emotion regulation [25], as is the case for youths with BIF and ID. The DBT also allows for flexibility in adjusting the program's delivery, concerning these factors, as they are relevant to the individual's need at hand [24]. Thus, these considerations are in line with the philosophy of psychoeducation to the special needs persons in which modification and accommodation become the key to the program's succession [26]. Several types of

research are now starting to adopt the DBT program to address participants with special needs [24].

Given the fact that the behavioral symptoms of emotion dysregulation, as shown by the youth with BIF and ID are varied according to their degree of disabilities, thus the program to enhance their emotion regulation skill will be highly modified according to their current conditions. Meanwhile, it must be noted that even though the original DBT has five modes of intervention (i.e., individual therapy, skills training, coaching in crisis, structuring the environment, and consultation team), it is found that the skill training mode is the most essential of DBT [27] which can be conducted independently [28]. To date, in Indonesia, there are three studies found which implemented this specific DBT skill training program to the youths with BIF and ID. Therefore, our current study aims to compare each of these studies as a serial case study in delivering DBT's skill training program while also examine its effectiveness for these special needs populations. We will also describe the program adjustments needed concerning the participant's range of disabilities. As far as we concern, this is the first study to seek out the comparison of the adapted DBT's skill training program in the special needs youths of BIF and ID.

OBJECTIVE

This study aims to compare the delivery of adapted DBT's skill training program as a serial case study in improving the emotion regulation skill of youth with different degrees of disability, namely ID and BIF. Here we will describe qualitatively the adjustment made during the delivery of each program in addressing each participant with varying ranges of difficulties. Further, we also compare each of the program's effectiveness in improving the emotion regulation skill of these populations using a pretest-posttest design. This is done as a means to seek out the applicability of adapting the DBT's skill training program across different special need population.

METHOD

Participant

In this study, there were three participants as the subject of the DBT's skill training program, all coming from the capital city of Indonesia with a middle-class social-economic background. Before enrolling in the DBT's skill training program, all these participants were referred from their school teachers to ensure the

reason behind their academic difficulties. All of them were assessed by three school psychologists from Universitas Indonesia, in which they were found to have BIF and ID. The assessment consisted of psychological tests, behavioral observations, and interviews with the participants and their significant others. Only after the assessment completed and the participants have diagnosed independently that the participants enrolled in the program with parental consent [20-22].

The first participant was a 16-year-old girl who was diagnosed with moderate ID (scored 45 on the Weschler Intelligence Scale). This participant was referred for having difficulty in social interaction due to the inability to regulate emotion. For instance, she tended to withdraw from her peers or showed verbal aggression to those who were approaching her [20]. The second participant was a 10-year-old boy who was diagnosed with mild ID (scored 54 on the Weschler Intelligence Scale). This participant was characterized by frequent hitting, pinching, hair-pulling, and other actions that disturb others whenever he was being excited or getting angry due to the inability to convey appropriate responses [22]. The third participant was a 9-year-old boy with BIF (scored 70 on the Weschler Intelligence Scale). This participant often showed emotion dysregulation when he was under stressful situations, such as facing tasks with a restricted time-limit, feeling tired, or forget to submit the assignments by the due date [21].

Research Design

We used a serial case study approach in which we compared the three studies applying the DBT's skill training program to improve the emotion regulation skill of adolescents with BIF and ID in Indonesia. These three studies were chosen as they were the only studies found in applying the DBT's skill training program for these populations. Besides, all studies were also standardized in the design used, in which a single subject design was utilized with one participant involved. In this design, the effectiveness was inferred by comparing the participant's behavior before and after the program's completion [29], also known as A-B-A' design or pretest-posttest design. Three sequences were starting from a baseline phase (A) to measure the participants current level of emotion regulation skill, followed by an intervention phase (B) to teach emotion regulation skill to the participants using DBT's skill training, and then completed with an evaluation phase (A') in which participants were

measured once more on the level of emotion regulation skill after the program [29]. Therefore, the program succession was measured by comparing the participants' level of expertise between baseline phase (A) and evaluation phase (A').

Data Analysis

The studies chosen were all mapped onto several sections to draw similarities and differences in the delivery of the DBT's skill training program. From this mapping, several themes emerged to be classified into the same points, with the different themes will be classified into various points. Further, the analysis of the program's effectiveness was done by first comparing the method used by each study in evaluating its effectiveness, followed by comparing the score the participants gained before and after the completion of the program as in the pretest-posttest design conceptual framework.

Ethical Consideration

Before the program delivery, all the participants' significant others agreed to enroll their children into the program by giving written informed consent. Moreover, all of these studies were also reviewed independently by the Board of Ethics in Universitas Indonesia, which all conformed to the psychological research's ethics as guided by the Indonesian Psychological Association [30].

RESULT

From Table 1, we can see that each of the DBT's skill training program in this serial case study addressed different participants. As the consequences, we found that in terms of program delivery, each of these studies differed to each other in several aspects, although all utilized the same framework of DBT's skill training. The first difference is on the targeted objectives of each program, which is based on the need and baseline condition of the participants involved. Moreover, there were also different modifications in the program sequences, compared to each other and the standard DBT's skill training. The materials used were also varied according to the clients' condition, yet all endorse the use of concrete objects. The variability of the language used was also salience, followed by a difference in the evaluation method as a tailor-made measure matched to the participant's need. Further, in terms of the program's effectiveness, all programs were also found to be

effective in improving the clients' degree of emotion regulation skills. However, this effectiveness must be evaluated according to the clients' condition involved.

DISCUSSION

The Program Objective

Since each DBT's skill training program addressed different participants, thus the objectives of each program differed according to the need and baseline condition of the participants involved. Before the intervention, all these studies conducted a baseline assessment of the participants' emotion regulation skills. A baseline assessment was done to ensure that the skills taught during the program were something of importance and related to the participant's current skill level and need [29].

For participants with moderate ID in Alpha Case (see Table 1), there were six objectives to be mastered during the program. The rationale behind these objectives was the fact that these objectives were prerequisites before learning the more advanced skill [31]. Further, the objectives aimed were starting from the basic topic of emotion awareness first before learning emotion regulation to ensure the applicability in daily use as an advisable means to accommodate the participant with moderate ID [26]. As shown in Table 1, the objectives on Alpha Case were 50% (3 out of 6 objectives) discussing emotion understanding before continued to the topic of emotion regulation. This high proportion of emotion understanding was due to the participants' difficulty in understanding the emotion itself, while this knowledge was the basis of emotional regulation [7].

The participant in Beta Case was the more able learner of youth with mild ID. As shown in Table 1, there were 9 objectives targeted in which all were a skill-based content of emotion regulation applicable in daily life [22,26]. As the same with Alpha Case, Beta Case also started with an awareness of emotional states and the surrounding. However, the proportion for this topic was only 11.1% (1 out of 9 objectives), much lower than the Alpha Case. Moreover, the program's objectives were 66.7% (6 out of 9 objectives) discussing the emotion regulation, starting from regulating the thought or mindset toward emotional problems (objective 2) up to acting in an emotionally-regulated manner (objective 6). Further, the program also targeted the realm of interpersonal relationships with the proportion of 22.2% objectives (2 out of 9)

Table 1: Details of DBT's Skill Training Program Objectives and Sessions

Study	Participants	Program Objectives	Program Sessions
Alpha Case - Safitri, S (2017)	A 16-year-old girl with moderate ID (scored 45 on Weschler Intelligence Scale).	<ol style="list-style-type: none"> 1. Subject recognize various types of basic emotions. 2. Subject recognize their own emotions. 3. Subject understands the process of emotion formation. 4. Subject manages negative emotions. 5. Subject knows how to increase the emergence of positive emotions. 6. Subject knows the factors that affect the emotion regulation process. 	<ol style="list-style-type: none"> 1. Introduction & Learning Contract 2. Knowing Emotion: Understanding basic emotions 3. Knowing emotion: 'What am I feeling?' 4. Knowing emotion: 'Why do I feel this way?' 5. Managing Emotion: 'Be a Good Girl' 6. Managing Emotion: 'Self-care 1' 7. Managing Emotion: 'Self-care 2' 8. Practicing skills system combination
Beta Case - Fiona, E and Indianti, W (2018)	A 10-year-old boy with mild ID (scored 54 on Weschler Intelligence Scale).	<ol style="list-style-type: none"> 1. Subject aware of his/her condition and the condition of the surrounding. 2. Subject has a suitable mindset for achieving the goal. 3. Subject determines actions suitable for achieving the goal. 4. Subject realize the risk faced and choose actions most suitable to face the situation. 5. Subject recognize activities that can help someone to stay on track for his/her goal. 6. Subject determines when and how to solve problems to achieve the goal. 7. Subject expresses what is in his/her mind and his/her feeling. 8. Subject expresses what someone's wants and needs. 9. Subject manage relationship with oneself and other people. 	<ol style="list-style-type: none"> 1. Introducing 9 skills and functions 2. Introducing general picture of skills usage 3. Practicing skill 1: 'Clear Picture' 4. Practicing skill 2: 'On-track Thinking' 5. Practicing skill 3: 'On-track Action' 6. Practicing skill 4: 'Safety Plan' 7. Practicing skill 5: 'New-me Activities' 8. Practicing skill 6: "Problem Solving" 9. Practicing skill 7: 'Expressing myself' 10. Practicing skill 8: 'Getting it right' 11. Practicing skill 9: 'Relationship care' 12. Practicing skills system combination
Gamma Case - Handali, K.A., and Primana, L (2018)	A 9-year-old boy with BIF (scored 70 on Weschler Intelligence Scale).	<ol style="list-style-type: none"> 1. Subject has various ability to attend to the situations one is in. 2. Subject has the various ability to restrain from showing emotion dysregulation when experiencing stressful situations. 	<ol style="list-style-type: none"> 1. Introduction and Learning Contract 2. Mindfulness: 'State of Mind and Breathing Exercise' 3. Mindfulness: 'Chain Behavior' 4. Mindfulness: Exercise about prior material 5. Mindfulness: 'Check-Your-Tummy' 6. Mindfulness: 'One Thing at One Time' 7. Mindfulness: Exercise about prior material 8. Distress Tolerance: 'STOP' 9. Distress Tolerance: 'Exercise on The Spot and Praying' 10. Distress Tolerance: Exercise about prior material

discussing relationship maintenance. From the above description, we can see that the contents of the program were heavily invested in the emotion regulation process as directed for one-self, with the additional topic of relationship at the end of the program.

The last participant of the Gamma Case was the most advanced learner among all with BIF. In this study, the participant was also taught with more advanced lessons, in which the program utilized two concepts of mindfulness and distress tolerance. Both the concepts were taken from the skill sets of the

original DBT's skill training. The program's main goal was to shape the participant's in using adaptive emotion regulation strategies in stressful situations. In doing so, this goal was broken down into two objectives: The first was to teach the participant to exercise mindfulness as the ability to attend to the current situations one is facing, while the second objective was to make the participant capable for restraining from showing emotion dysregulation in stressful situations [21]. Therefore, this program gave the participant various tips and tricks related to the way of practicing mindfulness and distress tolerance and

then tried to practice it in daily life. Nevertheless, the basic skill prerequisite of emotion awareness was not included as part of the program, since the participant had already understood the topic as found from the baseline assessment.

Program Modification (from the Standard DBT's Skill Training)

All the studies used modifications of the program, which applied to ranges of the program's schedule and activity, materials, language used, evaluation method, and the participating parties [20–22].

a. Program's Schedule and Activity

In all studies, the schedule adjustment was made in terms of adding the repetition as frequently as possible while also considering the participant's degree of fatigue or boredom. In doing so, these studies implemented an additional schedule besides the standard DBT's procedure, in which there was a review session in each of the program's meeting. During the review session, the participants recalled the previous material they had learned. Only after they successfully remembered what had been taught previously, then the program continued to move onto the designated learning objectives. In the Alpha Case, there was one session in which the participant could not pass the review session; thus, the program re-delivered the last learning objective instead of moving forward. Further, after each session, there was also an evaluation of the new materials taught to ensure that the participants understood the lessons well. These mandatory review sessions and daily assessments were aligned with the principle of teaching the special needs students, in which the repetition of the material taught should be an integral part of the overall intervention structure [32]. Not only for retaining the materials as a buffer of memory deficiency commonly experienced by individuals with ID and BIF [11,26], the same procedure also acted for facilitating generalization of skills to other activities they involved in [32].

b. Materials

Various learning materials and modalities were used during the program. The Alpha Case used bright-colored cards, stickers portraying the participant's idolized figures and families, and worksheets with relevant pictures to symbolize the learning taught. Its activities also included watching cartoon videos to understand the emergence of emotions, filling the story-board puzzle with pictures to create a story of

emotionally regulated persons, doing the physical movement to regulate emotions, and filling the emotional diary card with pictures. Further, since the participant unable to read but excelled in watching, listening, and speaking in the Indonesian language, thus the words needed to teach her about concepts were replaced with picturized symbols in the worksheet [20]. Beta Case also involved the use of colored cards as a hint of materials taught, videos as models for the skill practice, and coloring worksheets [22].

Meanwhile, in Gamma Case, the modality and material used were videos and props as presentation materials, diary cards with pictures, emotion regulation skills cards, and stickers as rewards [21]. These various use of materials and modalities to learn were known to be the mandatory requirements for the succession of adapting the DBT's skill training to the special needs participants [32]. Besides helping them understand the materials well using concrete objects, which proven to be the ID and BIF's best medium for learning [11,26], the use of modified materials also served as a way to attract their attention and build a climate of fun learning. It was easier for them to understand materials by associating the object given with the lesson taught content due to this higher attention [24].

c. Language Used

The use of simplified language also characterized the three successful adapted programs of DBT's skill training [24]. Especially in Alpha Case, since the participant unable to read, thus the language used is taken from the participant's repertoire as assessed from the baseline study. Even though the concept of emotion regulation is of something abstract in nature, the program should deliver it as concrete as possible by relating it to the participants' daily life. For example, the word "emotions" was uttered as "feelings," the "emotional regulation" as "regulating feelings", and the "action" as "what to do". The simplified language is not only happened verbally but also in written form in which the word is replaced with a picture as far as possible.

d. Evaluation Methods

From Table 2, we can see that each program utilized different evaluation methods, which further resulted in different evaluation instruments. However, each method was chosen according to the program's objectives in the first place. Alpha Case used a sort of test-based observation checklist in which the participant faced with informal testing under the

Table 2: Details of DBT's Skill Training Program Evaluation and Succession Criteria

Study	Evaluation Method and instrument	Indicators	Succession Criteria
Alpha Case - Safitri S (2017)	Behavioral observation, using a behavioral checklist filled by the researcher.	<ol style="list-style-type: none"> 1. Able to identify the types of basic emotions. 2. Able to tell one's emotional experience according to the emotion card given. 3. Able to understand the process of emotion formation by accurately arrange a series of cards that contain symbols associated with the four-stage of emotion formation. 4. Able to manage negative emotions by demonstrating the correct "stop-think-relax" technique in the proper sequence. 5. Able to mention all different activities taught in generating positive emotions without clues. 6. Able to mention the meaning of each symbolic image that refers to the risk factor in emotion regulation. 	<p>The participant's score increases from pretest to post-test, in which each behavior showed by the participant will result in 1 score (maximum total score of 27). Details are below:</p> <ol style="list-style-type: none"> 1. Able to name six basic emotions, as shown, is the six colored emotion cards (maximum score 6). 2. Able to share experience related to every six basic emotions (maximum score 6). 3. Able to match the card to the story-board of emotions emergence according to the videos watched (maximum score 1). 4. Able to demonstrate the "stop-think-relax" technique in the proper sequence (maximum score 1). 5. Able to mention eight activities taught in generating positive emotions without clues (maximum score 8). 6. Able to mention five risk factors in emotion regulation with a symbolic clue (maximum score 5).
Beta Case - Fiona E, and Indianti W (2018)	<ol style="list-style-type: none"> 1. Written test, using worksheet containing 20 picturized problems with multiple choice answers to be solved using the skills taught (taken from the module of Emotion Regulation Skills System [34]). The test is scored by the researcher. 2. Behavioral observation, using observational checklist containing verbal and physical improper behaviors and each respective antecedent. 3. Behavioral observation, using Emotion Regulation Checklist (ERC) Questionnaire [21], filled by the teacher, assistant teacher, and mother. 	<ol style="list-style-type: none"> 1. Written test: each correct answer results to a score of 5, thus the minimum score is 0, and the maximum score is 100. 2. Observation checklist: Contains several verbal and physical improper behavior (as gathered from baseline assessment), along with the antecedent that triggers the behavior. 3. Emotion Regulation Checklist (ERC) Questionnaire: measuring adaptive emotion regulation and lability/negativity. It consists of 24 Likert Scale type (1=never; 2=seldom; 3=often; 4=always) items; thus, the minimum score is 24, and the maximum score is 96. The reliability is $\alpha = 0.867$. 	<ol style="list-style-type: none"> 1. Written test: the participant's score increases from pretest, post-test 1, to post-test 2 with the minimum score of 75 from the range 0-100 2. Observational checklist: The ratio of the participant's improper behavior to the number of antecedents decreases from pretest, post-test 1, to the post-test 2 3. Emotion Regulation Checklist (ERC) Questionnaire: the participant's score in the ERC questionnaire significantly increases from pretest, post-test 1, and post-test 2
Gamma Case - Handali, K.A., and Primana, L (2018)	<ol style="list-style-type: none"> 1. Behavioral observation, using observational checklist filled by the researcher, teacher and assistant teacher, and therapist. 2. Behavioral observation, using Emotion Regulation Checklist (ERC) Questionnaire [21] filled by the researcher, teacher, and assistant teacher. 	<ol style="list-style-type: none"> 1. Observation checklist: Contains verbal and physical behavior of emotion dysregulation as frequently shown by the participant before the program enrollment. The verbal behaviors are ranging from making disturbing voices, complaining in a loud voice, arguing with both appropriate/neutral and inappropriate/aggressive words, and screaming. The physical behaviors are ranging from kicking table/floor, beating own head with hands or other objects, gripping objects (but not throwing it or using it to attack people), showing attacking gestures (with no touching), throwing objects, and attacking people. 2. Emotion Regulation Checklist (ERC) Questionnaire: measuring adaptive emotion regulation and lability/negativity. It consists of 24 Likert Scale type (1=never; 2=seldom; 3=often; 4=always) items; thus, the minimum score is 24, and the maximum score is 96. The reliability is $\alpha = 0.867$. 	<ol style="list-style-type: none"> 1. Observational checklist: The percentage of the participant's emotional dysregulation behavior decreases from pretest, post-test 1, to the post-test 2. 2. Emotion Regulation Checklist (ERC) Questionnaire: the participant's score in the ERC questionnaire significantly increases from pretest, post-test 1, and post-test 2.

instruction of the researcher. The responses given by the participant under these circumstances were recorded and scored according to the guideline of the

expected behaviors as taught. This method was chosen by considering the participant's condition of inability to read and easily anxious under formal test

settings [20]. The different stories arose from Beta Case and Gamma Case, in which both the participants were highlighted by their tendency to display emotional outrage whenever feeling unwell or threatened. In this case, the evaluation method chosen included the observational checklist of their potential outrage behaviors as frequently shown before enrolling in the program. With this instrument, the change in emotional regulation skills was tailored to the participant's condition. The use of other measures named Emotion Regulation Questionnaire (ERQ), filled by significant others, complemented the participants' progress record in the home-setting [21,22].

From the above description, the difference of standard DBT's skill training to the adapted DBT's is salience on the aspect of program evaluation. For the adapted DBT's skill training, the instruments used for evaluating programs were also served as tailor-made evidence upon the participant's skill development from their baseline condition. Therefore, it is not enough to only modify the program's schedule and materials but also the evaluation method as a means to develop special needs [11].

e. Participating Parties

Different from the standard DBT's skill training, the adapted DBT's program addressing special needs children commonly involves the cooperation from the participant's significant others. Even though the standard DBT's skill training acknowledges the person's environmental factors (which includes family) in enabling the improvement of emotion regulation skills, this factor is not as heavily involved in the program delivery as in the adapted DBT's skill training. In the latter case, we can see that even parents, teachers, up to the therapists of the ID and BIF participants, were deeply involved in the program and played significant roles. For instance, in all studies, the parents and teachers were included in the training to ensure that the skills taught to the participants were also mastered by them [20-22].

Moreover, they were also the parties whose decision was counted in determining whether the participants had succeeded in completing the program with improvement in their emotion regulation skills. As shown in Table 2, there were plenty of measures used in which they are filled by these significant others to be triangulated. This practice is in line with the previous practice by Charlton and Dykstra in 2011 in which the DBT's adaptation should involve participant's significant

others so that they can serve as coaches or mentors for participant's everyday life [32]. Since participants have special needs of ID and BIF, thus their independence is gradually built through having a coach in a crisis [26].

The Intervention Results

The Alpha Case was considered effective for improving the emotion regulation skill of participants with moderate ID. It was found there was a difference in participant's score level of emotional regulation skill before and after the program, as gathered through the observation checklist. The score before the intervention was 9 out of 27 (33.33%), while after the program, the score increased to 24 (88.89%). It was also found that this improvement was applied to five out of six program objectives intended. However, as the measure used here was more into the cognitive knowledge of emotion regulation. Thus the change in behavior still needed further inquiry [20].

Meanwhile, in Beta Case and Gamma Case, the almost similar finding also found in which there was an increase in the participant's knowledge of emotion regulation. Nevertheless, both studies also proved that this significant increase in emotion regulation knowledge (as measured from ERQ before and after the program) was followed by a decrease in emotional dysregulation behaviors as listed from the behavioral checklist. The participants were found to change the dysregulated behaviors into adaptive behaviors as taught successfully. The change also happened across the various contexts of school and home settings. However, the perception of the significant others toward the changes was not significantly different before and after the intervention, in which it might be due to the different standards held by these people in viewing what the improvement in emotion regulation meant [21,22]

Furthermore, it is interesting to note that all the studies, especially the Beta Case and Gamma case, warned for the importance of parental cooperation during the intervention. It was said that the program's succession relied heavily on the parental attitude toward the program in the first place. The disruption on program completion commonly sourced from lack of parental support (e.g., gave no guidance on completing the homework given in intervention), parents' unwillingness to apply the skill taught (e.g., communicate with child using the old patterns yielded to emotional dysregulation), or parents' inability to

empathize to the children's effort in learning resulting to a lack of appreciation. Similar issues sometimes also emerged from the teacher at school [20-22]. It is known that the special needs participants' skill improvement in mastering a new skill is somewhat dependent on their significant others' commitment to change. Especially for the succession in adapted DBT's skill training program, environmental support is seen as the main factor in achieving this state. In this case, the significant others play a key role in helping the participant generalize their newly acquired skill to various life contexts, thus making them better able to exercise the skills [33].

CONCLUSION

This study aims to compare serial case study in terms of application and effectiveness of the adapted DBT's skill training program in enhancing the emotion regulation skill of youth with ID and BIF. Based on the result obtained across three studies, it is found the DBT's skill training can be an effective treatment in improving the youth's emotion regulation skills. However, this effectiveness is not without caution. It is noteworthy that the modifications of the program are one mandatory principle that builds the whole structure of the program, in which they become the key ingredients for the DBT's skill training program effectiveness for developing youth with ID and BIF.

The modification is applied to the program sequences in which repetitions of the materials taught are inherent in the program sessions. It is also applied in the use of various materials, where the more concrete the object used, the better participants will attend to the lesson and retain their memory. The language used is also simplified according to the participants' repertoire, along with replacing the word into picturized symbols when necessary. The evaluation method used is directly linked to the participants' difficulties in regulating emotion as a tailor-made measure according to their needs. Moreover, the significant others play a large role in the succession of program, not only by giving consent and support but also by involving in the program and evaluating the participants' improvement.

ACKNOWLEDGEMENT

We would like to thank the three participants of these studies, along with their relatives, in which their dedicated commitment toward the programs made this study is possible.

REFERENCES

- [1] Saarni C, Campos, Camras J, Withering D. Emotional development: Action communication and understanding. In: Damon, Lerner R, editors. *Handbook of Child Psychology*. New York: Wiley 2006. <https://doi.org/10.1002/9780470147658.chpsy0305>
- [2] Gross J, Thomson RA. Emotion regulation: Conceptual foundations. In: Gross JJ, editor. *Handbook of Emotion Regulation*. New York: The Guilford Press 2007.
- [3] Baurain C, Grosbois NN. Social-emotional regulation in children with intellectual disability and typically developing children in interactive contexts. *ALTER, Eur J Disabil Res* 2012; 6(2): 75-93. <https://doi.org/10.1016/j.alter.2012.02.001>
- [4] Mennin DS, Fresco DM. Emotion regulation therapy. In: Gross JJ, editor. *Handbook of Emotion Regulation*. New York: The Guilford Press 2014.
- [5] Gumora A, Arsenio WF. Emotionality, emotion regulation, and school performance in middle school children. *J Sch Psychol* 2002; 40(5): 395-413. [https://doi.org/10.1016/S0022-4405\(02\)00108-5](https://doi.org/10.1016/S0022-4405(02)00108-5)
- [6] McWilliams J, de Terte I, Leathem J, Malcolm S, Watson J. Transformers: A program for people with an intellectual disability and emotion regulation difficulties. *J Intellect Disabil Offending Behav* 2014; 5(4): 178-88. <https://doi.org/10.1108/JIDOB-06-2014-0009>
- [7] Gross JJ. *Handbook of Emotion Regulation*. 2nd ed. New York: The Guilford Press 2014.
- [8] Graziano PA, Reavis RD, Keane SP, Calkins SD. The role of emotion regulation in children's early academic success. *J Sch Psychol* 2007; 45(1): 3-19. <https://doi.org/10.1016/j.jsp.2006.09.002>
- [9] Scanlon CL. *Emotion regulation in children: A guide for teachers*. Moscow: University of Pittsburgh 2010.
- [10] Cole PM, Dennis TA, Smith-Simon KE, Cohen LH. Preschoolers' emotion regulation strategy understanding: Relations with emotion socialisation and child self-regulation. *Soc Dev* 2009; 18(2): 324-52. <https://doi.org/10.1111/j.1467-9507.2008.00503.x>
- [11] Hallahan DP, Kaufman JP. *The Exceptional Learner: Introduction to Special Education*. 10th ed. New York: Pearson Education, Inc. 2006.
- [12] Nieuwenhuijzen M Van, Vriens A. Cognitive skills and social information processing in children with mild to Borderline Intellectual Disabilities. *Res Dev Disabil [Internet]* 2012; 33(2): 426-34. <https://doi.org/10.1016/j.ridd.2011.09.025>
- [13] Karande S, Kanchan S, Kulkarni M. Clinical and psychoeducational profile of children with Borderline Intellectual Functioning. *Indian J Pediatr* 2008; 75: 795-800. <https://doi.org/10.1007/s12098-008-0101-y>
- [14] McClure KS, Halpern J, Wolper PA, Donahue JJ. Emotion regulation and intellectual disability. *J Dev Disabil* 2009; 15(2): 38-44.
- [15] Denham SA, Bassett H, Mincic M, Kalb S, Way E, Wyatt T, et al. Social-emotional learning profiles of preschoolers' early school success: A person-centered approach. *Learn Individ Differ* 2012; 22(2): 178-89. <https://doi.org/10.1016/j.lindif.2011.05.001>
- [16] Eisenhower AS, Baker B, Blacher J. Early student-teacher relationships of children with and without intellectual disability: Contributions of behavioral, social, and self-regulatory competence. *J Sch Psychol* 2007; 45(4): 363-83. <https://doi.org/10.1016/j.jsp.2006.10.002>
- [17] Pereira CMG, Faria SM. Do you feel what I feel? Emotional development in children with ID. *Procedia - Soc Behav Sci* 2015; 165: 52-61. <https://doi.org/10.1016/j.sbspro.2014.12.604>

- [18] Hauser-Cram P, Krauss MW. Adolescents with developmental disabilities and their families. In: Brown B, Larson J, editors. *Handbook of Adolescent Psychology*. 2nd ed. New York: John Wiley & Sons, Inc. 2004.
- [19] O'Brennan LM, Waasdorp TE, Pas ET, Bradshaw CP. Peer victimisation and social-emotional functioning: A longitudinal comparison of students in general and special education. *Remedial Spec Educ* 2015; 36(5): 275-85. <https://doi.org/10.1177/0741932515575615>
- [20] Safitri S. *The Effectiveness of Dialectical Behavior Therapy in developing emotion regulation skill for adolescent with intellectual disability*. Universitas Indonesia 2017.
- [21] Handali KA, Primana L. Increasing emotion regulation skills with Dialectical Behavior Therapy skills training: A single-case study on an elementary school student with Borderline Intellectual Functioning. In: *Advances in Social Science, Education and Humanities Research (ASSEHR) 2018*; pp. 200-12. <https://doi.org/10.2991/iciap-17.2018.17>
- [22] Fiona E, Indianti W. Developing emotion regulation skills by emotion regulation skills system training for children with mild intellectual disability. *J Psikol Insight* 2018; 2(2): 51-66.
- [23] Linehan MM. *Cognitive-behavioral Treatment of Borderline Personality Disorder*. Press G, editor. New York 1993.
- [24] Lew M, Matta C, Tripp-Tebo C, Watts D. Dialectical Behavior Therapy (DBT) for individuals with intellectual disabilities: A program description. *Ment Heal Asp Dev Disabil* 2006; 9(1): 1-13.
- [25] Njardvik U, Matson JL, Cherry KE. A comparison of social skills in adults with autistic disorder, pervasive developmental disorder not otherwise specified, and mental retardation. *J Autism Dev Disord* 1999; 29(4): 287-95. <https://doi.org/10.1023/A:1022107318500>
- [26] Mangunsong F. *Psikologi dan Pendidikan Anak Berkebutuhan Khusus*. 1st ed. Depok: LPSP3 2009.
- [27] Soler J, Pascual JC, Tiana T, Cebrià A, Barrachina J, Campins MJ, et al. Dialectical behaviour therapy skills training compared to standard group therapy in borderline personality disorder: A 3-month randomised controlled clinical trial. *Behav Res Ther* 2009; 47(5): 353-8. <https://doi.org/10.1016/j.brat.2009.01.013>
- [28] Sakdalan JA, Shaw J, Collier V. Staying in the here-and-now: A pilot study on the use of dialectical behavior therapy group skills training for forensic clients with intellectual disability. *J Intellect Disabil Res* 2010; 54(6): 568-72. <https://doi.org/10.1111/j.1365-2788.2010.01274.x>
- [29] Gravetter FJ, Forzano LB. *Research Methods for The Behavioural Sciences*. 3rd ed. Belmont: Wadsworth, Cengage Learning 2009.
- [30] Himpunan Psikologi Indonesia. *Kode Etik Psikologi Indonesia* [Internet]. 1st ed. Jakarta: Pengurus Pusat Himpunan Psikologi Indonesia; 2010. Available from: <https://himpni.or.id/organisasi/kode-etik-psikologi-indonesia>
- [31] McKay M, Wood JC, Brantley J. *The Dialectical Behaviour Therapy Skills Workbook: Practical DBT Exercises for Learning Mindfulness, Interpersonal Effectiveness, Emotion Regulation, and Distress Tolerance*. New York.: New Harbinger Publications, Inc. 2007.
- [32] Charlton M, Dykstra EJ. Dialectical behaviour therapy for special populations: Treatment with adolescents and their caregivers. *J Adv Ment Heal Intellect Disabil* 2011; 5(5): 6-14. <https://doi.org/10.1108/20441281111180619>
- [33] Baillie A, Slater S. Community dialectical behaviour therapy for emotionally dysregulated adults with intellectual disabilities. *J Adv Ment Heal Intellect Disabil* 2014; 8(3): 165-73. <https://doi.org/10.1108/AMHID-05-2013-0033>
- [34] Brown JF. *The emotion regulation skills system for cognitively challenged clients: A DBT informed approach*. New York: The Guilford Press 2016.

Received on 09-03-2020

Accepted on 09-04-2020

Published on 15-05-2020

DOI: <https://doi.org/10.6000/2292-2598.2020.08.02.21>

© 2020 Shahnaz Safitri; Licensee Lifescience Global.

This is an open access article licensed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/3.0/>) which permits unrestricted, non-commercial use, distribution and reproduction in any medium, provided the work is properly cited.