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# Research Paper: The Effects of Mental Imagery and Physical Practice on Learning Dart-Throwing in Children with ADHD

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## Abstract

The effects of motor imagery and physical practice on motor learning in individuals with ADHD received very little attention. Therefore, in the present study, we aimed to examine the effects of motor imagery and physical practice on motor performance and learning dart-throwing in adolescents with ADHD. The current research was based on a causal-comparative approach. The participants included 60 adolescents with ADHD (with the age range of 12 to 17 years) randomly and equally assigned into four groups: 1) motor imagery, 2) physical practice, 3) combination of motor imagery and physical practice, and 4) control. The motor task involved dart-throwing, in which the accurate throw score was measured as the dependent variable. The participants performed the pre-test (ten throws) and the retention test (ten throws). ANOVA was run to analyze the throwing accuracy. Results showed that all groups had similar throwing scores in the pretest, however, in the retention test, the results indicated that combination group had significantly better throwing scores than all other groups (in all groups, P=0.000). In addition, physical practice group had significantly better throwing scores than motor imagery and control groups (both P=0.000). Finally, motor imagery group had significantly better throwing scores than control group (P=0.000). Individuals with ADHD benefit from motor imagery, indicating that they have the necessary mechanisms to learn new skills through motor imagery. Moreover, a combination of motor imagery and physical practice would be a better strategy for learning new motor skills.

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## 1. Introduction

Researchers working on motor learning are always trying to increase the ability of teachers and trainers by introducing new scientific methods. For this purpose, motor behavior scientists have tried to identify the factors affecting the harnessing and learning of these skills for years (Magill, 2007). Today, sports psychologists as well as people who participate in the field of sports and physical activity pay attention to mental skills as an evolutionary part, with a significant role in the success of outstanding athletes. During the past decades, the motor learning scientists examined the effects of various techniques and strategies for facilitating the process of motor learning in different age groups. Some of them include observing a model (Ghorbani & Bund, 2014; Ghorbani et al., 2020; Farsi et al., 2016), motor imagery (Afsanepourak et al., 2012), self-talk (Eskandari Nejad et al., 2015), enhanced expectancies (Ghorbani, & Bund, 2020), and adopting an external focus of attention (Ghorbani et al., 2020).

One of these mental techniques that is often used by teachers and coaches to facilitate the learning of sports skills is motor imagery. Motor imagery is a conscious experience using all senses to create or recreate an experience in the mind (Amasiatu, 2013; Weinberg & Gould, 2011). One of the effects of imagery is to improve learning and performing motor skills; it is also used in sports for various reasons such as reducing anxiety, improving performance, learning skills, increasing self-confidence (Bohan et al., 1999). Additionally, motor imagery can improve the time of doing a task or exercise. Athletes use skill training in two main ways: physical practice and mental practice (Mulder, 2007). Mental practice is considered to be a special form of imagery, and mental imagery is one of the main interventions in sports psychology, including the use of one or more senses to create or recreate sports skills or timing (Driskell et al., 1994). Athletes can use mental imagery to improve their learning. Studies conducted over the past years have revealed that mental practice, similar to physical practice, improves people's motor skills; on the other hand, they have determined that the same neural mechanisms that are activated in learning through physical practice are also activated in mental practice (Hale et al., 2003). This issue confirms why mental training, like physical training, leads to learning motor skills. Using methods such as magnetic resonance imaging (MRI) and tomography through positron emission, has determined that the cerebral cortex and subcortical areas that play a role in motor planning and control are also activated during mental practice (Decety, 1996). Research has pointed out the positive role of mental imagery in improving the performance of athletes, and concluded that people using mental imagery performed better than people who has not used imagery (Mulder et al., 2004). In addition to the positive effects of motor imagery in improving the motor performance and learning in various sports disciplines, some studies have shown that combination of physical and mental practice are more effective on motor performance and learning than mental practice alone (Papadelis et al., 2007). However, the effects of a combination of motor imagery with physical practice is not exercised on people with different mental and motor disabilities (Dana et al., 2019). For example, one of the disabilities that has rarely been studied in the field of mental practice and motor imagery is attention deficit hyperactivity disorder (ADHD). ADHD is a mental health disorder that includes a combination of persistent problems such as difficulty in paying attention, hyperactivity, and intrusive

behavior (Farhangnia et al., 2020). ADHD can lead to unstable relationships, poor performance in school, low self-esteem, and other problems. Symptoms of hyperactivity begin in childhood and continue into adulthood. It has also been stated that individuals with ADHD often exhibit deficits in learning motor and sport skills (Eskandarnejad et al., 2015). Thus, findings the ways and procedures that may facilitate learning new motor skills in individuals with ADHD seem to be necessary. As mentioned earlier, the effects of motor imagery and physical practice on motor learning in individuals with ADHD received very little attention. Therefore, in the present study, we aimed to examine the effects of motor imagery and physical practice on motor performance and learning dart-throwing in adolescents with ADHD. We hypothesized that each motor imagery and physical practice would lead to better motor performance and learning compared to control condition. In addition, a combination of motor imagery and physical practice would lead to greater motor performance and learning than each one alone in adolescents with ADHD.

## 2. Method

The current research was based on a causal-comparative approach. The participants included 60 adolescents with ADHD (with the age range of 12 to 17 years) and randomly and equally assigned into four groups: 1) motor imagery, 2) physical practice, 3) combination of motor imagery and physical practice, and 4) control.

### 2.1. Motor task

In this study, a dart-throwing skill was selected as a motor task. To do this, a standard dart board made in China, (JDB 61 model), and standard darts were used. In this task, the participant started throwing darts towards the clockboard while placing his or her foot behind the oche at a standard distance from the dart board (which was 7.77 Inch clockboard). The aim of this motor task was to throw darts towards the clockboard to get the highest possible score. In this assignment, the place where the dart hit was recorded on the clockboard, which was a score between 0 and 10.

### 2.2. Procedure

First, by referring to the participant's profile at school, a demographic information sheet was completed for each child. Participants were tested separately in the room set up for this study in their respective schools. Before the start of the protocol, the examiner provided the preliminary explanations related to the present study to the participants. Then, an experienced instructor taught the participants the rules of throwing darts, how to throw darts and score points. In order to familiarize the participants with the protocol implementation environment and the motor task, they were asked to perform a dart-throwing skill two times. Afterwards, in the pre-test, the participants performed the dart-throwing skill ten times without any specific instructions. In the acquisition phase, the protocol used for each group was different. For mental imagery group, the participants were asked to imagine the dart-throwing for five minutes. The participants in the physical practice group were asked to throw the dart for five minutes. The participants in the combination group were asked to participate in three intervals, including one minute of motor imagery and one minute of dart-throwing practice. Finally, those in control group did nothing during the protocol. One day after the protocol, the participants participated in a retention test, which consisted of performing the dart-throwing skill ten times. Before and during the retention test, no instructions were provided.

### 2.3. Data analysis

In this study, the dependent variable was throwing accuracy in the pre-test and retention test. ANOVA was used to analyze the throwing accuracy in the pre-test and the retention test. In addition, Tukey's post hoc test was run as a post hoc test. The level of statistical significance was at $P < 0.05$.

## 3. Results

In this part, the demographic characteristics of the participants in this study, including the age, height, weight, and BMI in each group, are presented in Table 1.

Table 1

*Demographic characteristics of the participants*

| Groups | Age | Height | Weight | BMI |
|---|---|---|---|---|
| Motor imagery | 14.22±1.87 | 164.55±7.22 | 58.49±6.94 | 19.85±1.47 |
| Physical practice | 14.69±2.07 | 166.39±6.98 | 57.29±6.97 | 20.31±1.50 |
| Combination | 15.22±2.17 | 169.65±9.08 | 60.22±7.24 | 19.54±1.95 |
| Control | 15.96±2.52 | 162.74±7.59 | 59.67±8.63 | 19.78±1.85 |

Descriptive statistics including the mean and standard deviation of throwing scores in the groups are presented in Table 2 and Figure 1.

Table 2

*Mean and SD of dart-throwing scores in pre-test and retention test across groups*

| | Motor imagery | Physical practice | Combination | Control |
|---|---|---|---|---|
| Pretest | 1.85±1.69 | 1.98±1.54 | 1.78±1.66 | 1.81±1.39 |
| Retention test | 3.29±2.47 | 4.05±3.07 | 5.22±2.47 | 2.01±1.71 |

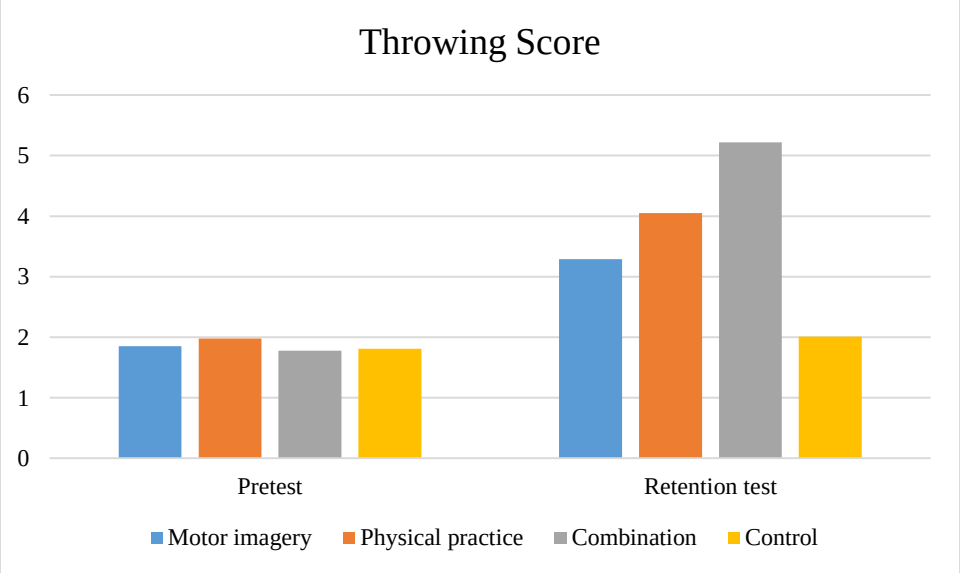


Figure 1. Means of throwing in the pretest and retention test across groups

As can be seen, the average scores of the all groups in the pre-test were very close to each other. Before presenting the inferential statistics related to the research hypotheses, it

is necessary to mention that the results of the Kolmogorov-Smirnov test as well as the results of the Levin test showed that the research data had the two assumptions of normality of data distribution and homogeneity of variances, because the values of the z statistic for all groups were not significant. In the following, ANOVA employed to test the research hypotheses. Results of one-way ANOVA highlighted that all groups had similar throwing scores in the pretest, $F = 0.58$, $p = 0.89$. However, in the retention test, there were significant differences between groups, $F = 8.97$, $p = 0.000$. According to the results of Tukey test, combination group had significantly better throwing scores than all other groups (P=0.000 in all groups). In addition, physical practice group had significantly better throwing scores than motor imagery and control groups (P=0.000 in both groups). Finally, motor imagery group had significantly better throwing scores than control group (P=0.000).

## 4. Discussion

The effects of motor imagery and physical practice on motor learning in individuals with ADHD has not been studied a lot. Therefore, our aim in the present study was to examine the effects of motor imagery and physical practice on motor performance and learning dart-throwing in adolescents with ADHD. We hypothesized that each motor imagery and physical practice would lead to better motor performance and learning than control group. In addition, a combination of motor imagery and physical practice would lead to greater motor performance and learning than each one alone in adolescents with ADHD.

The findings indicated that the experimental groups, i.e., the groups of motor imagery, physical practice and the combination of mental imagery and physical practice, performed better than the control conditions in the retention test, revealing the effect of each type of practice compared to the no-practice condition. Additionally, these highlighted that adolescents with ADHD were able to use motor imagery for improving their performance in the retention test. The results of this study confirm our first hypothesis and are in accordance with the results of previous studies indicating that any practice (including physical practice, mental practice, a combination of mental and physical practice) would have a positive effect on learning sports skills (Amasiatu, 2013; Weinberg & Gould, 2011; Hale et al., 2003). Dart-throwing skill is a cognitive-motor skill requiring physical and mental skills, creating concentration, having self-confidence, paying attention to the goal, reducing anxiety about the result of the throw; consequently, it can have a significant effect on the successful harnessing this skill. It can be stated that it is because of these important psychological factors that motor imagery is effective in dart-throwing (Mulder, 2007; Mulder et al., 2004). Mentally correcting one's mistakes in the process of motor imagery can help a person to increase concentration and self-confidence, as well as to generate confidence in the result of the throw. In addition, imagining successful throws results in creating a sense of victory and a positive attitude towards the work result, reducing anxiety and worry about the mistake and the result of the throw, controlling negative emotions, controlling stress and excessive arousal; therefore, using visualization can improve one's motor performance (Papadelis et al., 2007). Accordingly, it can be concluded that employing motor imagery was the most important reason for learning and developing the dart throw skill.

In addition, the findings showed that a combination of mental imagery and physical

practice was better than each factor alone in the retention test, indicating that although mental imagery, as an effective strategy, plays a significant role in learning movement skills, it is not enough to learn these skills alone, and a skill that is well acquired must be used in practice (Mulder, 2007; Mulder et al., 2004). It should be exercised until it is internalized in the person and becomes a skill. The possibility of physical practice after motor imagery has strengthened and stabilized the dart-throwing skill in the retention test. Therefore, it is suggested that sports coaches in educational classes use motor imagery as an educational aid tool based on its psychological aspects (Amasiatu, 2013; Weinberg & Gould, 2011; Hale et al., 2003). A coach's attention to motor imagery as one of the useful psychological skills in the field of sports, and physical factors, can help novices learn and perform better motor skills.

## 5. Conclusion

To conclude, the results of current study demonstrated that individuals with ADHD could benefit from motor imagery to learn a dart-throwing skill. This result indicate that these people may have the necessary mechanisms to learn new skills through motor imagery. In addition, a combination of motor imagery and physical practice would be a better strategy for learning new motor skills. Therefore, it is suggested that sports coaches in educational classes use motor imagery and physical practice together.

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## Conflict of interest

The Authors declare that there is no conflict of interest with any organization. Also, this research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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# Research Paper: The Effectiveness of Social Skills Training on Improving the Adjustment of Slow Learner Children

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## Abstract

The aim of this research was to study the effectiveness of social skills training on the adaptive behavior of slow learner children. This research was applied in terms of purpose and quasi-experimental in terms of data collection. The population of the research included all the students in the city of Bandar Anzali who studied in primary schools or whomever referred to counseling centers of the city in the academic year 2021-2022. For this purpose, 30 students diagnosed with slow learning problem based on the Wechsler intelligence test who obtained a low score in Adjustment inventory of school students (AISS) as well as clinical interviews with teachers, were selected and randomly divided into two experimental (15 individuals) and control (15 individuals) groups. Then social skills training was provided for 2 months with 12 two-hour training sessions for the participants of the experimental group; the control group did not receive any training. Afterwards, the adaptive behavior assessment was carried out again on both groups. The data were analyzed using the covariance statistical method. The findings indicated that social skills training improved the adaptive behavior of slow learner children ($F=0.389$ and $P<0.05$). Therefore, it can be concluded that school teachers, counselors, and parents can use social skills in schools, at home, and in counseling centers to improve the adjustment of slow learner children.

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## 1. Introduction

The distribution of intelligence in humans is based on the principle of individual differences in a normal way that most individuals (about 68%) are two standard deviations below and above the average in terms of intelligence quotient (IQ). Based on the psychological classification, about 14% of all individuals in the community are borderline intellectual functioning students, or from an educational point of view, they are slow learners whose intelligence is one to two standard deviations lower than the average (Beh-Pajooh et al., 2010).

One of the major goals of educating slow learner students is to fulfil the need for social adjustment as well as to establish useful and effective relationships with others and to accept social responsibility. Therefore, it is necessary to teach such children the social skills that they need. One of the characteristics of social skills is that they are acquired; currently, many researchers agree that it is more learnable than social behaviors because children who grow up in inappropriate environments have socially undesirable behaviors (Harji et al., 2018/1994). The low level of social adjustment and the ability to adjust in slow learner children who face problems in the field of social interactions causes them problems in communicating with others and they may face problems in terms of social relationships and have doubts in terms of social self-empowerment; this issue causes social, psychological and academic problems in students resulting in problems such as dropping out of school, quarreling with family, having depression and addiction, etc (Dashti et al., 2021).

Human is a social being, and for this reason, s/he lives in the community. From the moment of birth to the end of her/his life, humans constantly interacting with other humans. S/He has realized that being in a group can solve her/his problems and for this reason, s/he always learns how to live in a group and satisfy her/his needs. The issue of children's social skills is a part of their socialization; socialization is a process in which the norms, skills, motivations and attitudes, as well as behavior of an individual is formed which is recognized as suitable and desirable to perform her/his current or future role in society. The crucial factors of socialization can be considered to be culture, family, and social institutions. Considering life skills, one can assume a situation in which some individuals cannot perform well because they have correctable-skill deficits in different areas of their lives. The presence of such defects can lead to mental health problems (Cartledge & Milburn, 1988/2007). According to Corsini (2010), social skills can be defined as skills necessary to adapt to social needs and maintain satisfying interpersonal relationships. Since social needs are variable and depend on their specific social context, it is necessary for individuals to create a flexible social response mechanism in themselves, so that they can change themselves according to situational needs. Based on Matheson et al. (1988/2005), the lack of social skills is a major obstacle to live independently and is related to intellectual disabilities and is a characteristic of individuals with developmental disabilities. Specifically, lack of social skills is really necessary for identifying individuals who are in the borderline range of intellectual disabilities. Since 1970s, measuring social skills and proceedings related to it has been one of the most favored topics of behavioral psychologists' research. Slow learner students have an IQ between 70 and 85. These individuals constitute approximately 14.1% of the population, which is larger than the group of children with learning

disabilities, intellectual disabilities, and autism. They have learned to walk and talk but with a delay and slower than other children, they have problems academically and fall behind every year. They seem more immature than their age, they prefer to play with younger children, they have difficulty controlling the main topic of the conversation, irrelevant things are frequently heard in their conversation, they think and act several years younger than their peers during adolescence, they have a short attention span, they study but do not retain what they learn, they have difficulty following multistage instructions, they work hard but can't keep up with their classmates, they lack self-esteem and are weak in reading and writing, they live in the present moment and do not have long-term goals (Du Plessis, 2021 as cited in Shabafrooz & Rezayi, 2022).

Many researches have been done in this field. In a study entitled the efficacy of cognitive rehabilitation based on executive functions (Beta) on the behavioral performance of slow learner students, Gandomi et al. (2021) indicate that the Beta cognitive rehabilitation intervention with an emphasis on executive functions (working memory, sustained attention, and inhibition) has a significant effect on the behavioral performance of slow learner students. The results of Walker and Nabuzoka's research (2007) show that students with learning disorders have more negative behavior; there is also a relationship between academic progress and social adjustment. Harrell et al. (2009) point to the effect of social skills training on social adjustment and increasing social skills.

However, slow learner children face problems in establishing and maintaining relationships with peers, family, and school staff due to underdeveloped interpersonal relationships and also have more problems with complex social skills and social information processing compared to their peers (Khanzadeh et al., 2015). The definite role that social skills training plays in increasing academic and behavioral skills deserves more attention in school interventions, especially for slow learner students who have the most serious problems in the adjustment domain. Therefore, considering the importance of social rehabilitation, in improving the adjustment of students, and also considering the inadequacy in the social functions of slow learner children, it is obviously necessary to have educational plans. Therefore, this study aimed to investigate the effectiveness of social skills training in improving the adjustment of slow learner students.

## 2. Method

This research was applied in terms of purpose and quasi-experimental in terms of data collection. First, the researcher selected 5 elementary schools from all schools in city of Bandar Anzali and 4 counseling centers using a simple random sampling method. After visiting the schools and counseling centers, Wechsler's test was run on children using the convenience sampling method. According to the report of the teachers and psychologists of the counseling centers, students who had an IQ between 70 and 85 and needed more effort academically, were selected as slow learner students. Then Sinha and Singh's (1993) adaptive behavior test was performed on them; since the minimum sample size in quasi-experimental research is suggested to be 15 people (Wilson Van Voorhis & Morgan, 2007), 30 slow learner students who scored low on this test were randomly selected and placed in two experimental (15 people) and control (15 people) groups. Next, social skills training was provided for 2 months with 12

two-hour training sessions (two sessions per week) for the participants of the experimental group and the control group did not receive training. After the sessions, the adaptive behavior scale was again carried out on both groups and the data was analyzed based on covariance statistical method using SPSS version 27 software. An inclusion criterion for the research was the non-participation of students in social skills training classes and also the non-use of drugs. Moreover, the participants were asked to sign the consent form after fully reading the details of the research, and all their information was agreed to remain confidential.

**Inventory adjustment of students (AISS)**: This scale was prepared by Sinha and Singh (1993) to separate 9 from 18-year-old students with good adjustment from students with low maladjustment in three emotional, social, and academic domains. In this research, the final version with 60 items was used with yes-no questions. For grading, the answers that conform to adjustment are assigned a score of zero, and the answers that do not conform to adjustment are assigned a score of one. The sum of the scores illustrates the individual's adjustment. A lower score indicates higher compatibility and a higher score shows lower compatibility. The coefficient of this scale has been reported by Sinha and Singh (1993, as cited in Fatollahzadeh et al., 2017) by dividing it into two halves for the whole scale as 0.95. Correspondingly, Bahmani et al. (2016) obtained the reliability coefficient of the above scale using Kuder-Richardson's method and divided it into two halves for the whole scale and get 0.86 and 0.79 in their research.

**Wechsler Intelligence Scale for Children, Fourth Edition:** The fourth edition of the Wechsler Intelligence Scale for Children (2003, as cited in Abedi et al., 2012) is derived from the original Wechsler-Bellevue scale. This scale was compiled by Dr. Abedi in Iran and provides the possibility of measuring a general intellectual activity and four indicators of verbal comprehension, perceptual reasoning, working memory, and processing speed. The tests of picture concepts, letter-number sequencing, matrix reasoning, cancellation, and word reasoning in the fourth edition are presented as new tests of the Wechsler IQ scales for children, which were not included in the third edition of the Wechsler IQ scales for children. The validity coefficient of total IQ was reported as 0.97. Furthermore, regarding other IQs, the highest validity coefficient was related to verbal comprehension IQ (0.94), and the lowest is related to processing speed IQ (0.88) (Abedi et al., 2012). Regarding the subscales, the highest and lowest validity coefficients belong to words (0.92) and comprehension (0.81), respectively. Sadeghi et al. (2011) calculated the validity of the correlation of the scores of 30 people with Revised Raven and Wechsler's children's test; it was 0.38 and 0.25, respectively. It was also significant at 0.05 level; the validity of this test was 0.75.

**Interviews with teachers:** after entering schools and during interviews with teachers to identify slow learner children, , those students who needed more effort according to the end semester examination or midterm and those students who needed more effort according to the end semester examination or midterm were identified by comparing them to other students whose ability and academic performance were lower; to be sure, the Wechsler test was run to determine their IQ according to the obtained scores.

Table 1
*Intervention plan and implementation method taken from the training package of Beh-Pajooh et al. (2010)*

| Session | Assignment |
|---|---|
| First session | Introducing and getting to know group members, formulating group rules, discussing the importance of social skills, considering people's feedback on the way of introduction, tone of voice, and giving assignments about how to introduce yourself to others |
| Second session | Presenting the report of the previous session assignment and giving feedback, explaining how to introduce yourself to others and greetings in dealing with others, and giving appropriate assignment |
| Third session | Presenting the report of the previous session assignment and giving feedback, practicing the ways of exchange, daily compliments, practicing starting a conversation, continuing it appropriately, and ending it, and giving an assignment about starting a conversation with others |
| Fourth session | Presenting the report of the previous session assignment and giving feedback, discussing the importance of following orders and rules at school and home, and giving assignments on discipline |
| Fifth session | Presenting the report of the previous session assignment and giving feedback, practicing how to make requests from others, providing a model of how to deal with someone who has rejected our request, giving assignments on making requests and providing appropriate responses |
| Sixth session | Presenting the report of the previous session assignment and giving feedback, discussing the importance of getting permission from adults to do things and listening to an adult skill, and giving appropriate assignment |
| Seventh session | Presenting the report of the previous session assignment and giving feedback, teaching skills related to restraining emotions and expressing positive and negative emotions, and giving appropriate assignment |
| Eighth session | Presenting the report of the previous session assignment and giving feedback, practicing how to express emotions, providing models about how to express different emotions, such as happiness, anger, sadness, and skills related to asking for help and helping others |
| Ninth session | Presenting the report of the previous session assignment and giving feedback, practicing the methods of rejecting unreasonable requests, discussing the method of saying no to unreasonable requests, giving assignments on how to reject unreasonable requests and the skill of saying no |
| Tenth session | Presenting the report of the previous session assignment and giving feedback, discussion about why we should criticize, assignment on giving feedback to others, and the skill of apologizing to others and accepting others' apologies |
| Eleventh session | Presenting the report of the previous session assignment and giving feedback, practicing accepting criticism, providing a model on how to deal with criticism properly and effectively, giving assignments on coping with and accepting criticism, and problem-solving skills and dealing with failure |
| Twelfth session | Presenting the report of the previous session assignment and giving feedback, presenting a summary of the discussed topics, summing up and evaluating the results of the sessions, and self-evaluation |

## 3. Results

The present study included 30 slow learner elementary students in the city of Bandar Anzali, 54.8% (17 individuals) of the participants were girls and 45.2% (13 individuals) were boys. Moreover, ,17.23 percent (5 individuals) were in the third-grade elementary school, 31.74 percent were in the fourth grade (9 individuals), 33.8 percent were in the fifth grade (11 individuals) and 17.23 percent were in the sixth grade (5 individuals).

The mean and standard deviation and research variables are reported in Table 1.

Table 2

*Mean and standard deviation of pretest-posttest scores in two experimental and control groups*

| | | Experimental group | | | Control group | | |
|---|---|---|---|---|---|---|---|
| | Test stage | N | M | SD | N | M | SD |
| Adaptive behavior | Pre-test | 15 | 204.2 | 6.08 | 15 | 200.31 | 4.43 |
| | Post-test | 15 | 179.18 | 5.12 | 15 | 200.38 | 5.39 |

According to the results of Table 2, the mean in the examination of adaptive behavior in the control group, were 200.31 and 200.38 in the pre-test and post-test, respectively; the average adaptive behavior in the experimental group was 204.2 and 179.18 in the pre-test and post-test, respectively. As can be seen, the changes in the control group in the pre-test and post-test stages were insignificant, but the changes in the pre-test and post-test of the experimental group in the adaptive behavior variable were considerable.

Additionally, to perform the covariance test, the p-value of the Kolmogorov-Smirnov test was checked in all variables, which was greater than 0.05 (pre-test of the experimental group, $z=0.412$, $p < 0.05$, and post-test of the experimental group, $p < 0.05$, $z=0.289$ and the pre-test of the control group, $z=0.05$, $p<0.05$, and the post-test of the control group, $z=0.428$, $p<0.05$); therefore, the normality of the variables was confirmed, and the F value in Levin's test was also not significant, which indicated that the assumption of equal variance of adaptive behavior was the same in both experimental and control groups ($p<0.05$, $F=0.103$).

Table 3

Results of covariance analysis of the effect of social skills training on social adjustment scores

| Source of changes | Sum of squares | Df | Mean squares | F | Significance level | Effect size |
|---|---|---|---|---|---|---|
| Group | 8.127 | 1 | 8.127 | 0.389 | 0.014 | 0.61 |
| Error | 173.5 | 28 | 11.423 | | | |

Based on Table 3, the obtained results indicated that the F value equaled to 0.389 was significant at the error level of less than 0.05. Therefore, social skills training was effective in increasing the adaptive behavior of slow learner children. The effect size showed that 61% of the variance of adaptive behaviors can be explained through group differences.

## 4. Discussion

The purpose of this research was to teach social skills to slow learner students and to measure and evaluate its effect on their social adjustment. The results revealed that social skills training can improve social adjustment. For this purpose, initially, the skills of slow learner students were assessed and after the skills training, the assessment task was done; if the desired skill was well learned by the student, the skill training was finished; in case of failure, repetition and practice were used to teach them skills and make them gain educational concepts. The findings of Gandomi et al. (2021), Walker and Nabozoka (2007), Gresham and Elliott and (2014) are also consistent with this research. In the results of the mentioned researches, the effectiveness of social skills training in social adjustment has been emphasized. The development of social skills is a part of the process of socialization of an individual; moreover, the main goal of social skills training is basically to flourish the capacities and to develop the abilities, behavior, and personality of an individual to promote the sense of social understanding (Nazarinezhad, 2008 as cited in Sobhi Gharamaleki et al.; 2016). The determinant factors of social skills include cognitive and behavioral categories, and an individual who has social skills can select and present at the right time in a certain time and situation (Cartledge & Milburn, 1995). An increase in social skills provides the ability to create mutual and prosocial communication for an individual (Sobhi- Gharamaleki et al., 2016). Since social adjustment reflects an individual's constructive and useful interactions with others, especially friends, peers, and classmates, it can be said that social skills training makes students more clearly realize many of them and other psychological attributes, and understand and accept them (Hatami & Kavousian, 2013). The possible reason for improving the degree of social adjustment of the participant is the acquisition and application of social skills are the basis on which interpersonal relationships are built. Students who truly learn social skills, practice, and apply their competence, can certainly succeed in entering the peer groups and making friends, having a positive interaction in their relationships with peers, and demonstrating a range of acceptable behaviors (Beh-Pajooh et al., 2010). Children and adolescents who learn the social norms of the peer group well and establish strong and stable relationships with family and community members will most likely demonstrate a high level of social adjustment; slow learner students who acquire social skills well and demonstrate more desirable behaviors from a social point of view, have a more positive self-concept, and this makes them evaluate, understand and accept their limitations and abilities in a more correct way (HosseinKhanzadeh et al., 2016). In the process of skills training, students are informed that there are differences between them and others that they must accept; as a result, they can continue their relationships, friendship, and accompanying each other with these possible differences and distinctions. They achieve the concept of group conformity and finally, with the help of learning social skills, they lead a peaceful and compatible life despite disagreements and

possible associations (Fatollahzadeh et al., 2017). It seems that in this research, the students of the experimental group evaluated their beliefs and mental perceptions during the time of receiving the training, and with the help of these training, they gained the knowledge with which they can adjust more successfully to their environment and their inner and outer world. Among the limitations of this research, its implementation was limited to the students in the city of Bandar Anzali.

## 5. Conclusion

The use of such psychological interventions can prevent the problems of slow learner children and play an effective role in reducing behavioral problems and increase the adjustment of this group of children. It is suggested that social skills training should be considered a subject in schools and these skills should be taught to teachers, so that they can be successful in adjusting to slow learner students and increasing their academic performance.

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## Conflict of interest

The Authors declare that there is no conflict of interest with any organization. Also, this research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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Rahman Institute of Higher Education

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# Research Paper: Different Effects of KR vs. KP Feedback on Movement Pattern and Accuracy of a Badminton Serve in Children with Autism

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## Abstract

The present study was designed to examine the effects of two kind of feedback presentation, namely KR and KP, on movement pattern and accuracy of a Badminton serve in children with autism. We used a causal-comparative method in the current study. Sixty children with autism with an age range of 7 to 12 years from special schools were selected based on a convenience sampling method and were randomly and equally assigned into four groups including KR, KP, KR+KP, and control groups. The motor task in the present study included the badminton serve, in which the movement patter and accuracy were measured as the dependent variable. The children participated in the pretest including 10 services, acquisition phase (5 training blocks, each of which included 10 services), and the retention test with 10 services. Respective feedback was provided before each practice block. We used ANOVA to analyze data. The results showed that both KR and KP feedback improve both the pattern and the accuracy of movement better than the condition without feedback. In addition, KP had better effects on the movement pattern and KR had better effects on the movement accuracy. Finally, children who were in the combination group performed better than all the groups in both execution of the movement pattern and service accuracy. Children with autism benefit from feedback to learn novel motor skills, indicating that they may have the necessary mechanisms to learn new skills through feedback.

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## 1. Introduction

Learning is the ability to skillfully execute a movement that evolves during practice, such that improved ability leads to improved performance. Therefore, performance improvement is not learning in itself, but rather a sign of learning. Motor learning is a set of processes with practice and experience that lead to relatively stable changes in skillful performance. In other words, motor learning is a set of internal processes that are associated with practice and experience and lead to relatively constant changes in the ability or performing skillful behaviors (Schmidt & Lee, 2011; Saeedpour-Parizi et al. 2020, 2021). Increasing the level of performance in various sports activities has been the focus of many researchers. On the other hand, in order to increase performance and learn skills, there are various techniques and strategies before training. Some of these techniques and strategies are included observing a model (Mohammadi et al. 2022; Hazrati et al. 2022; Hashemi Motlagh et al. 2022; Ghorbani & Bund, 2014, 2016; Ghorbani, Ghanati, Dana, & Salehian, 2020; Mokhtari, Shojaei, & Dana, 2007), enhanced expectancies (Ghorbani, & Bund, 2020), and adopting an external focus of attention (Ghorbani, Dana, & Christodoulides, 2020; Ghorbani, Dana, & Fallah, 2019).

In addition, an important factor that is often used by sport coaches to teach sports skills to novices is to provide the leaners with feedback. Feedback is the information that is generally provided to the learner after each attempt or group of attempts according to the movement pattern, movement outcome, or according to the environment and is considered as one of the most important factors affecting the learning of motor skills (Baniasadi, Ranjbari, Khajehaflaton, Neshati & Dana, 2022; Chaharbaghi et al. 2022; Guadagnoli & Kohl, 2001; Williams & Jasiewicz, 2001). In fact, feedback is any sensory information about movement, not just error, which can be provided through a person's internal systems or from an external source such as film, teacher, and audience. Shea and Wulf (2005) stated that, in addition to the guidance hypothesis in understanding the effects of feedback on the performance and learning of motor skills, it is important to examine how feedback interacts with other factors, such as the complexity of the task, the skill level, the focus of attention, and the characteristics of the subjects.

Feedback can be divided into two broad categories, intrinsic (internal) and augmented (external) feedback. Usually, people receive information about different aspects of movement through their different senses. This type of information, which is available to the performer during or after the execution of the movement, is intrinsic feedback. Unlike intrinsic feedback, augmented feedback is information related to movement that is complementary or additional to intrinsic feedback (Butki & Hoffman, 2003; Baniasadi, Ranjbari, Khajeaflaton Mofrad & Dana, 2022; Chaharbaghi, Baniasadi & Ghorbani, 2022). The different dimensions of augmented feedback include knowledge or results (KR) and knowledge of performance (KP). KR has many applications and it seems necessary in learning and implementation to a large extent (Rice & Hernandez, 2006). This type of feedback has a guiding effect on the individual and makes him aware of what corrections to make in his next performance, although it may also create dependence. To help the patient learn a skill, therapists first

give him feedback related to the result, but ultimately, the goal is to develop the patient's internal feedback. KP depends on the type of movement execution, and although this information may be available internally, the augmented feedback helps people to reach the goal more quickly and easily and to compare their performance with the desired goal (Baniasadi, Ranjbari, Abedini, Dana & Ghorbani, 2022; Guadagnoli et al. 2002; Gillespie, 2003; Seyedi Asl et al. 2016; Taghva et al. 2020). It should be mentioned that this type of additional information in the form of KP can help the processes that involve the coordination of perception.

Although many studies have been done on feedback and its effect on motor learning, the focus of these studies has been on healthy people. In order to be able to prescribe an effective method for different people, it is necessary to know how the motor learning hypothesis works in special people such as children with developmental delay, DCD, and cerebral palsy (Eskandarnejad, Mobayen, & Dana, 2015; Khosravi et al. 2023; Seyedi Asl et al. 2021). As well, one of the disabilities that has rarely been studied in the field of mental practice and motor imagery is Autism. Autism Spectrum Disorder is a group of developmental disorders of the nervous system, whose main manifestations include defects in social interactions, communication, as well as repetitive behaviors and limited interests (Aqdassi et al. 2021). In addition to deficits in social skills and stereotyped and repetitive behaviors, autistic children have delays in motor skills. Delays in motor abilities in autistic children are diverse and include delays in sitting, crawling, walking, as well as abnormal stepping, poor postural control, and inability to plan movements (Aqdassi et al. 2021; Gkotzia et al. 2017; Ketcheson et al. 2018). The main manifestation of social deficits in autism includes poor eye contact, lack of emotions or social confrontation, defects in using non-verbal behaviors and lack of age-appropriate communication (Lourenco et al. 2020; Mohd Nordin et al. 2021).

As mentioned earlier, the effects of feedback on learning new motor skills in children with autism have been rarely investigated. Due to the positive effects of feedback on motor learning as well as poor motor skill performance in children with autism, it seems necessary to find factors what facilitate motor performance and leaning in children with autism. Hence, the present study was designed to examine the effects of two kind of feedback presentation, namely KR and KP, on movement pattern and accuracy of a Badminton serve in children with autism. It was hypothesized that both KR and KP would lead to better movement pattern and accuracy than no-feedback control condition. In addition, a combination of KR and KP would lead to movement pattern and accuracy than each one alone in children with autism.

## 2. Method

We used a causal-comparative method in the current study. Sixty children with autism with an age range of 7 to 12 years from special schools were selected based on a convenience sampling method and were randomly and equally assigned into four groups including KR, KP, KR+KP, and control groups.

### 2.1. Motor task

The motor task in the present study included the badminton serve. For this purpose, Scott and Fox badminton long service test, which is a standard test, was used. The validity of this test is about 0.84 and its reliability is reported as 0.90. To perform this test, first, we divided the right and end corner of the badminton court into five half circles from the top. The distance between each half circle was five centimeters. Each circle from above has 1, 2, 3, 4, 5 points respectively. When the shuttle is placed in each of the circles, the score of the same circle is recorded for the subject. Due to the fact that there is a standard for the height of the service, a rope with a height of 240 cm is installed at a distance of 420 cm from the net. To evaluate the movement pattern, all serves of each participant were recorded by a digital camera, and then a coach with ten years of coaching experience in badminton was asked to give a score between 1 and 5 to the pattern executed by the participant. Score 1 means poor movement pattern and score 5 means excellent movement pattern.

### 2.2. Procedure

The demographic information of the children was obtained from their school records. Each participant was tested individually in the school gym. Before implementing the research protocol, children's height and weight were measured using standard tools. Then, the purpose of the study and how to implement it were explained to each participant. Then, the participants performed three services to familiarize themselves with the environmental conditions. Then the participants participated in the pre-test included 10 services. At this stage, they did not receive any feedback. In the acquisition phase, the participants participated in 5 training blocks, each of which included 10 services. Feedback was provided before each practice block. The way of providing feedback was that the participants of the KR group were given the points obtained from the service performance. The participants of the KP group were given feedback by a badminton coach about how they performed the movement and how to improve it. Participants in the combined group were given both KR and KP feedback. Participants in the control group did not receive any feedback during training, but participated in all training blocks. One day later, the retention test was performed with 10 services and no feedback was provided to any of the participants.

### 2.3. Data analysis

Mean and standard deviation were used to describe the research variables. One-way analysis of variance (ANOVA) was used to analyze the movement pattern and accuracy in the pre-test and the retention test. Repeated measures ANOVA was used to measure the progression of the participants as well as group differences during the acquisition phase. HSD post hoc test was used as a post hoc test. The level of statistical significance was set at $P < 0.05$.

## 3. Results

First of all, the results showed that mean age of the children was 9.84±1.47 years old. Height and weight of the children were 139.17±10.17 cm and 32.97±5.07 kg, respectively. Finally, BMI of the children was 18.91±1.64. Table 1 and Figure 1 show the mean and standard deviation of

movement pattern scores across the tests and groups.

Table 1

*Movement pattern scores across tests and groups*

| | KR | KP | KR+KP | Control |
|---|---|---|---|---|
| Pretest | 0.39±0.85 | 0.31±0.57 | 0.28±0.39 | 0.35±0.48 |
| Acquisition phase | 0.69±1.07 | 1.55±1.84 | 2.28±1.58 | 0.63±0.80 |
| Retention test | 0.89±1.14 | 1.60±1.40 | 1.90±1.93 | 0.30±0.55 |

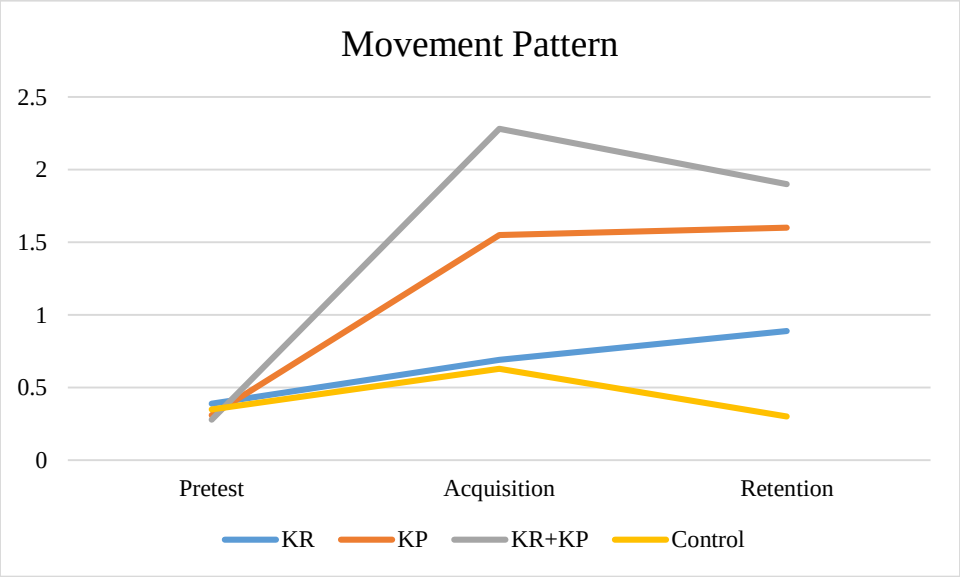


Figure 1. Movement pattern scores across tests and groups

Regarding movement pattern scores, results showed no significant differences between groups in the pretest, $F = 0.27$, $p = 0.932$. During the acquisition phase, main effects for group, $F = 12.94$, $p = 0.000$, and bock, $F = 7.09$, $p = 0.000$, were significant. However, no significant interaction between group and block was observed, $F = 0.54$, $p = 0.481$. Here, the results of HSD test showed that KR+KP group had significantly better movement pattern scores than all other groups (all P=0.000). Also, KP group had significantly better movement pattern scores than KR and control groups (both P=0.000). However, KR group was not significantly different from the control group (P=0.409). In the retention test, the results showed significant differences between groups, $F = 9.22$, $p = 0.000$. Here, the results of HSD test showed that KR+KP group had significantly better movement pattern scores than all other groups (all P=0.000). Also, KP group had significantly better movement pattern scores than KR and control groups (both P=0.000).

Finally, KR group had significantly better movement pattern scores than the control group (P=0.000).

In addition, Table 2 and Figure 2 show the mean and standard deviation of movement accuracy scores across the tests and groups.

Table 2

*Movement accuracy scores across tests and groups*

| | KR | KP | KR+KP | Control |
|---|---|---|---|---|
| Pretest | 0.22±0.38 | 0.19±0.40 | 0.30±0.10 | 0.17±0.27 |
| Acquisition phase | 1.39 ±1.22 | 1.02±1.13 | 2.01±1.54 | 0.25±0.40 |
| Retention test | 1.49±1.63 | 1.12±1.52 | 1.98±1.70 | 0.36±0.36 |

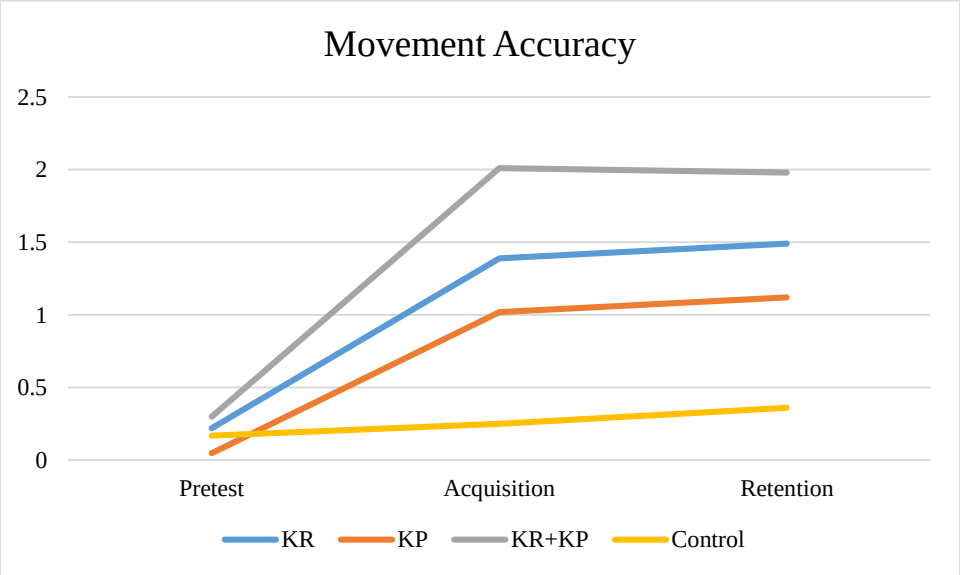


Figure 1. Movement accuracy scores across tests and groups

Regarding movement accuracy scores, results showed no significant differences between groups in the pretest, $F = 0.39$, $p = 0.827$. During the acquisition phase, main effects for group, $F = 18.67$, $p = 0.000$, and bock, $F = 8.69$, $p = 0.000$, were significant. However, no significant interaction between group and block was observed, $F = 0.17$, $p = 0.938$. Here, the results of HSD test showed that KR+KP group had significantly better movement accuracy scores than all other groups (all P=0.000). Also, KR group had significantly better movement accuracy scores than KP and control groups (both P=0.000). Moreover, KP group had significantly better movement accuracy scores than the control group (P=0.000). In the retention test, the results showed significant differences between groups, $F = 12.08$, $p = 0.000$. Here, the results of HSD test

showed that KR+KP group had significantly better movement accuracy scores than all other groups (all P=0.000). Also, KR group had significantly better movement accuracy scores than KP and control groups (both P=0.000). Finally, KP group had significantly better movement accuracy scores than the control group (P=0.000).

## 4. Discussion

The effects of feedback on learning new motor skills in children with autism have been rarely investigated. Hence, the present study was designed to examine the effects of two kind of feedback presentation, namely KR and KP, on movement pattern and accuracy of a Badminton serve in children with autism. It was hypothesized that both KR and KP would lead to better movement pattern and accuracy than no-feedback control condition. In addition, a combination of KR and KP would lead to movement pattern and accuracy than each one alone in children with autism.

The results of the present study showed that both KR and KP feedback improve both the pattern and the accuracy of movement in children with autism compared to the condition without feedback. This result is significant in itself because it indicates that children with autism can use feedback to improve their motor performance and learning, indicating that they have feedback analysis mechanisms that include error detection and feedback analysis for correcting the improving the pattern and accuracy of the motor skill they have already executed (Aqdassi et al. 2021; Gkotzia et al. 2017; Ketcheson et al. 2018). Therefore, sports coaches and teachers can use feedback to improve the performance and learning of motor skills in children with autism. These results are also consistent with the results of previous studies on typically developing children that showed that feedback plays an important role in motor learning process (Guadagnoli & Kohl, 2001; Williams & Jasiewicz, 2001).

In addition, the results of this study showed that KP had better effects on the movement pattern and KR had better effects on the movement accuracy. These findings seem logical because the children who received KP were able to detect their movement error and because there was constant feedback from the instructor after each movement, they were constantly correcting the movement pattern, and therefore, it can be expected that their movement pattern was better compared to the KR feedback condition. On the other hand, the children who received the KR feedback always tried to get better scores in performing the badminton serve, and after receiving the KR feedback, they tried to adjust and modify their next performance to get a better score than the previous performance. This makes the children perform better in the movement accuracy than the KP feedback group (Butki & Hoffman, 2003; Rice & Hernandez, 2006; Guadagnoli et al. 2002; Gillespie, 2003).

Finally, the results of the present study interestingly showed that the children who were in the combination group (KR+KP feedback) performed better than all the groups in both execution of the movement pattern and service accuracy. This result, which is considered one of the most important results of the current study, shows that the combination of KR and KP feedback can play a very important role in the process

of performance and learning new motor skills in children with autism. When children received both instructor feedback regarding their movement pattern errors and were informed of the movement outcome, they were able to establish a convergence between the movement pattern and the movement outcome, which subsequently led them to both correct the movement pattern and getting a better movement result (Lourenco et al. 2020; Mohd Nordin et al. 2021; Rice & Hernandez, 2006; Gillespie, 2003). Therefore, it can be suggested that sports coaches and teachers use the combination of KR and KP feedback to teach new motor skills to children with autism.

## 5. Conclusion

In summary, the results of this study reveal that children with autism benefit from feedback to learn novel motor skills, indicating that they may have the necessary mechanisms to learn new skills through feedback. In addition, a combination of KR and KP would be better strategy for learning new motor skills. Therefore, it is suggested that sports coaches and teachers use the combination of KR and KP feedback to teach new motor skills to children with autism.

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## Conflict of interests

The Author declares that there is no conflict of interest with any organization. Also, this research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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# Research Paper: Public Health, Resilience and Identity Crisis in Children of Families under the Support of Imam Khomeini Relief Committee

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## Abstract

The aim of this study is to investigate the general health, resilience, and identity crisis among children from families supported by the Imam Khomeini Relief Committee, as well as predicting the general health of individuals based on resilience and identity crisis. In this research, 156 male students from the province of Zanjan and the city of Maragheh, who were under the support of the Imam Khomeini Relief Committee, were studied using the Goldberg General Health Questionnaire (GHQ), Connor-Davidson Resilience Scale (CD-RISC), and Rajaei Identity Crisis Scale. The data were analyzed using Pearson correlation and multiple regression analysis. The findings indicated a significant positive relationship between general health and resilience, and a significant negative relationship between general health and identity crisis among these individuals. Furthermore, a significant negative relationship was found between resilience and identity crisis. Multiple regression analysis showed that general health explains a small amount of the variance in resilience and identity crisis in these individuals. This study demonstrated that under conditions of high resilience and low identity crisis, individuals would have better general health.

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## 1. Introduction

Mental health means that a person can adapt, interact, and be compatible with their environment, surroundings, and others (Milanifar, 2023). The World Health Organization defines it as the ability to establish balanced and harmonious relationships with others, adapt and modify one's personal and social environment, and resolve conflicts and personal tendencies logically, fairly, and appropriately (Abaspour et al., 2014). Many factors can affect mental health, such as anxiety (Anamagh et al., 2020), physical activity (Ghorbani et al., 2021; Christodoulides et al., 2023), internet addiction (Baniasadi et al., 2022), parenting styles, and ineffective coping strategies (Khosravi et al., 2023), and feelings of loneliness (Seyed Mousavi & Moharrami, 2019). In this study, we will focus on two variables that are related to mental health: resilience and identity crisis.

Resilience is a capacity that self-esteem, emotional stability, or personality traits define. It enables individuals to overcome difficulties, manage stress, and withstand hardships (Taghva et al., 2020; Seyedi Asl et al., 2021). Resilience involves two important conditions: first, significant threats or severe hardships confront individuals; second, they achieve positive adaptation and progress despite these difficulties and significant challenges (Luthar et al., 2000). Resilience depends on the interaction between risk factors and protective factors (Soltani et al., 2019).

Risk factors are any conditions or events that lead to maladaptive outcomes. Protective factors are those that promote positive adaptation and resilience. Some common risk factors are low socio-economic conditions, widespread social damages, or parental divorce. Protective factors usually include personality traits, family factors, and social support (Masten & Reed, 2002).

Identity crisis is a state of confusion and uncertainty about one's identity, values, goals, and role in society. It can occur during adolescence or adulthood when individuals face major changes or challenges in their lives. Identity crisis can affect one's self-esteem, mental health, and social relationships. Some of the social factors that influence identity crisis include weak religious values, weak cultural values, and weakened self-esteem (Arshad Khargardi, 2002). Revell (2008) also found a relationship between spirituality and factors such as community, identity, and personality. He examined spiritual growth in public schools. He believes that educators should nurture the different dimensions of identity, personality, and spirituality that students have.

In this study, we want to examine the relationship between general health, resilience, and identity crisis among children from families supported by the Imam Khomeini Relief Committee. We hypothesize that there is a significant relationship between these variables.

## 2. Method

### 2.1. Participants

This correlational study examined the relationship between general health, identity crisis, and resilience using Pearson

correlation and multiple regression analysis. All male secondary school students under the coverage of the Imam Khomeini Relief Committee in Zanjan Province and Maragheh city formed the statistical population. Cluster sampling in each of the cities of Zanjan and Maragheh selected 156 secondary school students under the coverage of the Imam Khomeini Relief Committee as the sample under investigation.

### 2.2. Instruments

General Health Questionnaire (GHQ): It is a self-report questionnaire used in clinical settings to screen individuals with mental disorders (Khayatan et al., 2022). The 28-item form of this questionnaire is applicable to all individuals and can determine the likelihood of a mental disorder in an individual. This questionnaire consists of four subscales: physical symptoms, anxiety and insomnia, social dysfunction, and depression. It also provides a total score based on the sum of scores (Goldberg, 1972). In this questionnaire, a higher score indicates lower general health. Rajaee (2008., as cited in Rajaee, 2009) obtained the reliability of the 28-item form of the General Health Questionnaire as 0.93.

Connor-Davidson Resilience Scale (CD-RISC): This Scale was designed by Connor and Davidson (2003). It is a 25-item instrument that measures resilience on a five-point Likert scale from 0 to 4. The minimum and maximum scores on this scale are zero and one hundred, respectively. Besharat et al. (2009) has confirmed the reliability and validity of the Persian version of this scale in normal and patient samples. The Cronbach's alpha coefficient was found to be 0.86, indicating acceptable reliability of the questionnaire.

Identity Crisis Questionnaire: This questionnaire was developed by Rajaee et al (2008 as cited in Rajaee et al., 2009). It has 50 questions that measures 10 indicators of identity crisis based on the RCET theory. These indicators are aimlessness, emptiness, and hopelessness, lack of self-confidence, worthlessness, life dissatisfaction, anxiety, sadness, aggression, and irritability. The questionnaire has 50 questions and experts have confirmed its validity. The questionnaire also has high internal consistency, with a Cronbach’s alpha coefficient of 0.93 (Rajaee et al., 2009).

### 2.3. Procedure

The individuals selected through random sampling complete the mentioned questionnaires under the guidance of the researcher.

## 3. Results

The results of the present research are shown in Table 1 along with the mean and standard deviation of the variables:

Table 1

*The relationship between general health, resilience, and identity crisis*

| Variables | General health (pathological signs) | Resilience | Identity crisis |
|---|---|---|---|
| General health (pathological signs) | _ | *-39.7 | *-36.8 |
| Resilience | | _ | *-35.3 |
| Identity crisis | | | _ |
| Mean | 15.64 | 68.14 | 96.78 |
| Standard Deviation | 8.96 | 10.31 | 16.32 |

*P<0.01

Table 1 shows the mean scores of general health, resilience, and identity crisis for these individuals. They are 15.64, 68.14, and 96.78, respectively. The findings show that general health (normal signs and not pathological signs) and resilience are positively related, while general health and identity crisis are negatively related. Resilience and identity crisis also have a negative relationship. Multiple regression analysis reveals that general health accounts for a small part of the variation in resilience and identity crisis for these individuals.

## 4. Discussion

The results of this study showed that general health has a significant positive relationship with resilience and a significant negative relationship with identity crisis among these individuals. In addition, Resilience and identity crisis showed a significant negative association. Multiple regression analysis showed that general health explains a small amount of the variance in resilience and identity crisis in these individuals.

This study is consistent with the study of Aghayusefi and Bazyari Meymand (2013), which stated that migraine patients who had higher resilience also had higher general health and vice versa. Studies also show that neurofeedback strengthens and improves resilience and flexibility of the individual, and decreases the severity of general health. Farber et al' study (2000) on AIDS patients showed that low resilience in the target group was significantly positively associated with low physical and mental health.

These findings are consistent with the concepts of cognitive-emotional religious theory, because according to this theory, humans face fundamental questions in their lives that without answering them, their lives will be empty and aimless and they will suffer from identity crisis (Rajaee, 2008). The findings show that there is a significant negative relationship between identity crisis and general health. This issue shows that individuals who suffer from identity crisis have problems in terms of general health and symptoms of depression, anxiety, physical symptoms and social actions.

## 5. Conclusion

Social supports such as covering vulnerable groups in the Imam Khomeini Relief Committee, welfare, etc., enhance general health and resilience and lower identity crisis among adolescents. The research has a limitation that it only included male students and those under the coverage of the Imam Khomeini Relief Committee. We recommend that future research should involve both sexes and people under the coverage of other social systems.

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## Conflict of interest

The author has no conflict of interest to declare.

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# Research Paper: A Comparative Study of Religious Orientation, Well-being, and Identity Crisis among Adolescents Residing in Welfare Centers and Normal Adolescents in Rasht City

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## Abstract

The Purpose of this research was to compare religious orientation, well-being, and identity crisis among adolescents residing in welfare centers and normal adolescents. This study employed a causal-comparative research design. The statistical population of the research included all adolescents residing in welfare centers and normal adolescents in Rasht city. For this purpose, 37 adolescents residing in welfare centers and 38 normal adolescents were selected using convenience sampling method. The instruments used in this study were the religious orientation questionnaire, Oxford happiness questionnaire (OHQ), and identity crisis questionnaire. The obtained data were analyzed using independent t-tests to compare the two groups. The results of the independent t-tests indicated significant differences between the two groups of children residing in welfare centers and normal children in terms of total score of identity crisis, total score of well-being, and religious orientation. Based on the findings, it can be concluded that the upbringing of adolescents in normal families is important for enhancing religious orientation, increasing self-confidence, and reducing identity crisis. Based on the findings, it can be concluded that the upbringing of adolescents in normal families is important for enhancing religious orientation, increasing self-confidence, and reducing identity crisis.

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## 1. Introduction

In today's societies, the increase in divorce rates, poverty, addiction, and industrialization-related consequences has led to the emergence of phenomena such as homelessness and neglect, significantly increasing the number of homeless and neglected children and adolescents (Okorodudu, 2010). Neglected adolescents are individuals who have a guardian but due to reasons such as the loss of one parent, illness, unemployment of a parent, addiction, specific physical and mental illnesses and behaviors of parents, or poor economic conditions of the family, they lack the possibility of proper care and support (Mirdrikvand et al., 2016). Neglected adolescents not only face the challenges of adolescence but also encounter problems arising from the absence of a family and have compounded issues compared to other adolescents. Living away from the family and limited family interactions in the long term put such children at risk of identity, relational, personal, and social crises, reduced well-being, and feelings of dissatisfaction (Ramezani et al., 2018).

One of the most significant issues that adolescents face during adolescence is identity crisis. Erikson refers to the primary crisis of adolescence as the identity versus role confusion. This period is when self-concept is formed, meaning the integration of an individual's beliefs about themselves and what others think of them. A person achieves a coherent and stable self-image when this process is satisfactorily resolved (Schultz & Schultz, 2013/ 2023). In an identity crisis, adolescents experience severe anxiety and mental distress. In this state, they struggle to integrate various aspects of their personality into a cohesive and acceptable self (Zare Shahabadi & Ebrahimabadi, 2011). Adolescence is a stage of identity formation. Successfully navigating this stage leads to a productive and happy adulthood. During this period, adolescents constantly ask themselves, "Who am I?" This self-exploration extends to religious, cultural, ethical, political, social relationships, and sexual domains. If an adolescent fails to develop a positive and independent identity during this period, they may experience an identity crisis and confusion (Mansour, 2022).

Another factor related to adolescence is religious orientation. Religion has a long-standing history, as archaeological and anthropological studies have shown that it has been a part of human life throughout all ages. According to Frankl, the founder of logotherapy, a deep and genuine religious sense exists in the depths of every human's unconscious (Sahraian et al., 2011). Religion plays a significant role in the lives of adolescents. Beliefs, attitudes, behaviors, and moral characteristics can be profoundly influenced by the infiltration of religious beliefs. In fact, religion is one of the primary sources that give meaning to life. Among the various approaches and theories regarding religious orientation, Alport's perspective on the concept of intrinsic and extrinsic religious orientation has had the most influence and effectiveness. In terms of intrinsic and extrinsic religious orientations, it should be noted that individuals with an "intrinsic religion" place importance and significance

on personal beliefs, while social aspects of religion are less important. On the other hand, individuals with an "extrinsic religion" rely on external social and communal values and beliefs for their religious motivation (Dehghani & Andishmand, 2017).

In addition to the mentioned topics, one of the issues that has received attention in positive psychology in recent years is the concept of happiness. Happiness is a multidimensional and hierarchical concept consisting of cognitive, emotional-affective, and social components. The theorists mainly refer to two cognitive and emotional components in analyzing the concept of happiness. The cognitive components are mostly related to life satisfaction, while the emotional components are more related to states such as laughter, humor, and the balance between positive and negative emotions. Positive emotions include joy and happiness, while negative emotions include crying and feeling upset (Salehzadeh et al., 2017).

At the beginning of adolescence, individuals face many life events (such as choosing a major, competition in school, independence, and adaptation to new and necessary environments in life) and plan for the future. Erikson believes that individuals need to have the ability to adapt to their environment in order to experience happiness, and identity serves as the key determinant of individuals' ability to achieve happiness in life. If adolescents fail to achieve identity cohesion and remain in an identity crisis, they may face difficulties in achieving happiness, such as in school, the workplace, and interpersonal relationships (Li, 2005). Based on this, the study by Bakhshayesh (2013) showed a significant negative relationship between fundamental religious beliefs and identity crisis, and religious beliefs had a meaningful relationship with all identity styles. Van Hoof and Raaijmakers (2002) conducted a study on American adolescents and found that there is a relationship between identity crisis and happiness.

Adolescents who are orphaned or have negligent parents, deprived of maternal affection, love, and intimate parent-child relationships, often suffer from emotional disorders, insecurity, dependency and rejection, escape or extreme group orientation. Considering the importance and critical nature of adolescence, the initiation of religious inclinations, the significance of happiness and well-being in adolescents, and the lack of independent research in this regard, the aim of this study was to compare religious orientation, happiness, and identity crisis among adolescents residing in welfare centers and normal adolescents in the city of Rasht.

## 2. Method

The current research employed a comparative design. The population of this study included all adolescents residing in welfare centers and regular adolescents in the city of Rasht in the year 2021. Initially, all the youth welfare centers in Rasht (which were four in total) were identified, and then a total of 37 adolescents (24 girls and 13 boys) who were willing to participate were selected using convenience sampling from these four centers. Additionally, 38 individuals (21 girls

and 17 boys) studying in regular schools in Rasht during the academic year 2020-2021 were selected using convenience sampling as well. This selection was carried out while considering a minimum of fifteen participants for each group (Delavar, 2021). The instruments used in this study included the religious orientation questionnaire (Bahrami Ehsan,1999), the Oxford happiness scale, and the identitycrisis questionnaire (Ahmadi, 1995).

The data were analyzed using independent t-test to compare the two groups. The inclusion criteria were as follows: being a resident of a welfare center or a regular family, being under the age of eighteen, having no history of severe mental illness or the use of psychotropic drugs, and being willing to participate. The exclusion criteria included being over the age of eighteen, not being a resident of a welfare center or a regular family, as well as having a history of severe mental illness and medication. Participants were also asked to sign a consent form after a thorough explanation of the research details, and it was ensured that all their information would remain confidential.

### 2.1. Instruments

Religious Orientation Questionnaire: This questionnaire was evaluated using a scale of the same name, which was validated by Bahrami Ehsan (1999). The reliability coefficients of this form were reported between 0.91 and 0.85. Its content validity and structure were also examined and confirmed (Bahrami Ehsan, 1999). The fundamental framework of this questionnaire is to give importance to the structure of human relationships and interactions in all its dimensions in the context of human and divine relationship.

Identity Crisis Questionnaire: To measure identity crisis, Ahmadi's Personal Identity questionnaire, which is a 10-item questionnaire (consisting of 4 sections), was used. The advantages of this test include individual and group administration and quick response time (between 5 to 10 minutes). It can be used for both genders. The maximum score of the test, which indicates the highest level of identity crisis, is 30, the minimum identity crisis score is 10, and a score below 10 indicates the absence of identity crisis. To determine the reliability and validity of the test, the creator of this test administered it to 60 students in secondary schools in Isfahan. The comprehensibility, simplicity, and face validity of the questions were confirmed. The scores obtained from these students were analyzed using the split-half method (even and odd) and a reliability coefficient of 0.78 was obtained. The questionnaire was distributed among 30 university students by the creator, and a correlation coefficient of 0.89 was obtained. Additionally, using the Spearman-Brown reliability coefficient, the reliability coefficient of this questionnaire was calculated as 0.92 (Ahmadi, 1995).

Oxford Happiness Questionnaire (OHQ): This questionnaire consists of 29 items and was developed by Argyle and colleagues (2000). The validity and reliability of this questionnaire have been examined in various studies. For example, Argyle and colleagues obtained a reliability coefficient of 0.90 using the Cronbach's alpha method and a

concurrent validity of 0.43. In a study conducted on 110 undergraduate students at Shahed and Allameh Tabataba'i universities, the Cronbach's alpha coefficient was 0.98, and a reliability coefficient of 0.92 was obtained using the test-retest method (Sahraian, 2011).

## 3. Results

In this study, 75 participants, including 37 adolescents residing in welfare centers (24 females (64.9%) and 13 males (35.1%)), and 38 normal adolescents (21 females (55.3%) and 17 males (44.7%)), participated in the city of Rasht. Out of these numbers, 12 adolescents residing in welfare centers had primary education (32.4%), 13 had middle school education (35.1%), and 12 had high school education (32.4%). Among the normal adolescents, 6 had primary education (15.8%), 5 had middle school education (13.2%), and 27 had high school education (71.1%).

Table 1

*Mean and Standard Deviation of Variables in Adolescents Residing in Welfare Centers and Normal Adolescents*

| Variables | Group | Mean | Standard Deviation |
|---|---|---|---|
| Total identity Crisis Score | Welfare Centers | 11.10 | 6.66 |
| | Normal Adolescents | 2.78 | 2.01 |
| Total Happiness Score | Welfare Centers | 39.94 | 16.64 |
| | Normal Adolescents | 53.84 | 53.84 |
| Religious Orientation | Welfare Centers | 100.64 | 27.04 |
| | Normal Adolescents | 111.94 | 18.90 |

Table 2

*Independent t-test Results in Two Groups of Children with Neglectful Guardians and Normal in Variables of Religious Orientation, Happiness, Identity Crisis.*

| variables | Mean Differences | Standard Error of Differences | T | Degrees of Freedom | Significance |
|---|---|---|---|---|---|
| Total Identity Crisis Score | 8.31 | 1.14 | 7.27 | 42.36 | 0.000 |
| Total Happiness Score | -13.89 | 3.10 | -4.47 | 55.27 | 0.000 |
| Religious Orientation | 0.04 | 64.24 | -2.09 | 5.40 | -11.29 |

In Table 2, the comparison of means between two groups, adolescents residing in welfare centers and normal adolescents, in the variables of religious orientation, happiness, and identity crisis, is reported. The findings from Table 2 indicate that the observed t-values resulting from comparing the means of identity crisis, happiness, and

religious orientation between the two groups of adolescents residing in welfare centers and normal adolescents are statistically significant. Thus, the identity crisis is higher in adolescents residing in welfare centers compared to normal adolescents ($p < 0.001$, $t = 27.7$). Happiness is higher in normal adolescents compared to adolescents residing in welfare centers ($p < 0.001$, $t = 47.4$-). Additionally, religious orientation is higher in normal adolescents compared to adolescents residing in welfare centers ($p < 0.001$, $t = -09.2$).

## 4. Discussion

The purpose of the present study was to compare religious orientation, happiness, and identity crisis in adolescents residing in welfare centers and normal adolescents. According to the results of the data analysis, the evidence suggests that the levels of religious orientation, happiness, and identity crisis differ between adolescents residing in welfare centers and normal adolescents. These findings are consistent with the research conducted by Dahghaninia and Andishmand (2017), Bakhtiyari (2013), Van Hoof and Raajmakers (2002), and are in line with their findings.

Based on the results of the data analysis, the evidence suggests that there is a difference in religious orientation between adolescents residing in welfare centers and normal adolescents. In other words, religious orientation is higher in normal adolescents compared to adolescents residing in welfare centers. This implies that the level of religious beliefs is higher in normal adolescents than in adolescents residing in welfare centers (Bakhtiyari, 2013). Despite the pessimistic views of some psychologists towards religion from the early stages of the formation of applied psychology, research on the relationship between religion and mental health often indicates a positive relationship between these two variables. The belief that there is a higher power controlling situations and watching over individuals reduces anxiety to a great extent. Many believers describe their relationship with God as a very close friendship and believe that they can control uncontrollable situations through reliance and supplication to God. It seems that religious orientation can lead to a sense of happiness, as a personal relationship with a superior being creates a positive outlook on life (Sahraian et al., 2011).

On the other hand, the results indicate that the level of happiness is higher in normal adolescents compared to adolescents residing in welfare centers. It appears that an increase in social relationships and family and group interactions enhances people's happiness. Recreation has a significant impact on all aspects of health, particularly positive emotions, as well as mental and physical well-being, and to a lesser extent, on happiness itself. The benefits of recreation on happiness can be partly explained by the social satisfaction derived from engaging in recreational activities. In fact, individuals who are more hopeful and optimistic about the future tend to experience higher levels of satisfaction and mental well-being. Conversely, individuals who lack hope and motivation for action gradually become stagnant, lethargic, and isolated beings. Women, in terms of their caretaking role in

socialization, learn to be receptive to both negative and positive emotions and may experience a greater intensity of positive and negative emotions compared to men (Salehzadeh et al., 2017).

According to the findings of the data analysis, identity crisis is lower in normal adolescents compared to adolescents residing in welfare centers. Minuchin considers the family as the origin and nucleus of identity formation. He believes that identity is based on two pillars: a sense of belonging and differentiation. The family structure plays a role in shaping human identity. The aforementioned considerations, in general, indicate the influence of the family on the formation of adolescents' identity, although it is still not possible to quantify the intensity and nature of this influence. On the other hand, the family serves as a mediator for the transmission of beliefs and values to adolescents, although it is not the only possible channel (Bakhshayesh, 2013).

The present study had some limitations. The questionnaire had a large number of questions, which could cause fatigue among participants. It is recommended to use shorter questionnaires in future research with similar topics. Additionally, it is suggested that future research be conducted in other cultures and provinces. Furthermore, future studies should focus on the effectiveness of educational strategies to enhance religious orientation, happiness, and identity crisis.

## 5. Conclusion

The findings of this study, in addition to highlighting the differences in religious orientation, happiness, and identity crisis among adolescents residing in welfare centers and normal adolescents, can provide a basis for educational, developmental, and practical strategies for families, officials, and educational experts to improve religious orientation, happiness, and identity crisis.

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## Conflict of Interest

The author declares no conflicts of interest.

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# Research Paper: The Effectiveness of Filial Therapy on the Early Maladaptive Schema of Children with Cancer (Single-Subject Design)

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## Abstract

This research purposed to determine the effectiveness of filial therapy on the early maladaptive schemas of children with cancer. The research method is a quasi-experimental single-subject A-B-A type. The sample individuals were three children with cancer in the 8-13 age range along with their mothers, who were referred to Dr. Sheikh Hospital in Mashhad and were selected by purposive sampling method. The subjects were in the therapeutic process of filial therapy for 8 sessions individually. The Schema Inventory for Children (SIC), was administered to the sample individuals before and after the treatment. The clinical outcomes were compared before and after the intervention, and the obtained information was analyzed based on eye diagrams, effect size, and recovery rate. The results indicated that the treatment is effective in improving the early maladaptive schemas of children with cancer. The obtained effect size for the domains of abandonment, abuse, defectiveness, vulnerability, and unrelenting standards was 3.57, 6.81, 6.06, 5.34, and 3.30, respectively. According to the results of the research, it can be said that filial therapy is effective in the early maladaptive schemas of children with cancer and can be used clinically.

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## 1. Introduction

Schema is a concept in cognitive psychology that refers to how people think, perceive, process, and ultimately remember information (Pozza et al., 2020). Early maladaptive schemas consist of memories, emotions, cognitions, and bodily sensations that act pervasively and negatively affect an individual's relationship with herself/himself and others (Sakulsriprasert et al., 2016). The development of early maladaptive schemas goes back to childhood, which is the result of early negative experiences, parenting styles, and parent–child relationships (Monirpoor et al., 2012).

Play therapy is one of the therapeutic approaches focused on the parent-child relationship that can affect children's schema patterns. In play therapy, children are allowed to express their desires, thoughts, experiences, and feelings that are threatening to them (Cooper et al., 2020; Ramdaniati et al., 2016). One of these groups of therapies is play therapy based on parent-child relationships or play therapy with the filial therapy model (Edwards et al., 2007).

Filial therapy was first developed (1964) using the concepts and principles of Axline's Child-Centered Play Therapy (CCPT), by Gorni (as cited in Pearson, 2008). In this type of therapy, parents are asked to take a greater role in the playroom and play with the child in the presence of the therapist (Pearson; 2008). The type of plays and sessions for children and parents are adjusted based on children's interests (Lindo et al, 2016). Indeed, filial therapy is a type of family therapy that uses parents' play with children as the main mechanism for change. Parents' play sessions with children are child-centered or indirect (O'Connor et al., 2016). Filial therapy uses a psychoeducational framework to help parents first play with their children under direct supervision and then parents apply play therapy skills and other parenting skills in general to their children's lives at home. One of the crucial strengths of this therapeutic approach is that it provides both therapy for children and parenting skills for parents using an evidence-based method. Besides preparing practical skills to guide parents, filial therapy provides the ground for promoting and deepening parent-child attachment relationships in the whole family, which reduces patterns of trauma in children (Ramdaniati et al., 2016).

Various researches have been conducted on the effectiveness of filial therapy on psychological structures inside and outside of Iran. Some of them include the effect of filial therapy on reducing anxiety and signs of attention-deficit hyperactivity disorder (ADHD) in children (Abedi et al., 2018), improving family functioning, increasing resilience and intimacy of parents, and reducing children's behavioral problems (Cornett & Bratton, 2014), decreasing aggression, depression, anxiety and fear in children (Edwards et al.; 2007), behavioral problems of hearing children and resilience of deaf mothers (Ashori & Karimnejad, 2021) and reducing parental stress and modifying parenting style (Lee, 2017). According to the scholar's search, no research has been done on the group of children with cancer and early maladaptive schemas. The researcher seeks to fill this research gap does filial therapy affect the

early maladaptive schema of children with cancer?

## 2. Method

The research method is a quasi-experimental single-subject A-B-A type. The statistical population in the study was all children with cancer and their mothers who were referred to Dr. Sheikh Hospital in Mashhad between May and July 2019-2020. Three children aged 8-13 years were selected by purposive sampling method and they were in the therapeutic approach individually (each child along with her/his mother) for 8 sessions.

### 2.1. Instruments

**Schema Inventory for Children (SIC)**: This inventory for children aged 8-13 years was made by Rijkeboer and deBoo (2010), It includes 40 items and measures 11 schemas in the child, which was obtained as a result of the factor analysis of the 75-question Young schema questionnaire. Each item is scored by a 4-point Likert scale (1 = strongly false, 2 = somewhat false, 3 = somewhat true, 4 = strongly true). In Rijkeboer and deBoo's (2010) research, the reliability of the questionnaire was calculated by the test-retest method and the average correlation was 0.67 for all sub-scales. The validity in the mentioned research was calculated through the concurrent validity method with the Early Adolescent Temperament Questionnaire-Revised (EATQ-R) (Cooper et al, 2020) and a significant relationship between the internal variables of the two questionnaires (excluding the self-sacrifice and insufficient self-control sub-scales) was obtained. However, factor reliability estimates were mediocre, but in most cases still acceptable. Furthermore, results suggest adequate stability for all SIC scales. (Rijkeboer and deBoo, 2010). The reliability of the questionnaire in the present study was also evaluated favorably, according to the experimental sample, the Cronbach's alpha in the test sample was 0.75 in the whole test.

the play therapy protocol based on parent-child relationships (Landreth, 2006) is held in eight 90-minute sessions. For parents and children to be able to establish a healthy relationship with each other and learn the essential skills, recognizing emotions and setting boundaries is carried out in the initial stages.

Table 1

*Filial therapy protocol (Landreth, 2006)*

| Number of sessions | Goal of session |
|---|---|
| First session | Introducing yourself, and your family and describing your child's characteristics, explaining the goals by the researcher, encouraging and strengthening parents and normalizing communication problems with children, emphasizing children's sensitivity and giving empathic responses, introducing the emotions of happiness, sadness, anger, and fear in children and reflexive responses.<br>Assignment: Completing the emotions and reflexive response worksheet |
| Second session | Teaching the principles of filial therapy (the child as the guide of the play; paying attention to the child's feelings through her/his facial expression, body, tone, voice, and words, reflecting *her/his* perception of the child, assertiveness and purposefulness), taking mothers to the playroom and introducing toys and preparing the mother for the first play session at home.<br>Assignment: Completing the real-life toys, anger expression, social skills, and creativity worksheet |
| Third session | Teaching the dos and don'ts of play (dos: playing in a specific place and time, the same arrangement of toys, leaving the guidance and the responsibility of the play to the child, describing the play, assertiveness, setting limits, strengthening the child's effort; don'ts: not blaming, criticizing, guiding and admiring, not interrupting the play, not providing information and training).<br>Assignment: Completing the worksheet describing play sessions with an emphasis on dos and don'ts |
| Fourth session | Parents' reports from play sessions, indicating parents' films and reviewing them, teaching the three-step limits, including empathetic and intimate emotional reflection of the child, stating limits in the form of short and clear sentences, presenting accepted alternatives, and stating the reasons for limitations.<br>Assignment: Completing the worksheet describing the play sessions with emphasis on the three steps limits |
| Fifth session | Report of play and movie sessions, teaching how to talk to the child, the importance of recognizing your feelings, a list of play skills such as maintaining structure, empathy, adherence, avoidance of giving questions and directions, participating in the play, truly accepting the imaginary role, matching the tone of voice and facial expression with the child's expression.<br>Assignment: Completing the worksheet describing play sessions with an emphasis on skills |
| Sixth session | Reviewing the plays, teaching the skills of the right to choose (the right to choose in a simple and empowering way for the child, the right to choose as a positive consequence, and the right to choose to determine the house rules), and exclusion, training to create and increase self-confidence in the child.<br>Assignment: Completing the worksheet describing the play sessions with an emphasis on the right to choose, exclusion and giving assurance |
| Seventh session | Teaching the method of persuasion instead of admiration, restriction in an advanced way with the technique of the right to choose, playing the role of mothers in different situations with a focus on teaching new skills, responding to mothers' concerns and their critical and long-term problems.<br>Assignment: Completing the worksheet describing the play sessions with an emphasis on persuasion and teaching new skills |
| Eighth session | Reviewing the principles of filial therapy, restating the experience and how to change in yourself and the child for other mothers, encouraging mothers to accept their role, and generalizing the principles to real life.<br>Assignment: Completing the worksheet describing the overall report of the play sessions |

## 3. Results

The demographic information of the research participants is presented in Table 2

Table 2

*Complete demographic information of the participants*

| Subject's number | Age | Child | Education | Duration of disorder | History of comorbid physical or mental disease in past | Previous therapeutic actions | Mother's age | Mother's education |
|---|---|---|---|---|---|---|---|---|
| 1 | 12 | First | Elementary | 2 years | No case history | Chemotherapy Pharmacotherapy | 35 | M.A/M.S |
| 2 | 9 | Second | Elementary | 1 year | No case history | Chemotherapy Pharmacotherapy | 32 | B.A/B.S |
| 3 | 8 | First | Preschool | 1 year | No case history | Chemotherapy Pharmacotherapy | 30 | M.A/M.S |

In this section, we will examine the results of filial therapy on the early maladaptive schemas for each of the subjects individually.

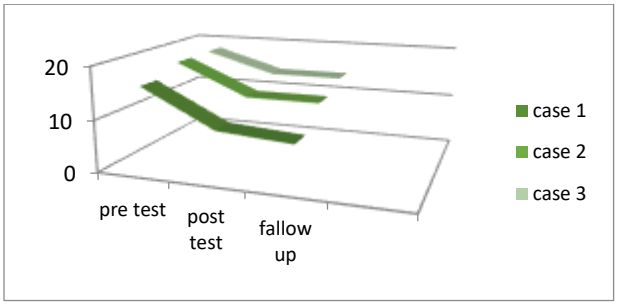


Chart 1 Abandonment domain scores in subjects

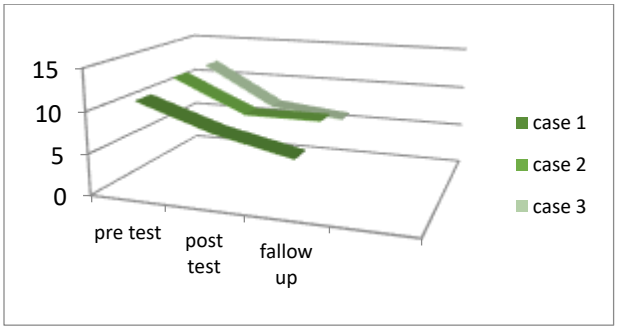


Chart 2 Abuse domain scores in subjects

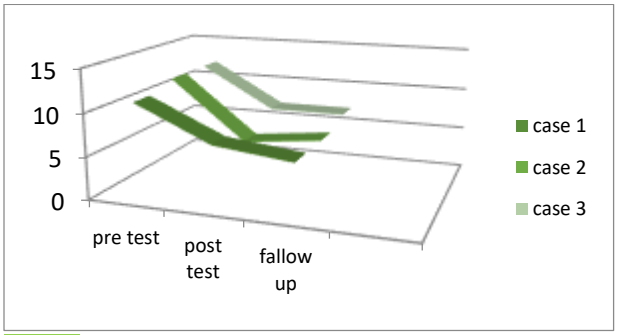


Chart 3 Defectiveness domain scores in subjects

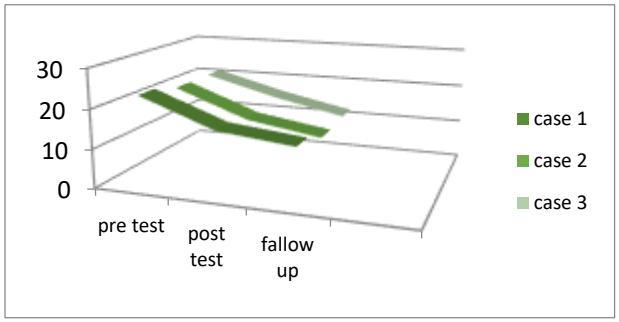


Chart 4 Vulnerability domain scores in subjects

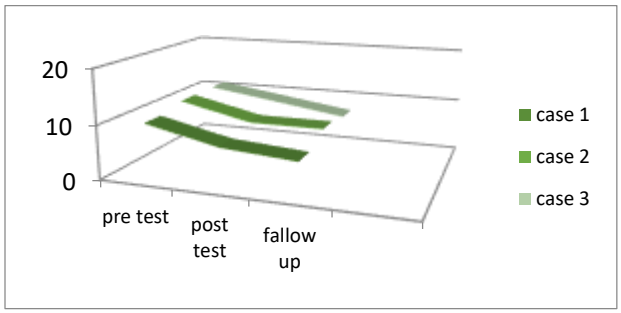


Chart 5 Unrelenting standards domain scores in subjects

As can be seen, each of the charts demonstrates the changes in the subjects from the first session to the eighth session. Moreover, the charts indicate the downtrend of the early maladaptive schema scores in the 8-session process of the therapy model presented in this research after the therapy.

Table 3.

*Mean and standard deviation of the research variables in subjects separately*

| Scale | First subject | | Second subject | | Third subject | |
|---|---|---|---|---|---|---|
| | Mean | Std.deviation | Mean | Std.deviation | Mean | Std.deviation |
| Abandonment | 11 | 3.59 | 14 | 2.82 | 15.33 | 1.88 |
| Abuse | 8.33 | 2.05 | 9.33 | 1.88 | 8.33 | 2.62 |
| Defectiveness | 8 | 2.16 | 7.66 | 3.09 | 8.66 | 2.35 |
| Vulnerability | 17.66 | 3.85 | 15.33 | 4.18 | 16.33 | 3.68 |
| Unrelenting standards | 7.66 | 1.69 | 9 | 1.41 | 9 | 1.63 |

Table 4.
Mean and standard deviation, effect size of the research variables in subjects

| Scale | Pretest | | Posttest | | Follow up | | Effect size |
|---|---|---|---|---|---|---|---|
| | Mean | Std.deviation | Mean | Std.deviation | Mean | Std.deviation | |
| Abandonment | 17.33 | 1.15 | 11.67 | 2.51 | 11.79 | 1.48 | 3.57 |
| Abuse | 11.67 | 0.57 | 7.67 | 0.57 | 7.95 | 0.39 | 6.81 |
| Defectiveness | 11.67 | 0.57 | 6.33 | 1.15 | 7.03 | 1.18 | 6.06 |
| Vulnerability | 21.67 | 1.15 | 15.33 | 1.15 | 15.46 | 0.89 | 5.34 |
| Unrelenting standards | 10.67 | 0.57 | 8 | 1 | 7.77 | 0.76 | 3.30 |

According to the above table, it can be concluded that in all schematic areas, the average scores of the subjects in the post-test compared to the pre-test have decreased and in the follow-up stage, the changes of the previous stage have remained relatively constant. Furthermore, the effect size for all research variables is higher than 2.70 (clinical impact criterion), which indicates the very good effectiveness of the filial therapy therapeutic model on the early maladaptive schemas of the sample subjects.

Table 5
Subjects' recovery rate in research variables

| Scale | First subject | Second subject | Third subject |
|---|---|---|---|
| Abandonment | 43.75 | 33.33 | 55.55 |
| Abuse | 27.27 | 33.33 | 41.66 |
| Defectiveness | 36.36 | 58.33 | 41.66 |
| Vulnerability | 30.43 | 33.33 | 23.80 |
| Unrelenting standards | 30.00 | 27.27 | 18.18 |

As can be seen in the table 5, the recovery rate in each subject is given separately for the research variables. Considering that if the recovery rate is less than 50, it is not clinically significant (Belanchard & Sqoarz, 1988; cited by Ogels et al., 2001). The clinical effectiveness is observed only in the third subject's abandonment domain and in the second subject's defectiveness domain. Despite this, the overall recovery rate in each variable indicates a partial recovery in these variables.

## 4. Discussion

The present research purposed to investigate the effectiveness of filial therapy on the early maladaptive schemas of children with cancer. The early maladaptive schemas demonstrated significant clinical recovery in the two

domains of abandonment and defectiveness, and partial recovery was observed in other domains. These findings indicate that filial therapy has been successful in improving early maladaptive schemas. Although the topic of this research is new, no research has been done on this topic so far. However, reviewing the research related to the topic of this research indicated that these research findings are in line with the research findings of Adili et al. (2022), and Ashori and Karimnejad (2021), Karimzadeh (2021), Ray et al. (2007), Garza & Watts (2010), and Lee (2017), and no research with conflicting results were found.

In explaining these research findings, it can be said that play therapy based on the parent-child relationship (filial therapy) is one of the approaches that focus on the role of parents in decreasing child injuries. This therapeutic approach, by including the parents in the therapeutic process, makes them aware of the nature of the child's problem and reduces many of their biased judgments towards the child. This issue warms the relationship between the child and the parent, and they can better understand each other and the children feel the need for security with the parent by their side. On the other hand, other needs such as freedom in expressing needs and trustworthiness should be met, as a result, the schemas formed in these areas should be broken and reduced. In this context, Lee's research (2017) also indicated that filial therapy affects family functioning and reduces parents' stress, which ultimately leads to a change in behavior with children and prevents their schemas from continuing and emphasizing. Adili et al. (2022) also realized in their research that play therapy with a filial therapy approach was effective on parent-child interaction, parental stress, and children's social skills and reduced the problems of children with diabetes.

On the other hand, filial therapy enables parents to model the role of a "good parent" with their children. Such parents are known as affectionate and kind people, but at the same time, they apply the necessary controls (while providing a sense of security that destroys the schema of abandonment and defectiveness, they also create appropriate limits and give her/him a sense of trust) means authoritative parenting as a result of which children see their parents as reliable and warm people who can get help from them to meet their needs. Parents model this role first when using child-centered play therapy skills in play sessions and then generalize the skills to everyday life and are corrected if necessary. In this context, O'Sullivan and Ryan (2009) stated that parents who use an authoritative parenting style have a closer relationship with their children. As a result of this relationship, a secure attachment style is formed in them, in which the formation of trust and security prevents the creation and continuation of maladaptive schemas.

In the third part of the explanations, it should be said that in this therapeutic approach, the three steps to setting limits (Acknowledging the child’s feelings, Communicating the setting limit, and

targeting acceptable alternatives)[1] to parents, as well as giving children the right to choose and empathic response techniques, increasing self-esteem (by paying attention to children, their self-esteem is strengthened and a sense of self-belief and responsibility is created in them, and it causes the vulnerability schema to destroy), and persuasion instead of admiration is taught. These trainings teach them to express their feelings and emotions acceptably and develop self-control. Therefore, it can be expected that they will break the rigid rules that they have created to do their work and be able to see and express their emotions more easily. This method allows children to fully express their feelings through symbolic speech, and parents' reflexive responses help them to ensure that they are understood by their parents and that their feelings, wants, and needs are supported. As a result, children overcome the fear of rejection by their parents. Research indicates that continuous use of intolerable responses can lead to various problems in children (such as psychosomatic problems, anger, and aggression intensification) (Wenar & Kerig, 2006).

Despite the treatment significance and effectiveness presented in this research, this research, like all research, comes with limitations, the most important of which are the time limitations of the pre-test, post-test, and follow-up evaluation period, the difficulty in generalizing the results for other people due to the small number of samples and the difficult access and communication to this group of children in the era of Corona. Eventually, longer-term follow-up periods are suggested to check the results of filial therapy on other groups of children with special diseases (physical and psychological) to be planned.

## 5. Conclusion

From the obtained findings of this research, it can be concluded that filial therapy can be used as an effective treatment in clinical settings to improve the schemas of children who suffer from physical diseases such as cancer.

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## Conflict of interest

The Authors declare that there is no conflict of interest with any organization. Also, this research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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