The Effectiveness of Dialectical Behavior Therapy in Developing Emotion Regulation Skill for Adolescent with Intellectual Disability

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Abstract: Intellectual disability is characterized by significant limitations in intellectual functioning and adaptive behaviour that appears before the age of 18 years old. The prominent impacts of intellectual disability in adolescent are failure to establish interpersonal relationships as socially expected and lower academic achievement. Meanwhile, it is known that emotion regulation skill has a role in supporting the functioning of individual, either by nourishing the development of social skill as well as by facilitating the process of learning and adaptation in school. This study aims to look for the effectiveness of Dialectical Behaviour Therapy (DBT) in developing emotion regulation skill for adolescent with intellectual disability. DBT's special consideration toward clients' social environment and their biological condition is foreseen to be the key for developing emotion regulation capacity in adolescent client with intellectual disability. Through observations on client's behaviour, conducted before and after the completion of DBT intervention program, it was found that there is an improvement in client's knowledge and attitude related to the mastery of emotion regulation skills. In addition, client's consistency to actually practice emotion regulation techniques over time is largely influenced by the support received from the client's social circle.

1 INTRODUCTION

Adolescence is a transitional period of development starting from the age of 10 into adulthood. The distinctive feature of adolescents is that their emotional state is rapidly fluctuated over time in response to their environment. It is said that this state of emotional fluctuation makes them vulnerable to anger and aggressive behaviour when facing unpleasant situations (Papalia, Olds, and Feldman, 2010). Furthermore, adolescents also tend to be more reactive to their surrounding and more often feel negative emotions. Such condition becomes a potential for them to engage in a relational conflict, be it with parents, peers, and other social circles (Gross, 2012).

Mastering social skill supports the adolescents on their adaptation to everyday social situations (Gross, 2012). The need to adapt adequately is of particular concern for adolescent with intellectual disabilities. Intellectual disability is a condition marked by significant limitation in intellectual function and adaptive behaviour which emerging before the age of 18 years old (Hallahan and Kaufman, 2006). Commonly found in adolescents with intellectual disability is a typical growth of physical development, in which it is in accordance to the chronological age. However, their cognition and social emotional aspects are underdeveloped compare to their peers. It is stated that this developmental discrepancy has occurred since the early onset of development and continues into adulthood (Barbosa, 2007; Pereira and Faria, 2015).

Because of their developmental discrepancy, adolescents with intellectual disability often receive unrealistic social expectations in their everyday life. They are often seen by others as high functioning individuals who are capable of an adequate social interaction, given that their physical appearance is just like a typical person of their age. As no surprise, adolescents with intellectual disability tend to be unable to meet the expectations in their conduct of social interaction (Marinho, 2000; Pereira and Faria, 2015). The combination of delayed development in both cognitive and social emotional aspect leads to their failure of building interpersonal relationship as expected. This failure leads to an isolation and rejection by peers, which is the main cause of stress and negative self-concept in adolescents with

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intellectual disability (Blackwell, 1979, Hauser-Cram and Krauss, 2004).

Another study by Wiltz (2005) suggests that the majority of individuals with intellectual disability often have a limited number of friends. Furthermore, their friendship tends to be full of conflict and unstable. It is mentioned that this friendship is difficult to maintain due to their difficulty in social skill, such as translating social signals of facial expression. This makes individuals with intellectual disability become vulnerable to loneliness, and in the extreme case they can suffer from depression (Heiman, 2000 in Wiltz, 2005).

In general, as adolescent grow with increasing age, followed by development in cognitive abilities, they are gradually be more able to regulate their emotions in order to fit themselves in daily social and moral norms (Papalia, Olds, and Feldman, 2010). Unlike adolescent in general, the chronic developmental discrepancy in adolescents with intellectual disability becomes a major factor for their difficulty in developing another skill, one of them is on regulating emotion. Furthermore, it is known that the difficulty in regulating emotions is the reason for their inadequate social interaction (Baurain and Grosbois, 2012). This dynamic shows that emotion regulation skill is important for adolescents with intellectual disability to adapt to social environment (Gross, 2012).

Emotional regulation is defined as an individual process for actively adjusting their emotional experiences by considering the type of emotions, the time of and for experiencing emotions, and how those emotions are channelled (Gross and Thomson, 2007). It is said that emotion regulation is part of the overall individual adjustment to his/her external environment (Baurain and Grosbois, 2012). Furthermore, emotion regulation is also part of a general self-regulation, a process that allows individuals to flexibly respond to changing environmental context but still in line to their pursuit of goals (Mennin and Fresco, 2014).

The emotion regulation skill promotes the development of individual social skills. It is known that mastering emotion regulation contributes to the formation of social competencies in adolescents, both for short-term and long-term period (Einsenberg, 1997 in Gumora and Arsenio, 2002). Especially in adolescents with intellectual disability, emotion regulation skill is needed to develop their underdeveloped social skills in order to blend in with society and avoid social isolation, bullying, and victimization. In addition, the mastery of social skills supports the individual not to display an aggressive and violent behaviour, which is also commonly found in individuals with intellectual disability (Hauser-Cram and Krauss, 2004; O'clare, Waasdorp, Pas, and Bradshaw, 2015).

In accordance with developing social competence, a well-developed emotion regulation skill is also known to facilitate the creation of a positive relationship between students and teachers. This then becomes a contributing factor in enabling students to smoothly learn from the teachers and build their achievement motivation (Graziano, Reavis, Keane, and Calkins, 2007). The lack of cognitive ability in adolescent with intellectual disability makes learning difficult for them and brings out negative emotions (Gumora and Arsenio, 2002). Therefore, their capacity to regulate those negative emotions foster them to survive the learning process regardless their cognitive constraints (Denham, Basset, Mincic, Kalb, Way, Wyatt, and Segal, 2012). Without emotion regulation, their learning achievement and academic adjustment tend to be low. In fact, school adjustment is known as a predictor for their life adjustment in the long run (Eisenhower, Baker, and Blacher, 2007).

All these description shows that there is a need for adolescent with intellectual disabilities to improve emotion regulation skill. By definition, emotion regulation involves the process of individual actively adjusting his/her experience by considering the type of emotion, the time of experience, and how the emotion is channelled (Gross and Thomson, 2007). Thus, the basis of emotion regulation skill is the ability to distinguish the types of emotion (Linehan, 1993 in McWilliams, deTerte, Leathem, Malcolm, and Watson, 2014). The ability to differentiate emotion is also a part of an important social skill, since it facilitates individual to behave appropriately regardless the current emotional state. Individual who is more aware of his/her emotional state tends to be easier to regulate the emotion experienced (Gross, 2006).

Research by Baurain and Grosbois (2012) suggests that individual with intellectual disability have a delayed emotion regulation skill development compare to the peers. This delay explains their lesser frequency and quality of social behaviour, in which it continues throughout adulthood. On the other hand, this study provides an insight that that the ability to regulate emotion in individual with intellectual disability improves gradually as they get older. Thus, a program to enhance the emotion regulation skill in individual with intellectual

disabilities is applicable to optimize their capabilities.

There are numbers of therapy that specifically aim to develop emotion regulation skill, such as Emotion Regulation Therapy (ERT), Attention Modification, Affect Regulation Training (AFT), Mindfulness Training (MT), and Dialectical Behaviour Therapy (DBT). All of these therapies focus on empowering the individual's ability to master emotion regulatory skill using cognitive and behavioural strategies (Gross, 2014). Nevertheless, Attention Modification, AFT, and MT require clients to possess an adequate cognitive function to concentrate to the environmental stimulus; so that they can manage the emotions associated with the stimulus (Berking and Schwarz, 2014; MacLeod and Grafton, 2014; Farb, Anderson, Irving and Segal, 2014). Furthermore, the ERT technique demands a lot of higher order thinking to know one's own value in the process of regulating emotions (Mennin and Fresco, 2014). Meanwhile, individual with intellectual disability has limitation in their cognitive function (Hallahan and Kaufman, 2006).

In contrast to other therapies, DBT views the difficulty for regulating emotion as an implication of various biological and non-supportive environmental factors (Lew, Matta, Trip-Tebbo, and Watts, 2006). Thus, DBT is particularly concerned about how environmental and individual histories play a role in his/her ability to regulate emotion (Gross, 2014). Biological factors include cognitive capacity; while environmental factors, among others, are the lack of opportunity and feedback from the social environment for individual to exercise emotion regulation (Njardvik, Matson, and Cherry, 1999).

DBT's special consideration to personal factors makes this therapy an appropriate alternative to be delivered to individual with intellectual disability. In DBT, the therapeutic emphasis is placed on the positive and non-judgmental climate. Furthermore, DBT focuses on preparing clients to be able to stand for themselves using the skills taught, while ensuring the availability of coaches that clients can rely on in times of crisis (Lew, Matta, Trip-Tebbo, and Watts, 2006). This is in line with the spirit of education for individual with intellectual disability, which is to develop their independence while considering their magnitude of disability. It is known a more severe disability require more intensive assistance (Mangunsong, 2009). This concept is in accordance with the characteristic of adolescents with intellectual disability who still require guidance when necessary.

Furthermore, DBT is also taking into account the environmental factors that shape individual's life history related to the opportunity to exercise emotion regulation skill (Lew, Matta, Trip-Tebbo, and Watts, 2006). It is said that individual with intellectual disability are often live a condition of over-protective family, so that they have no experience for decision making. Furthermore, individual surrounding is often unresponsive to emotional expression except for negative emotional display. Thus, the individual gets reinforcement for this negative emotion expression. DBT through one of its several modes of intervention - structuring client's environment - responds this environmental challenge in relation to developing emotion regulation skill (Lew, Matta, Trip-Tebbo, and Watts, 2006). This is done by involving family members in training, as well as re-arranging clients' room with several tools, such as journal of daily emotional state. These practices are also in line with the principle of education in individual with intellectual disability, in which modification of space is sometimes needed for the learning process (Mangunsong, 2009).

This paper describes the process of conducting DBT in special population of adolescent with intellectual disability. It is known that DBT has five modes of intervention, which are individual therapy, skills training, coaching in crisis, structuring the environment, and consultation team. However, it is said that skill training is the most essential element of DBT among all other modes (Soler, et.al, 2009). Another study by Sakdalan, Shaw, and Collier (2010) found that skill training is the only mode of all DBT intervention that can be delivered solely without other modes. Based on the information gathered, we aim to test the DBT's skill training effectiveness for improving emotion regulation skill in adolescent with intellectual disability. As far as we concern, this is the first study to seek out the skill training effectiveness in the context of client with the mentioned characteristic.

2 METHOD

2.1 Research Question and Hypothesis

This study aims to answer if Dialectical Behavior Therapy technique can be used to improve emotion regulation skill in adolescent with intellectual disability. We propose a hypothesis that Dialectical Behavior Therapy technique is effective to improve emotion regulation skill in adolescents with intellectual disability.

2.2 Research Design

We use single subject design in which the measurement to answer the research question is conducted to one subject. In a single subject design, the researcher focuses on the behaviour the subject raises before the program is given and after the program is completed. (Gravetter and Forzano, 2009). Therefore, there is period of baseline observation being conducted prior to the delivery of intervention program. This is done to get an accurate portrait of subject's behaviour in daily life in respect to the his/her capacity to regulate emotion.

2.3 Participant

The subject is adolescent with intellectual disability with difficulty in emotion regulation skill. By definition, the characteristic is applied to those in age of 10 years old to early twenties (Papalia, Olds, and Feldman, 2010). In addition, they possess an intellectual disability in which there is significant limitation of intellectual function and adaptive behaviour manifested through conceptual, social, and practical adaptive abilities (Hallahan and Kaufman, 2006). A girl aged 16 years old with intellectual disability is referred to the researcher with characteristic of having difficulty in social interaction due to the inability to regulate emotion.

2.4 Overview of Intervention Program

In providing DBT to individual with intellectual disability, there are number of challenges to be faced (Lew, Tripp-Tebo, and Watts, 2006). Those challenges are as follow:

1. The standard DBT practice is constrained by the clients' language capacity, in which they tend to communicate in a much simpler vocabulary.
2. Some clients with intellectual disability tend to be unready for a group activity.

Charlton and Dykstra (2011) describes that the adaptation of DBT is a must. One of the ways is by conveying information during intervention using various modalities. In this study we use various materials and activities, which are ranging from working on coloured worksheet, watching cartoon videos, and doing physical movement. In addition, a simple language is required to teach the client during intervention, so that it is easier for them to understand what is taught by the therapist. We use a simple vocabulary to speak, and switch the word in worksheet with a relevant image to serve as a symbol for the client to understand the meaning. The use of symbol is due to the client's inability to read.

Furthermore, it is said that the materials containing information for client need to be tailored to attract the attention and facilitate understanding (Charlton and Dykstra, 2011). This is done by containing the images of the client's idol in every material given to maximize her excitement to learn. Bailie and Slater (2014) adds that the content of the intervention needs to be conveyed by linking to what client has already known. The content must also be in line with what is faced by clients in their daily life, so that they can apply the skill directly in daily affair. Therefore, we observe the subject and interview her family to gain a deeper understanding of her daily life before the intervention is conducted.

Intervention also needs to be implemented in a simple therapeutic structure using concrete activities. A clear rule is also needed during client's participation throughout the intervention process. The therapist also needs to be more active and directive to the client compare to teaching client without disability. Throughout the intervention process, repetition of the material taught becomes important and is part of the overall intervention structure. Therefore, there is a need for a special time allocation to review the lessons and various situations to apply the emotion regulation skill being taught, in order to facilitate client in making generalization of the knowledge and skills (Charlton and Tallant, 2003 in Charlton and Dykstra, 2011).

Another DBT adaptation is that the therapist should involve client's family members, teachers, or other caregivers into the intervention process. This is done to ensure that caregivers can practice the same skills as learned by the client. It is beneficial for clients if their caregivers gain these same knowledge and skills to further act as their coaches and facilitate mentorship in everyday life (Charlton and Dykstra, 2011). Therefore, a special session is held to teach the client's mother and teachers all the programs activities and objectives. They are also given a responsibility to ensure the client do her homework and fill the journal designed by the researcher to observe the client's progress in home and in schools.

2.5 The Program Objective

In the standard DBT's skills training, there are 10 objectives to be reached. The mastery of the first 6 objective of the training is a prerequisite to be further able in mastering a more advanced emotion regulation skill (McKay, Wood, and Brantley, 2007). Therefore, this study focuses on targeting the

first 6 objectives to be adopted as the program's goal. The details are as follows:

1. Subject is able to recognize various types of basic emotions.
2. Subject is able to recognize their own emotions.
3. Subject understands the process of emotion formation.
4. Subject is able to manage negative emotions.
5. Subject knows how to increase the emergence of positive emotions.
6. Subject knows the factors that affect the emotion regulation process.

2.6 Program's Targeted Behaviour

In general, the program is considered successful if there is an increase in the emotion regulation skill shown by the subject. It is indicated by several indicators:

1. Subject can identify the types of basic emotions
   The subject is said to be able to identify the types of basic emotions when she can name all the 6 different basic emotion as shown is the 6 coloured emotion cards. Otherwise, subject need also to be able to choose the right emotion card according to type of emotion mentioned by researcher.
2. Subject can identify the emotions they feel in real situations.
   The subject is said to be able to identify the emotions she feels when she can tell her emotional experience according to the emotion card given by researcher. This applies to all six basic emotions.
3. Subject understands the process of emotion formation, by identifying the situation that cause emotion, the background thoughts, the emotion emerged, and the action to respond to situations.
   Subject is said to be able to understand the process of emotion formation when she can accurately arrange a series of display card that contain image/symbol associated with the four stage of emotion formation. Furthermore, subject also needs to tell a story of six basic emotions emergence by matching the story card to the relevant emotional sequence card arranged first. The story is both gathered from the subject experience and also from 6 cartoon videos containing different emotional display.
4. Subject can manage the negative emotions experience
   The subject is said to be able to manage negative emotions if she can demonstrate the correct "stop-think-relax" technique in the proper sequence as taught in the program.
5. Subject knows how to improve his/her positive emotions
   The subject is said to know how to improve her positive emotion when she can mention all different activities taught in generating positive emotions. She needs to remember the activities without any clue given.
6. Subject knows the vulnerability factor in the process of emotion regulation
   The subject is said to know the factors affected emotion regulation when she can mention the meaning of the symbolic images, given as a work-sheet, that refer to these factors.

2.7 Program Implementation

The intervention is conducted by having one session a day to make the learning conducive to the client's capacity to learn. The program details are listed in the Table 1.

In practice, we found that the session 2 of the intervention needed repetition, since the subject cannot answer the review questions asked on the following day. In addition, the post-test 2 of the study was failed to be delivered on schedule due to the client's health condition. Therefore, the aim to seek out if the subject's attainment of program indicator is still intact was done by relying on the observational worksheet filled out by the client's mother at home. In conclusion, the intervention was executed as an 8 days intervention as planned but with different sequences.

2.8 Data Analysis

As in standard DBT's skill training, this research use observation as a method to measure the completion of program's goal and test the intervention effectiveness. Observation takes place before and after intervention is held, focusing on achievement of behavior indicator. The score is given to the subject for every successful attainment on program's objectives. The percentage of achievement score before and after intervention is then compared to grab the picture of program effectiveness in improving subject's emotion regulation skill. The additional data analysis is done using a behavioral checklist filled out by the mother and teacher of the clients.

Table 1: Program Session(s) & Objective(s)

Session	Objective
Pre-test & Program Orientation	• The gather subject's baseline level of emotion regulation skill in respect to behavior indicator. • To familiarize subject with the intervention setting, signing contract containing rules to be respected by the client • To teach the mother and teacher about the program, including objectives, activities, and materials. The behavioral checklist is also explained to be further filled by them.
Session 1	• To review the rules of learning • To identify the types of basic emotions
Session 2	• To review the previous session material • To review the homework given • To identify the emotions participant feel in real situation • To understand the process of emotion formation
Session 3	• To review the previous session material • To review the homework given • To manage the negative emotions experience
Session 4	• To review the previous session material • To review the homework given • To know how to improve positive emotions
Session 5	• To review the previous session material • To review the homework given • To know the vulnerability factor in the process of emotion regulation
Post-test 1	• The gather subject's attainment of emotion regulation skill in respect to behavior indicator.
Post-test 2	• The seek out if the subject's attainment of emotion regulation skill in respect to behaviour indicator is intact

3 RESULTS

The Figure 1 is that summarizes the differences of client's percentage on achievement score before and after the intervention related to the behaviour indicator.

From the graph, we can see that there are differences in subject's achievement percentage score of emotional regulation skill before and after intervention conducted. Prior to the intervention, subject obtains a total score of 9 out of 27 with the resulting percentage of 33.33%. While in post-test, subject gets the score of 24 which mean that she gets a percentage of 88.89%. Therefore, there is an increase in the percentage score by 55.56%, which indicate that there is an increase in subject level of emotion regulation skill. The data obtained shows that the increase occurs on five out of six program objectives.

4 DISCUSSION

Charlton and Dykstra (2011) revealed that language adaptation in the implementation of the DBT is a must so that subject with intellectual disability can easily understand the learning lesson and then apply the knowledge. In this study, language adaptation becomes one of the keys in enabling the subject to capture the information provided by researcher.

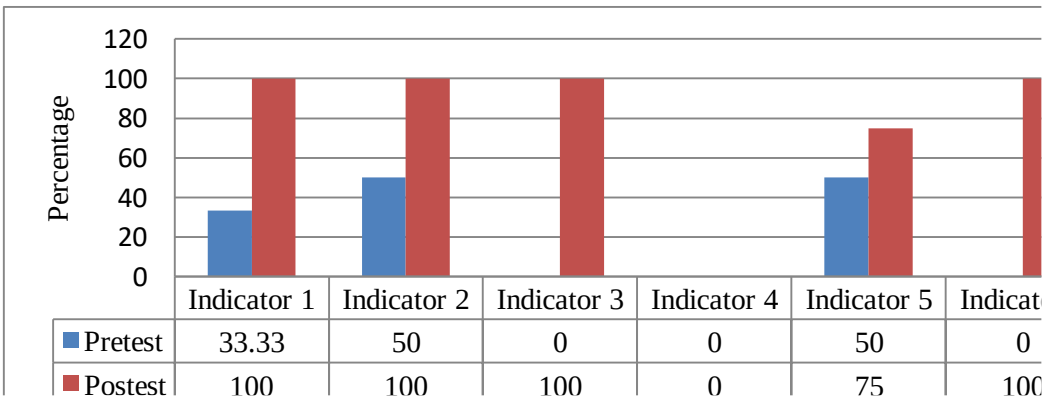

Figure 1: Comparison of Client Percentage Score Before and After the Intervention

Some examples of language adaptation are "emotions" as "feelings," "emotional regulation," as "regulating feelings," "actions" as "what to do," and so on. The selected word is chosen from the preliminary observation of client's vocabulary repertoire. Thus, the creativity of the researcher in determining the right vocabulary to convey the lesson in accordance with the material is crucial.

Charlton and Dykstra (2011) argues that content in the program should be as relevant as possible to the daily life of the clients to facilitate their application of the skill taught. Bailie and Slater (2014) added that the intervention program should relate the new information provided to what was previously known by the client. In this program, the overall content reviewed is specifically tailored to the subject's daily life. For example, a case study of a person being scolded by parents, ridiculed by friends, and travelling to Bali are given; where they are all known as situations that cause the subject to experience certain emotional reaction. For that purpose, collecting baseline data before the delivery of program becomes important to determine which case should be raised in the program. The suitability between the case raised and the subject previous experiences makes it easy to draw the subject's attention to the material and to gain understanding.

Lew, Tripp-Tebo, and Watts (2006) mentioned that materials in the intervention program need to be tailored to attract the attention of clients. Given the condition of the client is not able to read yet, the material in then given by using images with various colours. The use of image builds the impression of a fun learning process to the client, and makes it easy for her to identify and associate the images with explanations given by the researcher about the meaning. Furthermore, the attractiveness is enforced through the inclusion of self and family portraits in the instrument. It becomes easier for subject to recognize the image and she can immediately associate between what she knows based on her experience with the material provided. In addition, the use of self and family portrait makes the subject's learning process in line with the individual approach which is advisable in the educational process for individuals with special needs (Mangunsong, 2009).

Repetition of material to subject with intellectual disabilities is important and also forms the structure of the overall implementation of intervention (Charlton and Tallant, 2003 in Charlton and Dykstra, 2011). Furthermore, repetition is also one of the main principles in teaching individual with intellectual disabilities (Hallahan and Kaufman, 2006) related to their characteristic of memory deficiency. Throughout the program, the repetition of the material that has been learned is done in each session. On the other hand, the subject complained several times that she was bored with the repetition because she already knew about the material. In this case, we see that the process of review of the material needs to be done with a variety of activities/methods to foster the motivation of the client in order to avoid boredom.

Limitation of this study lies in the physical condition of the subject who had shown the symptoms of sickness in the final session of the program. In respect to the failure of practicing the act of managing negative emotion (using stop-think-relax method), the main constraint lies in the nature of the stop-think-relax technique. This technique requires optimal physical condition for the individual who practice it. During the program, subject finds it difficult to practice relax techniques- in which she needs to inhale and exhale deeply – since she has cold. Therefore, attention to the physical condition of the subject for program implementation becomes crucial. In addition, considering another type of negative emotion regulating techniques is advisable. As a note, the technique should be concrete enough and easily implemented by the individual in respect to their disability (Mangunsong, 2009).

5 CONCLUSIONS

This study aims to test the effectiveness of Dialectical Behaviour Therapy in improving the emotion regulation skill in adolescents with intellectual disability. Based on the result obtained, we see that the program is effective to improve the client's emotion regulation skill based on the behaviour indicator. Through observation made on the subject's behaviour after the program, it was found that the program succeeded in providing new knowledge to the subject about the benefits of excelling in emotion regulation skill, the types of emotions, the process of emotion emergence, the procedure for managing negative emotions, the activities to induce positive emotions, and factors affecting emotion regulation. Furthermore, the program also succeeds in changing the views or attitudes of the subject regarding the importance of managing emotions in everyday life, especially in terms of changing bad habits that foster vulnerability for experiencing negative emotions. Nevertheless, further tracking is required to seek out if the program is successful in altering the actual

behaviour of the subject to regulate the negative emotion using the techniques taught.

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