

## **GEOMETRIC PUZZLE AND ART THERAPY (PLATE ART COLLAGE) TO IMPROVE CONCENTRATION AND SOCIAL INTERACTION OF MENTALLY RETARDED CHILDREN AT BC YATIRA SPECIAL SCHOOL**

**Mona Megasari<sup>1</sup>, Agus Riyanto<sup>2</sup>**

<sup>1</sup>Budi Luhur School of Health Sciences, Cimahi, West Java

<sup>2</sup>Jenderal Achmad Yani University

Kerkof Street No.243, Leuwigajah, South Cimahi Kec., Cimahi City, West Java 40532

Terusan Jend. Sudirman Street, Cimahi City, West Java 40525

Author Correspondence: monamegasari86@gmail.com

### **ABSTRACT**

**Background:** Mental retardation is an underdevelopment of intellectual functioning and adaptive behavior, which occurs during a child's development. One of the disorders of mentally retarded children is difficulty concentrating. Mentally retarded children also have relatively minimal interaction, as they are unable to have two-way communication with their peers and other people. **Objective:** to improve children's concentration and social interaction using Geometric Puzzle and Art Therapy (Plate Art Collage). **Methods:** This research design uses pre-experimental one group pre-post test. The total sample was 24 people according to the inclusion criteria through the total sampling technique. Data collection using the Attention Checklist (ACL) questionnaire and Social Skills Rating Scales-Teacher Form (SSRS-T). Statistical tests used to analyze data are McNemar test and Wilcoxon Signed Rank Test. **Results:** Based on the results of the analysis in measuring concentration before and after intervention ( $p=0.002$ ), and the results of the analysis in measuring social interaction before and after intervention ( $p=0.001$ ). **Conclusion:** It can be concluded that geometric puzzle play therapy and art therapy (plate art collage) have a significant effect on concentration and social interaction in mentally retarded children. Through this study, it is hoped that future researchers can assess the speed and reasoning of mentally retarded children in relation to the activities carried out.

**Keywords:** Art Therapy, Concentration, Social Interaction, Mental Retardation

### **INTRODUCTION**

For human beings, the coherent development of the functional parts of the brain can make a person able to survive in society. However, in reality, there is often a group of people who suffer from impaired intellectual functioning or mental retardation. Intellectual retardation is a condition that threatens the physical and mental health of children.<sup>1</sup> Mental retardation is a significant disability in both intellectual functioning and adaptive behavior, which appears in conceptual, social, and adaptive skills. This disability begins during the developmental period, which can be technically defined as before the individual reaches the age of 22 years.<sup>2</sup>

Data on the prevalence of mental retardation worldwide vary widely, due to differences in study populations, diagnostic criteria, and assessment tools. The ratio for severe and profound mental retardation is about 9-4/1000 in childhood, distributed in low-income countries.

According to UNICEF (2022), the prevalence of moderate-severe disability worldwide is 28.9 million or 4.3% of 0-4 year olds, 207.4 million or 12.5% of 5-17 year olds, and 236.4 million or 10.1% of 0-17 year olds.<sup>3</sup> The incidence of disability in Indonesia is 8.3 percent of the total Indonesian population.<sup>4</sup> West Java Province is among the provinces with the highest proportion of children with disabilities including mental retardation. In 2021, the number of people with mental retardation in West Java amounted to 4042 people or (11.2%) (Population and Civil Registration Office, 2022). There are 403 male students and 252 female students, currently studying in 9 special schools spread across Cimahi City.<sup>5</sup>

These factors result in impaired intellectual functioning that can affect children's abilities, one of which is in concentrating. Concentration that is easily switched and an attitude that is easily bored causes children to experience difficulties during learning, and causes interference with all movements or activities



carried out.<sup>6</sup> Students with mental retardation tend to have minimal interaction in learning activities or during recess. In addition, students with mental retardation often experience difficulties in social situations, both in the classroom and in the playground.<sup>7</sup> If difficulties in social situations are not addressed immediately, it will worsen the mental disorders of mentally retarded children. They may experience frustration, tension, anxiety, fear, and lack of interaction with the surrounding community. In addition, it may cause the child to become withdrawn due to lack of social, language and intellectual stimulation.<sup>8</sup>

Play is a fundamental element of childhood and plays a vital role in a child's holistic development. In play therapy, children use play to develop socially, build skills, and release emotions.<sup>9</sup> Interventions that focus on interactive play programs including concentration training are beneficial for children with developmental delays. As it can enhance the development of skills that enable children with mental retardation to participate in peer play.<sup>7</sup> Geometric puzzle is a puzzle that can develop children's ability to recognize geometric shapes (square, triangle, and circle), to train children in matching geometric puzzle pieces according to the puzzle board.

According to the American Artistic Association art therapy is the treatment of mental disorders through artistic mediums, with this method a person's feelings can be expressed and help the therapist to evaluate what he has shown. Collage is a type of visual art that has almost the same function as drawing and painting.<sup>10</sup> Plate art collage is a collage art work presented in the form of a plastic plate, resulting in the form of animals, plants, or other animations.

On March 8 and 16, 2022, the researcher conducted a review of several special schools located in Cimahi City, with the intention of determining the research location. Finally, the researcher decided to conduct research at BC Yatira special school. The factor that underlies the determination of the research site is the result of an interview with one of the teachers at BC Yatira special school. When learning activities take place, the majority of mentally retarded children are only able to concentrate for 5 minutes. The rest of the time, the children moved back and forth between seats and in and out of the toilet. In social development also varies, there are children who are quiet and rarely

communicate, there are also children who often ask their teachers to ask for the time to go home because they feel bored.

Although significant progress has been made in the last 50 years, people with disabilities are still reported to have a life expectancy of about 20 years lower compared to the rest of the population. Therefore, the American Nurses Association (ANA) states that nurses must provide care for people with disabilities to experience good physical, emotional, social, and mental health. The statement also asserts that nurses are in an important position to defend the rights of individuals with mental and developmental retardation and protect them from potentially harmful factors such as victimization, abuse, neglect, and discrimination.<sup>7</sup> The purpose of this study was to determine the effect of geometric puzzle play therapy and art therapy (plate art collage) on concentration and social interaction in mentally retarded children at BC Yatira special school.

## **METHODS**

The type of research used in this study is quantitative research using a pre-experimental research design with a one group pre-post test design. The characteristic of this research is to reveal the causal relationship by involving one group of subjects, namely mentally retarded children. The total sample was 24 mentally retarded children at BC Yatira Sepcial School, according to the inclusion criteria through the total sampling technique. Data collection by observation method using Attention Checklist (ACL) and Social Skills Rating Scales-Teacher Form (SSRS-T) questionnaires.

Data collection was carried out for 3 weeks, starting from May 29 - June 16, 2023. Before giving the intervention, the researcher made observations (pre-test) to the research sample, with the help of filling out an observation questionnaire by the teacher of each research sample. Giving intervention every day is different, the first day the research sample is given geometric puzzle intervention, then the second day is given plate art collage intervention, and so on alternately up to 10 times giving intervention. The implementation of the intervention was carried out before students started learning activities. The post-test was conducted 3 days after the intervention was





completed. The time gap between intervention and post-test depends on the theory and previous research, and also depends on the memory recall. In mental retardation there is impaired intellectual function, so that the ability to remember children is below average, then there is concern that there are distractions from outside so that it affects the results of the study.

## RESULTS

An overview of concentration in mentally retarded children before and after being given Geometric Puzzle Play Therapy and Art Therapy (Plate Art Collage) at BC Yatira Special School.

**Table 1 Frequency distribution of concentration of mentally retarded children**

Concentration	Pre		Post	
	f	%	f	%
Low Attention	15	62.5	5	20.8
High Attention	9	37.5	19	79.2
Total	24	100	24	100

Overview of Social Interaction in Mentally Retarded Children Before and After Given Geometric Puzzle Play Therapy and Art Therapy (Plate Art Collage) at BC Yatira Special School.

**Table 2 Frequency Distribution of Social Interaction of Mentally Retarded Children**

Social Interaction	Pre		Post	
	f	%	f	%
Poor	15	62.5	8	33.3
Good	9	37.5	16	66.7
Total	24	100	24	100

The Effect of Geometric Puzzle Play Therapy and Art Therapy (Plate Art Collage) on Concentration in Mentally Retarded Children at BC Yatira Special School

**Table 3 Differences in Children's Concentration Before and After Intervention**

Differences in Children's Concentration Before and After Intervention		Concentration after intervention		Total	P Value
		Low Attention	High Attention		
Concentration Before Intervention	Low Attention	5	10	15	0.002
	High Attention	0	9	9	
Total		5	19	24	

McNemar Test

The Effect of Geometric Puzzle Play Therapy and Art Therapy (Plate Art Collage) on Social Interaction in Mentally Retarded Children at BC Yatira Special School

**Table 4 Differences in children's Social Interaction before and after the intervention**

Children's Social Interaction	Mean Rank	Sum of Ranks	PValue	Z	n
Social interaction before intervention	0.00	0.00	0.001	-4.289	24
Social interaction after intervention	12.50	300.00	9		24

Wicoxon Test

## DISCUSSION

### Overview of Concentration in Mentally Retarded Children Before and After being given Geometric Puzzle Play Therapy and Art Therapy (Plate Art Collage) at BC Yatira Special School

Table 1 describes the frequency distribution of concentration in mentally retarded children before being given geometric puzzle play therapy and art therapy (plate art collage) at BC Yatira Special School, namely there are 15 people (62.5%) have low attention, and 9 people (37.5%) have high attention. Children's concentration after being given play therapy and art therapy is obtained mostly in the high attention category with a total of 19 people (79.2%), and a small portion in the low attention category with a total of 5 people (20.8%).

Concentration means focusing on one thing to the exclusion of all other unrelated things. Concentration can be taught or trained in such a way as to help children complete work or activities with precision and good results. Children who are able to concentrate will look excited in doing activities and seem not boring. Mentally retarded children experience central nervous disorders that have an impact on the child's cognitive function. Weak cognitive functions include perception, memory, idea development, and reasoning skills. Difficulty concentrating in mentally retarded children occurs due to central nervous disorders, so that children have difficulty in receiving and following lessons at school.<sup>6</sup>

Based on the researcher's observations, mentally retarded children who experience concentration problems often have difficulty directing their attention, such as when learning their attention is easily distracted when they hear the sound of something, often look to the right and left, and disturb the attention of their friends. However, mentally retarded children can



concentrate on interesting media. The findings of this study are in line with research that states if the concentration of children with special needs before being given collage therapy almost all have a concentration level of 5.<sup>11</sup> Then after being given collage therapy, the results showed that almost all of them had a good level of concentration.

WHO in ICD-11 states that children with mild and moderate mental retardation can focus their attention with assistance for 15-30 minutes. Meanwhile, to overcome the problem of mental retardation children who tend to forget easily, the frequency of learning can be done continuously and repeatedly. When mentally retarded children enter school at the age of six, they are not ready to read, write and calculate. They acquire these skills later due to lack of concentration, forgetfulness, and learning delays. Some of the main components of an attentional training program are developing efficiency in concentration, developing listening comprehension accuracy, developing visual accuracy and eye-hand coordination. For example, careful listening and observation activities will improve focus and concentration in mentally retarded children. Concentration training can increase the level of sensitivity and significantly improve spatial working memory, math fluency and reading fluency, and shows that better focus leads to better cognitive performance.<sup>12</sup>

Interventions oriented towards interactive play programs including concentration training are beneficial for children with developmental disabilities. This is because it can enhance the development of skills that enable children with mental retardation to engage in peer play.<sup>7</sup>

### **Overview of Social Interaction in Mentally Retarded Children Before and After Given Geometric Puzzle Play Therapy and Art Therapy (Plate Art Collage) at BC Yatira Special School**

Table 2 describes the frequency distribution of social interaction in mentally retarded children before being given geometric puzzle play therapy and art therapy (plate art collage) at BC Yatira special school, namely there are 15 people (62.5%) have poor social interaction, and 9 people (37.5%) have good social interaction. Children's social interaction after being given

play therapy and art therapy was found to be mostly in the category of good social interaction with a total of 16 people (66.7%), and a small portion in the category of poor social interaction with a total of 8 people (33.3%).

Social interaction is a person's condition to adjust to the social changes that take place around him. Social interaction means a relationship between individuals and other individuals or groups, in which there is a social correlation and communication to form a familiar relationship, then influence each other between one individual and another in their social sphere. Mentally retarded children experience barriers in interacting with others due to intellectual limitations. Intellectual limitations make it difficult for children to know the limits of the norms that apply in the community and lead to the failure of social adjustment. Socialization skills in mentally retarded children are not formed optimally, making them tend to be unable to be independent, unable to have two-way communication with peers, unable to carry out their duties in accordance with the provisions of normal social behavior patterns. If difficulties in social situations are not addressed, the child may withdraw due to lack of social, language and intellectual stimulation.<sup>8</sup>

The frequency of characteristics of mentally retarded children at BC Yatira Special School with a total of 24 respondents, most of the respondents were 12 years old (20.8%), 15 people (62.5%) were male, and 8 people (33.3%) were studying in grade 6. Just like most other studies, boys had a higher prevalence than girls across all age ranges in all years. Many theories have been put forward to explain this phenomenon from various perspectives. Biologically, genetic causes of mental retardation such as Fragile-X Syndrome are relatively less common in females. Some studies estimate that X-Linked may account for about 16% of mental retardation in males. In addition, the central nervous system of boys is more prone to disorders. One study found that the association between low birth weight and childhood mental health problems is higher in boys.<sup>13</sup>

Intervention through play has been shown to be a good opportunity to increase interaction. In addition, play interventions can improve the social abilities of students with mental retardation, and have a positive impact on the development of social competencies and skills.





Play is seen as a key strategy in children's social and personal development. Young children with mental retardation have difficulty developing play skills, so it is important to provide them with opportunities that encourage these skills.<sup>14</sup>

In line with research which states that social interaction in mentally retarded children in the treatment group before being given cooperative play is mostly less capable. Then after being given cooperative play, the social interactions of mentally retarded children are mostly quite capable and capable.<sup>8</sup> Children's social interaction skills are also influenced by their parents' educational background. In addition, the active role of parents also affects the development of social interaction of mentally retarded children. The economic limitations of parents can impact on their ability to provide facilities that support children's learning, such as the provision of educational games that can support children's social interactions.

#### **The Effect of Geometric Puzzle Play Therapy and Art Therapy (Plate Art Collage) on Concentration in Mentally Retarded Children at BC Yatira Special School**

Table 3 describes the results of the analysis of the effect of geometric puzzle play therapy and art therapy (plate art collage) on concentration, using the Mc Nemar statistical test obtained the result of  $p = 0.002$ . The value of  $p (0.002) < \alpha (0.05)$ , it can be concluded that there are differences before and after being given geometric puzzle play therapy and art therapy (plate art collage) on concentration in mentally retarded children.

The benefits of puzzle play therapy in improving the concentration of mentally retarded children are improving cognitive skills, giving directions and examples to children can make children develop their cognitive functions by trying to match shapes, colors, or logic. Art therapy (plate art collage) also has many benefits, one of which is training concentration. The activity of gluing collage requires concentration and coordination of eyes and hands. This coordination is very good for stimulating brain cell growth.

The focus on stimulating attentional development in mentally retarded children should be implemented in an effective teaching design. Where the focus is on strengthening

orientation and maintaining attention, through specific creative activities and exercises during play. Specific creative activities and exercises could include: concentration, recognizing important and unimportant things, encouraging to complete tasks, strengthening resistance to distractions, etc..<sup>15</sup> Unlike normally developing children, mentally retarded children lack curiosity and have limited motivation. Play as a means of therapy helps children get the opportunity to not only express their problems, but also solve them in a comfortable atmosphere of communication. As a result, they can recreate and experience new situations to turn many abstract activities into concrete ones that they can better understand.

The results of this study are in line with research which states that learning while playing is the most efficient method to improve concentration in children. Through collage and puzzle games, it is hoped that mentally retarded children can do concentration exercises with the pictures provided.

#### **The Effect of Geometric Puzzle Play Therapy and Art Therapy (Plate Art Collage) on Social Interaction in Mentally Retarded Children at BC Yatira Special School**

Table 4 describes the results of the analysis of the effect of geometric puzzle play therapy and art therapy (plate art collage) on social interaction, using the Wilcoxon signed rank test statistical test obtained a  $p$  value =  $0.001 < \alpha = 0.05$ , it can be concluded that there are differences before and after being given geometric puzzle play therapy and art therapy (plate art collage) on social interaction in mentally retarded children.

The prevalence rate of mental retardation at school age increases over time. This is because mentally retarded children aged 6 to 18 years (Childhood and Adolescence) have not yet mastered abstract ideas, but can think logically about real events.<sup>16</sup> People with mental retardation are generally seen as having deficits in social interaction. They experience considerable difficulty in establishing and maintaining social relationships, due to their lack of experience relating to others. Mainly, due to the impact of social interaction anxiety, social phobia, and stress arising from social interactions. They have psychological and

emotional problems such as decreased self-confidence, anxiety, and withdrawal because they are used to experiencing constant failure in the social interaction process.<sup>17</sup>

These findings are supported by research on the Effectiveness of Play Therapy in Enhancing Social Skills in Intellectually Disabled Children, which used several play techniques including flash cards, picture stories, videos, storybooks, and puppets play. The t-test scores showed a significant difference between the pre-test and post-test. These results showed that the participants had better social interaction due to their involvement in play therapy compared to the control group. The participants at the end of the play therapy session showed better social interaction, followed instructions better, and were compliant with the rules.<sup>17</sup>

It has been argued that the effects of social interaction anxiety and social phobia can increase the potential for ethological problems, such as trying to avoid interactions that involve high concentration and repetitive stereotyped behaviors. Thus, people with mental retardation experience continuous failure in their social interactions and interpersonal relationships, leading to serious discrepancies in social functioning and increased frequency of depression.<sup>17</sup>

Play activities carried out by children in order to develop their interaction skills still require guidance. During the research activities, mentally retarded children experience the process of receiving information, making decisions, and controlling emotions. This view is in accordance with Callista Roy's Nursing Theory. Then the intervention is given so that it triggers self-adjustment in improving the social interaction of mentally retarded children. The level of self-adjustment is influenced by the development and coping patterns of each child. The maximum use of coping mechanisms results in increased adaptation and stimulation. As a result, the child's response level becomes more positive. Patients with mental retardation often show barriers to adaptation, which illustrates difficulties with indicators of positive adaptation.<sup>18</sup>

## CONCLUSIONS

Based on the results of the study, it was concluded that before being given geometric

puzzle play therapy and art therapy (plate art collage) the concentration of mentally retarded children was half low attention, and after being given therapy more than half had high attention. Social interaction of children more than half have poor social interaction, and after being given therapy more than half have good social interaction. There is an effect of geometric puzzle therapy and art therapy (plate art collage) on concentration and social interaction in mentally retarded children.

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