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Comparison of the Effectiveness of Resilience Training and Cognitive Emotion Regulation Training on Social Interaction and Theory of Mind in Children with Sluggish Cognitive Tempo

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A B S T R A C T

Purpose: The aim of this study was to compare the effectiveness of resilience training and cognitive emotion regulation training on social interaction and theory of mind in children with sluggish cognitive tempo.

Methodology: The research method was quasi-experimental with a pre-test, post-test, and follow-up design, including a control group. The statistical population consisted of all 9- to 12-year-old male elementary school students with sluggish cognitive tempo in Tabriz in 2023. A total of 45 participants were selected from the statistical population using purposive sampling and were randomly assigned to experimental and control groups. The first experimental group received resilience training in 10 sessions of 45 minutes over four weeks, while the second experimental group underwent cognitive emotion regulation training in 10 sessions of 45 minutes over four weeks. The control group did not receive any intervention. The research instruments included the Sluggish Cognitive Tempo Questionnaire, the Social Skills Rating Scale, and the Theory of Mind Questionnaire. Data were analyzed using repeated measures analysis of variance.

Findings: The results indicated that both resilience training and cognitive emotion regulation training had significant effects on social interaction and theory of mind in children with sluggish cognitive tempo ($p < .05$). Additionally, post hoc test results revealed no significant difference between the two therapeutic approaches in terms of social interaction and theory of mind ($p > .05$).

Conclusion: This study found that both resilience training and cognitive emotion regulation training effectively improved social interaction and theory of mind in children with sluggish cognitive tempo, with no significant difference in their effectiveness.

Keywords: *Resilience training, cognitive emotion regulation training, social interaction, theory of mind, sluggish cognitive tempo.*

1. Introduction

Elementary school is a critical period for assessing and diagnosing psychiatric and behavioral problems in children. The appropriate diagnosis and treatment of these problems can significantly impact children's future family, social, academic, and occupational lives (Kafshchian Moghadam et al., 2024; Yang & Seyed Alitabar, 2024). The presence of certain cognitive or psychological issues can affect children's developmental processes during this period. Sluggish cognitive tempo (SCT) is one such issue that can severely impair children's cognitive and psychological processing efficiency (Creque & Willcutt, 2021). This disorder, categorized as an attentional disorder (East et al., 2023), includes a set of symptoms such as drowsiness, daydreaming, lethargy, slowed behavior and thinking, and mental confusion (Fredrick & Becker, 2023; Fredrick et al., 2019). Research has highlighted the association between high levels of SCT symptoms and impairments in overall, social, academic, and occupational functioning (Becker, Epstein, et al., 2019; Becker, Garner, et al., 2019; Becker & Willcutt, 2019; Becker et al., 2023). Initially, SCT was considered a relatively unique subset of symptoms within attention-deficit/hyperactivity disorder (ADHD) (Wang et al., 2023). However, studies on children with this condition have demonstrated that SCT and ADHD are two distinct yet related disorders (Hossain et al., 2022). While the etiology of ADHD is largely genetic, preliminary research suggests that SCT symptoms are less heritable and may be influenced by environmental factors such as psychosocial adversity (Fredrick et al., 2019; Musicaro et al., 2020) or short sleep duration (Becker, Epstein, et al., 2019; Becker, Garner, et al., 2019).

Moreover, Mikami et al. (2019) argue that SCT symptoms are uniquely associated with poor social interaction (Mikami et al., 2019). Social interaction involves the ability to coordinate and share attention, intentions, and emotions with others and engage in reciprocal interactions through the understanding and use of verbal and nonverbal communication tools (Bernardini et al., 2014). The development of social skills not only facilitates immediate adaptation to one's surroundings but also has long-term implications for academic, professional, and social life (Ghadiri Sourman Abadi & Soleimani, 2023). Willcutt et al. (2014) demonstrated that while SCT symptoms and inattentiveness are broadly linked to social difficulties, SCT symptoms are specifically associated with social withdrawal (Willcutt et al., 2014). More recently, Becker et al. (2019) found that the social difficulties associated with SCT are primarily due to isolation, social withdrawal, and a lack of initiative in social situations (Becker, Garner, et al., 2019). Additionally, Randon et al. (2020) indicated that when SCT is considered alongside other symptoms, it remains a significant predictor of parent-reported social withdrawal, whereas attention problems emerge as a major predictor of broader social difficulties (Rondon et al., 2020).

Given the association between social functioning deficits in individuals with SCT and the internalizing symptoms of this disorder, it is unsurprising that these children perform poorly in theory of mind (Shadabafi et al., 2021). Theory of mind refers to the ability to attribute mental states such as beliefs, desires, emotions, and intentions to oneself and others and to use this information to predict and interpret behavior, a function that has been well-established as essential for human social life (Yu et al., 2021). Findings from Mikami et al. (2007) in a computer-based chatroom experiment indicate that poor perception of social cues is related to fewer responses and weaker memory (Mikami et al., 2007). Caputi and Schoenborn (2018), in their study on theory of mind and internalizing behaviors in childhood, found that high theory of mind ability is associated with lower internalizing symptoms (Caputi & Schoenborn, 2018).

In line with these findings, one of the psychological factors that plays a crucial role in individuals' adaptation to symptoms and serves as a protective factor for mental health is resilience (Saadati & Parsakia, 2023; Zeyghami Mohammadi & Hashemi, 2020). This is why psychological resilience-based interventions are utilized to enhance individuals' psychological competencies (Nasirzadeh et al., 2018). Psychological resilience is defined as an individual's ability to recover quickly from adverse life conditions and return to their previous state after experiencing distress (Brooks et al., 2020). Similarly, this construct has also been defined as an individual's capacity to succeed in uncertain and challenging processes (Durna et al., 2022) and to rapidly regain the ability to perform expected tasks and behaviors (Öz & Bahadır-Yılmaz, 2009). Regarding the effectiveness of psychological resilience training, Mohammadi Shimirani et al. (2020) demonstrated that resilience training significantly impacts social adaptation and its components (hyperactivity-aggression, attention deficit disorder, and social maladjustment) (Mohammadi Shimirani et al., 2020). In another study, Ghezelseflu et al. (2019) found that resilience training effectively reduces stress and interpersonal problems (Ghezelseflu et al., 2019).

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Another therapeutic approach that has gained attention in recent years for addressing children's psychological problems is emotion regulation (Vahedi Kojanagh et al., 2021). Emotion regulation refers to a set of cognitive processes that influence emotions and the way they are experienced and expressed (Gross, 2015). Emotion regulation training, through self-organization, emotional awareness, modifying maladaptive responses to negative feelings, and altering initial maladaptive emotions, plays a crucial role in determining well-being and ensuring successful performance in social interactions (Gratz et al., 2015). Similarly, Hassani et al. (2022) demonstrated that an emotion regulation training program for mothers effectively enhanced the theory of mind abilities of children aged 4 to 9 years (Hassani et al., 2022).

Considering the research findings and the negative impact of SCT on social interaction and theory of mind, implementing appropriate interventions can help improve the difficulties faced by these individuals and bring about significant changes in their rehabilitation process. Furthermore, given the lack of studies in Iran on the use and comparison of therapeutic interventions to enhance the capabilities of individuals with SCT, the present study aimed to compare the effectiveness of resilience training and cognitive emotion regulation training on social interaction and theory of mind in children with SCT.

2. Methods and Materials

2.1. Study Design and Participants

The present study employed a quasi-experimental design with a pre-test, post-test, and follow-up, including a control group. The statistical population consisted of all 9- to 11-year-old male elementary school students with sluggish cognitive tempo (SCT) in Tabriz in 2023. Participants were selected by screening elementary school students who scored above the cutoff point on the Sluggish Cognitive Tempo Questionnaire. To confirm the diagnosis, a semi-structured clinical interview was conducted with the children. Ultimately, a purposive sample of 45 children was selected and randomly assigned to two experimental groups and one control group (15 participants in the first experimental group, 15 in the second experimental group, and 15 in the control group).

The inclusion criteria were: (1) being 9 to 12 years old, (2) a diagnosis of SCT, (3) no intellectual disability, (4) no visual, auditory, or motor impairments, (5) no medical conditions such as diabetes, epilepsy, or heart disease, and (6) providing written informed consent to participate in the study. The exclusion criteria included: (1) failure to meet the inclusion criteria, (2) absence in more than one session, and (3) participation in similar therapy sessions.

After selecting participants based on ethical principles, they were provided with brief information about the study's purpose and objectives. They were assured that the results would be published as aggregated data and that they had the right to withdraw at any stage of the study. Written informed consent was obtained from all participants. The Social Skills Rating Scale and Theory of Mind Questionnaire were administered as a pre-test to both the experimental and control groups.

Next, the first experimental group underwent resilience training, while the second experimental group received cognitive emotion regulation training. The control group received no intervention. At the end of the training period, the Social Skills Rating Scale and Theory of Mind Questionnaire were re-administered as a post-test. A one-month follow-up assessment was also conducted to evaluate the sustainability of the intervention effects.

2.2. Measures

2.2.1. Sluggish Cognitive Tempo

This scale was developed by Penny et al. (2009) and consists of 14 items, rated on a five-point Likert scale (0 = never to 4 = always). It includes three subscales: Slowness, Drowsiness, and Daydreaming. Sample items include "Completes tasks slowly or with delay" and "Needs reminders to pay attention." The questionnaire demonstrates good content validity, internal consistency, and test-retest reliability. The Cronbach's alpha reliability for the total scale is reported as 0.87, with subscale reliabilities of 0.87 for Slowness, 0.83 for Drowsiness, and 0.70 for Daydreaming (Penny et al., 2009). In an Iranian study, Khanjani et al. (2020) reported satisfactory content and criterion validity, with a Cronbach's alpha of 0.82 for the total scale (Khanjani et al., 2020).

2.2.2. Social Skills

This scale was developed by Elliott and Gresham (1990) and consists of three forms: parent, teacher, and student, applicable to preschool, elementary, and secondary school students. The scale measures the frequency of behaviors that impact social competence and adjustment in home and school settings. It consists of 30 items, scored on a three-

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point Likert scale (0 = never, 1 = sometimes, 2 = often), with a total score range of 0 to 90. Lower scores indicate greater social skills difficulties. The Cronbach's alpha for the social skills subscale was reported as 0.94 (Elliott & Gresham, 1993). In Iran, the reliability of this scale was reported as 0.77 (Shahim, 2005).

2.2.3. Theory of Mind

The Theory of Mind Scale, developed by Steerneman (1999), consists of 38 items designed to assess theory of mind abilities in children aged 5 to 12 years, including those with pervasive developmental disorders. This scale provides information about a child's social understanding, sensitivity, and insight, as well as their ability to comprehend and attribute emotions and thoughts to others. Participants receive one point for each correct response, with a total possible score ranging from 0 to 38. Higher scores indicate more advanced theory of mind abilities (Steerneman, 1994). Ghamrani et al. (2006) reported a concurrent validity coefficient of 0.89 between this scale and the Dollhouse Task. Test-retest reliability ranged from 0.70 to 0.94, with all coefficients being statistically significant at the 0.01 level. The internal consistency of the scale, measured by Cronbach's alpha, was 0.86, and inter-rater reliability was 0.98 (Ghamarni et al., 2006).

2.3. Interventions

2.3.1. Resilience Training

The first experimental group received resilience training in 10 sessions, each lasting 45 minutes. The resilience intervention was based on the program developed by Henderson et al. (1997).

Session 1: Group members were introduced to each other, and the pre-test was administered. Participants were familiarized with the program's objectives and the concept of resilience. The session included an open discussion on personal experiences with challenges and coping strategies.

Session 2: The focus was on self-awareness and recognizing personal strengths. Participants were introduced to the definition and components of self-awareness. A brainstorming activity helped them identify their strengths and weaknesses, and discussions centered on setting personal goals.

Session 3: This session aimed at enhancing self-esteem. Participants explored the concept of self-esteem, identified personal insecurities, and discussed strategies to overcome them. Activities encouraged positive self-reflection and self-acceptance.

Session 4: Communication skills were introduced, including defining communication, discussing methods for effective interpersonal interactions, and understanding the importance of communication in daily life. Role-playing exercises helped participants practice active listening and assertiveness.

Session 5: Social relationships and the role of social support in difficult situations were explored. Participants identified characteristics of healthy social relationships and discussed the impact of social support on emotional resilience.

Session 6: Goal-setting strategies were taught, differentiating between short-term and long-term goals. Participants set personal short-term goals and created step-by-step plans to achieve them.

Session 7: The concept of self-efficacy and its influence on life was introduced. Participants learned decision-making skills, criteria for making good decisions, and the importance of taking responsibility for their choices. Real-life decision-making scenarios were discussed.

Session 8: Problem-solving skills were covered, with an emphasis on self-efficacy through problem-solving techniques. Participants identified personal challenges, proposed solutions, and discussed accountability for responsibilities. Reflection on past successes and failures helped reinforce problem-solving strategies.

Session 9: Anger, stress, and anxiety management techniques were introduced. Participants identified signs of stress and anger and practiced relaxation techniques such as deep breathing and mindfulness exercises to enhance emotional regulation.

Session 10: The session focused on fostering spirituality and faith. Discussions revolved around the role of spirituality in resilience, optimism, and hope in life. Participants reflected on how optimism contributes to emotional strength, and the session concluded with a summary of key learnings from the program.

2.3.2. Cognitive Emotion Regulation Training

The second experimental group received cognitive emotion regulation training in 8 sessions, each lasting 45 minutes. The intervention was based on Gross's (2015) cognitive emotion regulation model.

Session 1: Participants were introduced to the concept of emotion regulation, its importance, and the reasons for

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learning emotion regulation skills. Discussions covered primary and secondary emotions, misconceptions about emotions, and the goals of emotion regulation training, including increasing awareness of emotions and reducing emotional distress.

Session 2: Participants explored the structure of emotions, including triggers, interpretations of events, physiological responses, behavioral reactions, and emotion-related expressions. Different emotional states were identified and discussed.

Session 3: The session focused on how to effectively describe emotions. Participants practiced defining emotions by describing situations that triggered them, interpreting those experiences, and understanding how they physically and behaviorally respond to emotions like love, anger, and sadness.

Session 4: The function of emotions was examined, emphasizing their role in communication, influencing others, organizing thoughts, and motivating action. Participants discussed how emotions impact decision-making and learned how to validate their emotional experiences.

Session 5: Participants were taught strategies to reduce vulnerability to negative emotions. Linehan's Emotion Regulation Chart was introduced, covering factors such as physical health, balanced eating, avoiding mood-altering substances, sleep regulation, and regular exercise to improve emotional stability.

Session 6: Techniques for increasing positive emotions were introduced. Participants learned short-term and long-term strategies to cultivate positive emotional experiences, practice mindfulness in enjoyable activities, and manage concerns about negative experiences. They also created personal lists of pleasurable activities.

Session 7: The concept of emotional suffering and strategies to alleviate it were covered. Participants practiced changing emotions through opposite-action techniques and learned how to identify and apply counteracting behaviors to regulate emotions.

Session 8: The final session reviewed and summarized previous topics. Participants engaged in exercises to reinforce their emotion regulation skills, discussed their experiences throughout the program, and identified strategies to continue practicing and improving their emotional regulation abilities in daily life.

2.4. Data Analysis

Data were analyzed using SPSS-26. Descriptive statistics, including mean and standard deviation, were used to summarize the data. The Kolmogorov-Smirnov test assessed normality, and Levene's test examined homogeneity of variances. Repeated measures ANOVA was conducted to compare pre-test, post-test, and follow-up scores across groups. Mauchly's test of sphericity was checked, and when violated, the Greenhouse-Geisser correction was applied. Bonferroni post-hoc tests were used to determine pairwise differences between groups. The significance level was set at $p < .05$.

3. Findings and Results

Based on the demographic data, the mean age of the resilience training group was 9.93 ± 1.28, the mean age of the cognitive emotion regulation intervention group was 10.67 ± 1.04, and the mean age of the control group was 9.87 ± 1.12 years. The descriptive statistics for pre-test, post-test, and follow-up scores of the research variables for each group are presented in Table 1.

Table 1

Mean (M) and Standard Deviation (SD) of Research Variables in Experimental and Control Groups

Variable	Group	Pre-test M (SD)	Post-test M (SD)	Follow-up M (SD)
Social Skills	Resilience Training	22.93 (3.46)	26.73 (2.34)	26.73 (2.73)
	Cognitive Emotion Regulation	23.40 (3.76)	26.80 (2.33)	26.60 (2.52)
	Control	23.26 (2.43)	24.06 (2.18)	23.86 (2.06)
Theory of Mind	Resilience Training	20.93 (2.70)	24.47 (1.45)	24.26 (2.33)
	Cognitive Emotion Regulation	21.66 (2.49)	24.80 (3.33)	24.60 (2.52)
	Control	21.26 (3.43)	22.06 (2.18)	21.86 (2.06)

As shown in Table 1, the mean scores for social skills and theory of mind in the experimental groups increased more in the post-test and follow-up stages compared to the pre-test stage, relative to the control group. To analyze the data, repeated measures ANOVA was used. Prior to conducting the analysis, underlying assumptions were examined. The

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Kolmogorov-Smirnov test was used to assess the normality of score distribution, and the results indicated that the assumption of normality was not rejected in any of the groups ($p > .05$). Levene's test was used to verify the assumption of homogeneity of variances, and the results showed that variance equality was not rejected for social skills ($p > .05$, $F = 2.178$) and theory of mind ($p > .05$, $F = 0.498$) across groups. Additionally, Mauchly's test of sphericity indicated that the significance level for the variable "hope for life" was below .05, leading to the rejection of the sphericity assumption, and the Greenhouse-Geisser correction was applied. Therefore, the necessary conditions for conducting ANCOVA were met.

Table 2

Results of Repeated Measures ANOVA for Research Variables

Variable	Source of Variation	MS	df	SS	F	Sig	Eta²
Social Skills	Factor	203.200	1064.623	190.969	43.721	.001	.510
	Factor × Group	55.600	2.128	26.127	5.982	.004	.222
	Error	195.200	44.690	4.368			
Theory of Mind	Factor	172.104	1.088	158.247	46.843	.001	.527
	Factor × Group	43.585	2.175	20.038	5.931	.001	.220
	Error	154.311	45.678	3.378			

The results in Table 2 indicate that the significant F values for the within-group factor in the variables of social skills ($F = 5.982$, $p = .001$) and theory of mind ($F = 5.931$, $p = .001$) confirm the presence of a significant difference between the three measurement points (pre-test, post-test, and follow-up) at the .01 significance level.

Table 3

Results of Bonferroni Post-Hoc Test for Research Variables in Experimental and Control Groups

Variable	Group Comparison	Mean Difference	Sig.
Social Skills	Resilience Training - Cognitive Emotion Regulation	-0.133	1.000
	Resilience Training - Control	1.733	.044
	Cognitive Emotion Regulation - Control	1.867	.027
Theory of Mind	Resilience Training - Cognitive Emotion Regulation	-0.467	1.000
	Resilience Training - Control	1.489	.032
	Cognitive Emotion Regulation - Control	1.956	.003

The results of the Bonferroni test in Table 3 also indicate that there is no significant difference between the resilience training and cognitive emotion regulation intervention groups in terms of social skills and theory of mind ($p > .05$). However, there is a statistically significant difference between the resilience training group and the control group, as well as between the cognitive emotion regulation group and the control group ($p \leq .05$). Given the mean differences, the advantage lies with the experimental groups (resilience training and cognitive emotion regulation intervention). In other words, both interventions were effective in improving social interaction and theory of mind in children with sluggish cognitive tempo, but there was no difference in effectiveness between the two interventions.

4. Discussion and Conclusion

The present study aimed to compare the effectiveness of resilience training and cognitive emotion regulation training on social interaction and theory of mind in children with sluggish cognitive tempo (SCT). The results indicated that there was no significant difference in the effectiveness of resilience training and cognitive emotion regulation training on social interaction in children with SCT, and both interventions were equally effective. A review of previous studies did not reveal any research directly comparing these two interventions; however, the findings align to some extent with prior studies (Amédée et al., 2019; Haji Aghanjad et al., 2021; Javanbakht Amiri et al., 2019; Mohammadi Shimirani et al., 2020; Sheikh al-Islami et al., 2015).

To explain the effectiveness of resilience training on social interaction, it can be argued that by teaching communication skills within the framework of

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psychological resilience intervention, individuals learn how to establish effective communication with others, enhance their verbal and non-verbal interactions, and form friendships. This ability allows them to adapt better to changing circumstances and fulfill their needs more effectively. Furthermore, individuals who maintain healthy social relationships can benefit from social support, which, as resilient individuals, helps them engage in better social interactions (Mohammadi Shimirani et al., 2020). Resilience fosters better coping strategies and defense mechanisms, enabling individuals to improve their social interactions. In essence, resilience equips individuals with the ability to face life's challenges without significant harm and even use these experiences as opportunities for personal growth and improved social interaction (Haji Aghanjad et al., 2021). Moreover, resilience, by emphasizing inner strength and positive thinking, helps individuals adapt to difficult and stressful conditions, cope with loss and suffering, and maintain social engagement (Mohammadi & Sajadian, 2019). High resilience aids individuals in managing stress and adapting to challenging situations, allowing them not only to survive adversity (Bonanno, 2008) but also to achieve higher levels of interaction and personal growth. It enhances their dynamism, strengthens their personal capabilities, and facilitates positive and effective social adaptation despite experiencing hardships (Sheikh al-Islami et al., 2015).

Furthermore, the effectiveness of emotion regulation training on social interaction can be attributed to its role in identifying emotions, increasing awareness of the consequences of emotional avoidance, confronting emotions, and altering core beliefs related to emotions. These factors significantly enhance emotional competence and reduce students' emotional vulnerability. As students apply these skills in their interpersonal relationships and receive positive feedback from others, their social interaction improves progressively (Sardari, 2021). Strengthening interpersonal skills and receiving positive feedback from teachers and peers can contribute to improved social interaction in students with SCT. Additionally, individuals who use emotional self-regulation strategies can exert greater control over their emotions, thereby avoiding impulsive behaviors and social friction. These strategies enable individuals to regulate their emotions effectively, allowing them to adapt more successfully to social situations. In essence, using emotional self-regulation strategies helps individuals maintain control and respond flexibly to various social circumstances, even when situations do not align with their expectations. This ability fosters stable social interactions (Amédée et al., 2019). Ultimately, it can be conceptualized that emotion regulation skills, as an integral part of normative development, promote effective interpersonal interactions, decision-making, and adaptive behavior. The ability to regulate emotions strongly influences individuals' self-regulation, which encompasses all adaptive functioning abilities. Thus, by enhancing self-regulation, emotion regulation training positively impacts social skills (Javanbakht Amiri et al., 2019).

Another finding of this study indicated that there was no significant difference in the effectiveness of resilience training and cognitive emotion regulation training on theory of mind in children with SCT, and both interventions were equally effective. Although no prior studies were found comparing these two interventions, the findings align to some extent with prior studies (Burns & Anstey, 2010; Doosti et al., 2014; Hassani et al., 2022; Lebowitz & Dovidio, 2015; Rogers et al., 2016; Sheerin et al., 2018).

To explain the effectiveness of resilience training on theory of mind in children with SCT, it can be stated that this intervention teaches individuals communication skills, allowing those who receive such training to develop positive relationships with others, manage their emotions and reactivity in stressful situations, maintain an optimistic outlook, and actively seek solutions—individually or with others—to overcome problems (Sherin et al., 2018). In other words, having effective communication skills, which is a component of resilience, enables students to establish and sustain meaningful relationships with peers, classmates, and teachers. Such relationships gradually foster specific attachments to teachers, classmates, school staff, and the school environment, leading to a sense of belonging and adaptation (Lebowitz & Dovidio, 2015), which appears to contribute to the enhancement of theory of mind in children with SCT. Furthermore, resilience promotes positive emotions while reducing negative emotions and feelings of worthlessness, which are influential factors in theory of mind (Burns & Anstey, 2010). Resilience training also encourages individuals to maintain positive thinking, smile in the face of adversity, preserve their sense of humor even in difficult situations, seek help from others, accept their imperfections, recognize their limitations, and regulate their thoughts, emotions, and behaviors (Darbani & Parsakia, 2023; Golparvar & Parsakia, 2023). The ability of children to learn these skills in a way that is socially acceptable to their peers not only increases resilience but is also likely to enhance their theory of mind (Doosti et al., 2014).

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Similarly, the effectiveness of cognitive emotion regulation training on theory of mind in children with SCT can be explained by its role in helping individuals recognize both positive and negative emotions, learn strategies to accept and manage emotions, correct misconceptions about emotions, and develop accurate emotional beliefs. This training provides a foundation for identifying, stabilizing, and managing emotions, ultimately reducing negative emotions and increasing positive emotions (Sobhi Gharamehlaki et al., 2015). Additionally, the ability to recognize emotions helps individuals integrate cognitive, biological, and motivational processes, enabling them to adapt to their environment, fulfill social responsibilities, and improve interpersonal relationships and emotional expression (Zeman et al., 2018). This process, which involves accurately recognizing one's own and others' emotions, is linked to the development of theory of mind (Hassani et al., 2022). Emotion regulation training not only increases individuals' awareness and sensitivity to their own emotions but also enhances their ability to understand and empathize with others (Lebowitz & Dovidio, 2015). Furthermore, since individuals' awareness and expression of emotions directly influence their ability to respond appropriately to their own and others' negative emotions, the greater an individual's capacity to recognize, accept, and utilize appropriate strategies for managing these emotions, the more effectively they can regulate their emotional responses and interact constructively with others (Rogers et al., 2016). Consequently, emotion regulation training, combined with the development of emotional awareness, self-control, and self-regulation, can empower individuals emotionally and socially, ultimately improving their interpersonal relationships and theory of mind.

This study had several limitations, including the use of a convenience sampling method and a short follow-up period. Therefore, employing random sampling methods in future research could help control potential confounding variables more effectively. Additionally, future studies should consider longer follow-up periods to assess the long-term effects of these interventions. Finally, based on the findings of the present study, which demonstrated the equal effectiveness of resilience training and cognitive emotion regulation training on social interaction and theory of mind in children with SCT, it is recommended that practitioners utilize both methods to enhance social cognition in children with SCT.

Authors' Contributions

All authors significantly contributed to this study.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

In this study, to observe ethical considerations, participants were informed about the goals and importance of the research before the start of the interview and participated in the research with informed consent.

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