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Self-perception in early childhood: A comparative study of children with and without alexithymia

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ABSTRACT

This study examines differences in self-perception between children with alexithymia and their typically developing peers (TDP). It explores specific aspects of self-perception and compares self-perception profiles while considering gender and education. A total of 122 children from kindergartens and schools participated in the study, including 81 typically developing children and 41 with alexithymia. The study used the Toronto Alexithymia Scale (TAS-20) and the Berkeley Puppet Interview (BPI) as assessment tools. The findings showed that alexithymia had a greater impact on self-perception than demographic factors like gender or education. Children with alexithymia had significantly lower self-perception in areas such as academic competence, motivation, social skills, and peer acceptance compared to their typically developing peers. The study highlights how alexithymia affects children's self-perception and calls for targeted interventions to support their well-being and social integration. It also suggests the need for further research into how educational environments influence children's self-perception.

1. Introduction

The concept of self-perception has become an important focus in alexithymia research. This is particularly evident in modern societies, where individuals with alexithymia have worked to assert their rights, contribute to societal progress, and build stronger social connections despite emotional difficulties. Recent studies on cognition and emotion emphasize the critical role of recognizing, understanding, and managing emotions for the well-being of society (Luminet et al., 2021; Moriguchi et al., 2007; Larsen et al., 2017). Researchers have long been interested in the concept of self-perception throughout history by analyzing the viewpoints of Seneca, Augustine, and Olivi. Despite contextual variations and limited historical connections, these philosophers argue that self-perception and proper utilization of the body require self-awareness (Toivanen, 2013). The typical explanation for how humans develop self-perception is based on mirror self-recognition, commonly known as the rouge test. According to this theory, infants demonstrate self-awareness around 15 months of age when they can use a mirror to locate a mark placed on their nose (Butterworth, 1992).

Many researchers argue that self-perception is recognizing and evaluating one's strengths, weaknesses, and emotional states, which is essential in shaping a child's development during the delicate early childhood years. It serves as a foundation for emotional well-being, academic success, and positive social interactions, as noted by Harter (1999) and Aro et al. (2014). How do the children perceive and establish themselves in life independently of others' perspectives? It is our responsibility to determine their self-perception, which aligns with their unique needs rather than what others may deem suitable for them. This aligns with the notion that self-perception is an important concept that helps us identify suitable services and assess their quality in various situations.

The current research utilized the definition of self-perception by Measelle et al. (1998). They confirmed that self-perception is the ability to identify and assess one's talents and competencies in various aspects, such as academic competence, achievement motivation, social competence, peer acceptance, depression-anxiety, and aggression-hostility. It is consistent with the view that self-perception is a multifaceted and composite construct

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influenced by cognitive, social, and cultural causes (Measelle and Ablow, 2017; Stone et al., 2014; Measelle et al., 1998).

Considering the changes in our society in the 21st century, researchers have argued about self-perception in human behavior. Alexithymia is a personality trait that depends on the person's ability to recognize and express emotions (van der Velde et al., 2013). Sifneos (1973) appointed the term alexithymia for psychosomatic personalities based on their findings. Based on his definition, alexithymia is described by a concrete and pragmatic thinking approach, less fantasy and imagination, and problems recognizing and explaining one's own and others' emotions. The current researchers found that The Toronto Alexithymia Scale (TAS-20) became the most widely used assessment of alexithymia. It involves three dimensions: difficulty identifying feelings (DIF), difficulty describing feelings (DDF), and externally oriented thinking (EOT) (Bagby et al., 1994). children with alexithymia may face challenges in personal relationships, self-esteem, coping skills, and mental health issues (Farina et al., 2021; Barańczuk, 2019; Demers et al., 2019; Constantinou et al., 2014). However, despite these obstacles, they can find hope. Recent studies indicate that alexithymia is not a constant trait but an unstable state that can be influenced by mediations like psychotherapy, cognitive-behavioral treatment, mindfulness, and emotional training (Lumley et al., 2007). It is a condition characterized by difficulties in recognizing and verbalizing feelings (De Berardis et al. 2008). It can be accompanied by classic psychosomatic disorders, major depression, and anxiety disorders (Celikel et al., 2010; Matti et al., 2008; Kauhanen et al., 1993).

The researcher concluded that Alexithymia affects the brain's reaction to emotional stimuli, decreasing the activation of regions involved in emotion recognition, regulation, and empathy (van der Velde et al., 2013; Roedema and Simons, 1999; Reker et al., 2010). Also, Williams and Wood (2010) discovered that traumatic brain injury survivors with alexithymia had decreased levels of emotional empathy than the control group, indicating difficulty in understanding and sharing emotions. Becerra et al. (2002) found the concept of "organic alexithymia" to describe the cases where alexithymia is caused by brain damage or disease. The link between alexithymia and schizophrenia explored by Kubota et al. (2011) emphasized the potential influence of reduced self-emotional awareness on individuals with alexithymia.

The effects of alexithymia extend to personal, social, and emotional integration, particularly in fast-changing communities. Individuals with alexithymia often face challenges in interpersonal relationships, self-esteem, coping abilities, and mental health. This is especially true for children, who must adapt to shifting societal expectations and beliefs and may experience social withdrawal or negative attitudes from peers, teachers, and parents (Lumley et al., 2007).

The association between alexithymia and various psychiatric and neurological disorders further underscores the complexity of this trait. For example, research has shown that individuals with alexithymia may have lower levels of emotional empathy, leading to difficulties in understanding and sharing emotions (Barberis et al., 2023; Williams and Wood, 2010). Alexithymia has also been linked to impulsive-compulsive disorders in Parkinson's disease (Goerlich-Dobre et al., 2014), self-harm among women (Norman and Borrill, 2015), and affective disorder symptoms through difficulties in emotion regulation (Preece et al., 2022).

Larsen et al.'s (2017) study on the correlation between alexithymia, self-management, and illness perception in psoriasis patients raises awareness about the potential influence of alexithymia on individuals' ability to cope with chronic health conditions. This discovery highlights the significance of integrating strategies to adopt emotional well-being and self-management in the dealing and support of an alexithymia person and related medical conditions.

The study conducted by Aaron et al. (2018) delves into the connection between emotional experience and self-reported alexithymia by shedding light on the potential influence of alexithymia on emotional granularity and the capacity to accurately recognize and articulate emotions. This stimulates conversations about the implications for interpersonal relationships and the creation of customized interventions aimed at improving emotional awareness and communication skills, as noted by Moriguchi et al. (2007), also raising questions about the neurobiological grounds of alexithymia and its link to pain perception and empathy. The current researchers concluded that This emphasizes the need for further research to clarify the exact mechanisms and potential targets for suitable interventions.

The psychoanalytic approach also underscores the significance of early childhood experiences and unconscious processes in the development of alexithymia. It posits that alexithymia arises from a failure to identify with the superego and integrate psychosexual stages, resulting in an inability to access authentic emotions and desires (Timoney and Holder, 2013). On the other hand, the cognitive-affective approach highlights cognitive deficiencies, such as poor verbal and non-verbal communication, limited symbolic thinking, and reduced attention to emotions, as contributing factors to alexithymia (Lane and Schwartz, 1987). The current researchers confirmed that These challenges mentioned above may be particularly difficult for children, who must adjust to the changing demands and expectations of society. Also, we concluded that Children with alexithymia may experience social exclusion and negative perceptions from their peers, teachers, and parents, which can worsen their emotional struggles. However, there is hope for individuals with alexithymia. So, recent research confirmed alexithymia is not a fixed trait but a dynamic state

that can be changed through interventions such as psychotherapy, cognitive-behavioral therapy, mindfulness, and emotional education (Lumley et al., 2007). These modifications and interventions are designed to improve emotional awareness, regulation, and communication skills, enhancing well-being and quality of life for individuals with alexithymia.

We also concluded that Assessing self-perception in individuals with alexithymia can assist in providing suitable assistance and resources to help them adapt to the changing social environment (Wang et al., 2022; Betka et al., 2017). This facilitates the proactive development of tailored programs to fulfill their needs and challenge negative views about their integration into society, empowering them to meet their needs and maintain control over their lives.

The Kingdom of Saudi Arabia sets significant emphasis on granting care and support to individuals, particularly in the context of societal prioritization. Authority for the Care of People with Disabilities efforted to equip social organizations with specialized professionals and technical expertise to promote the integration and normalization of individuals with disabilities in society. The authority allocates substantial funds to provide comprehensive social services for individuals with disabilities, allowing them to participate in various community activities. Additionally, the Kingdom prioritizes early childhood care for children with disabilities, with government and private kindergartens offering tailored support and education. The Kingdom follows international conventions on disability rights and actively collaborates with esteemed organizations to promote disability inclusion and exchange best practices.

Understanding self-perception is essential for evaluating the quality of services provided and their impact on improving mental health. Social and environmental factors play a significant role in shaping the self-perception of individuals with alexithymia. Research shows that these individuals can share their opinions and expectations about factors that support their improvement. Recognizing their unique abilities helps them identify ways to achieve happiness. Encouraging individuals with alexithymia to express themselves, assess their environment, and participate in decisions about their lives enhances their understanding of their needs, fosters respect for their feelings, protects their dignity, ensures their freedom, and promotes individuality. It also facilitates their integration into society and helps them make the most of available resources.

Researchers from the Kingdom of Saudi Arabia's findings have found that individuals with alexithymia may be impacted in many aspects. Alzahrani et al. (2020) found that almost half of medical students suffer from alexithymia. Strengthening awareness about alexithymia among students and directing them where to seek help would facilitate the management of these problems. Aljaffer et al. (2022) noticed that the prevalence of alexithymia among medical students was significantly higher than in the general population in the workplace. He also found that being a woman, having a psychiatric condition or history of childhood abuse, and lack of physical activity were all associated with alexithymia.

The way we see ourselves is influenced by our experiences, expectations, aspirations, needs, personal traits, and social status (Measelle and Ablow, 2017; Rochat, 1998; Measelle et al., 1998). So, the current research aims to understand how children with alexithymia perceive themselves by comparing them with their peers. By examining the self-perception of children with alexithymia, we can determine how closely their perception aligns with that of TDP and assess whether society is meeting their needs.

The findings of this study will help bridge the gap between individuals with alexithymia and the services available to them. The researchers hope to raise awareness among specialists in special education in Saudi Arabia and those involved in providing services about the importance of understanding the aspirations, opinions, and needs of children with alexithymia from their perspectives rather than relying solely on others' perceptions. This consideration will help tailor services to meet their needs and increase the efficiency of the programs offered. Likewise, the current search results aim to fill the gap in alexithymia studies inside the Arabic culture, highlighting the need for further research to better understand the self-perception of alexithymia children in comparison with their normal peers in Arab people, particularly in the field of childhood. This kind of measurement in Saudi society may also enhance the way for conducting other studies focusing on self-perception among children in early childhood with similar conditions and problems, as well as among their normal peers.

1.1. The study questions

- Are there differences in dimensions of self-perception and overall self-perception between children with alexithymia and their TDP based on demographic variables (Gender, Educational stage, and type of kindergarten/school)?
- What are the dimensions of self-perception that distinguish children with alexithymia from those with TDP?
- Does the profile of children with alexithymia self-perception dimensions differ from their TDP?

2. Method

The current research followed the comparative-causal method, which is a nonexperimental approach utilized to explore cause-and-effect relations. Also, when data is collected retrospectively, collected from groups without manipulating the independent

variable, as in an experimental study (Busk, 2005; Schenker and Rumrill, 2004). We seek to investigate the self-perception resulting from belonging to the group of children with alexithymia compared to their TDP.

The study consisted of 122 children, with forty-one having alexithymia and eighty-one being typically developing. The participants were randomly selected from schools and kindergartens affiliated with the Office of Education in Rafah province to ensure homogeneity of the sample in terms of educational stage and abilities. The sample was in the early childhood stage and did not have any disabilities, chronic medical conditions, or psychological disorders. Samples of children with alexithymia included 36.1% boys and 63.9% girls, with 13.9% attending private schools and 86.1% attending public schools. The typically developing children had a mean age of 5.95 years (SD = 1.72), while those with alexithymia had a mean age of 4.90 years (SD = 0.768). Among them, 51.6% attended kindergarten schools, and 48.4% attended primary schools. The participants were randomly selected through the public school system, and the selected schools represented mostly middle-class sociodemographic characteristics.

We implemented our research during the second semester of the academic year (1445 AH). Upon receiving ethical approval from the deanship of scientific research at the Northern Border University, we select the research sample from the schools and kindergartens. We explained the nature of the research to the officials and assured them that participation was voluntary and they could withdraw at any time. Additionally, we guarantee the privacy of the participants. Verify the validity and reliability of the research tool. Applying the TAS-20 to assess the Alexithymia children to consider the principle of homogeneity of the research sample in Alexithymia. To address our research questions, we conducted a comprehensive statistical analysis using various methods. First, we used multivariate analysis of variance (MANOVA) to observe differences in self-perception dimensions between children with alexithymia and their normal peers, considering demographic factors such as gender, educational stage, and type of kindergarten/school. Second, we used discriminatory analysis aligned with t-tests to identify specific dimensions of self-perception that significantly differentiated the two groups. Finally, we used profile analysis to investigate differences between children with alexithymia and their peers in the total profile of self-perception dimensions. Our knowledge of alexithymia in children has expanded due to this comprehensive statistical approach, offering valuable visions into the research variable.

The study was shown to measure self-perception in children with alexithymia in early childhood and their TDP utilizing two well-validated instruments in Saudi society: the TAS-20 and the Berkeley Puppet Interview (BPI).

To evaluate how young children perceive themselves. The researchers utilized BPI because it is a well-established and reliable tool (Ablow and Measelle, 1993; Measelle and Ablow, 2017) to create a less intimidating and more engaging environment, allowing children between the ages of 4 and 7 to express their self-perceptions in different domains such as academics, social interactions, and emotions (Measelle et al., 1998; Remer and Tzuriel, 2015). It also has strong psychometric properties, with studies showing an elevated level of agreement between children's self-reports and personal evaluations, supporting its reliability and validity (Measelle et al., 1998; Ringoot et al., 2013; Stone et al., 2014; Remer and Tzuriel, 2015). Its validity is strongly supported by significant positive correlations between items and corresponding dimensions, as well as between total scores of the dimensions and the overall scale score (Measelle et al., 1998).

This evaluation procedures academic performance, achievement motivation, social competence, peer acceptance, depression, anxiety, aggression, and hostility. BPI measures these self-perceptions and serves as a valuable tool for identifying children with low self-esteem or social difficulties. Mostly, the child's mother or a teacher administers the evaluation. A maximum of five points are awarded for "fully applicable," four points for "often applicable," and three points for "Slightly applicable." "Not applicable at all" receives one point, while "Uncertain applicability" earns two points. Negative ratings follow a similar scale but in reverse order.

The current Researchers found that the scale has high reliability (The split-half reliability for the data is approximately 0.995). Despite its usefulness, this scale is not the only tool that should be used in evaluating mental health conditions. Instead, it provides valuable insights into a child's psychological health and can point to further reviews and interventions when necessary (Measelle and Ablow, 2017).

The researchers utilized the TAS-20. As cited in Bagby et al. (1994), the TAS-20 has been translated into multiple languages and has shown its validity in diverse cultural contexts, including Arabic-speaking populations. A five-point rating system was used to assess the responses, with higher scores indicating higher degrees of alexithymia. It consists of twenty questions gathered in three categories: Externally Oriented Thinking (EOT), Difficulty Describing Feelings (DDF), and Difficulty Identifying Feelings (DIF).

An Arabic version of the TAS-20 shows significant cultural differences in emotional communication among the participants from Arabic-speaking countries and Canada (Preece et al., 2020). Bagby et al. (2020) also provided cut-off points for interpreting results and determining the severity of alexithymia. The TAS-20 demonstrates acceptable to high levels of reliability, with alpha coefficients ranging from 0.63 to 0.81 and a high internal consistency reliability of 0.886. Furthermore, robust item-total correlations ranging from 0.493 to 0.907

indicate that items significantly contribute to the overall alexithymia degree.

To examine how Alexiemia affects self-perception, this study considered potential influencing factors, including gender, educational level, and the type of kindergarten or school attended. These factors could impact the results, so they were considered as potential variables to control for

3. Results

The first research question, investigating potential differences in self-perception between children with alexithymia and their normal peers, considering demographic factors, was addressed through a series of statistical analyses. Demographic variables such as Gender, Educational stage, and type of kindergarten/school. were incorporated into the analysis. Multivariate Analysis of Variance (MANOVA) was employed to examine variations in self-perception dimensions and overall scores between the two groups while accounting for these demographic factors. Additionally, a univariate ANOVA was conducted specifically for overall self-perception scores. The analysis of self-perception in children with alexithymia reveals a complex interplay between individual characteristics and environmental factors.

Table 1, comparing self-perception scores between children with alexithymia and those with TDP, provides initial insights into potential differences. While overall self-perception scores are remarkably similar between the groups, a closer examination reveals potential differences in specific dimensions. The research concluded that children with alexithymia constantly indicate lower scores in academic competence (M = 14.29 ± 2.87) compared to their peers (M = 16.10 ± 2.67), suggesting capability challenges in academic performance and motivation. This is supported by their lower scores in achievement motivation (M = 17.64 ± 3.34 vs. M = 20.00 ± 4.45), indicating a potential struggle with academic drive and aspirations. Also, children with alexithymia exhibit lower scores in social competence (M = 12.67 ± 4.22 vs. M = 14.51 ± 2.58), implying problems in social interactions and peer acceptance. These differences are particularly pronounced in government schools, hinting at potential environmental influences on self-perception. Furthermore, children with alexithymia display higher scores in depression-anxiety (M = 30.58 ± 7.24 vs. M = 29.31 ± 6.47), indicating a potential connection between alexithymia and emotional well-being. Table 1 observed that differences are not statistically significant, most likely because of the small sample size. There seems to be a relationship between the kind of school and the severity of the differences among children with alexithymia in government schools. To confirm these conclusions and investigate the underlying mechanisms showing these observed patterns, more research with a bigger sample size is necessary.

Table 2 displays the results of a MANOVA on self-perception dimensions, providing further validation for the observed differences between children with alexithymia and their TDP. Table 2 shows that the "Alexithymia" variable has a significant impact on self-perception scores ($F(\text{dimension}) = 4.908$, $p < 0.001$; $F(\text{total degree}) = 24.92$, $p < 0.001$), showing a clear difference in self-perception between the two groups. This finding is consistent with the initial analysis of Table 1, which showed lower scores in academic competence, achievement motivation, social competence, and peer acceptance among children with alexithymia. Furthermore, the MANOVA outcome shows that the interaction between alexithymia and other demographic factors, such as gender and school stage, is not statistically significant ($p > 0.05$). This suggests that the observed differences in self-perception are primarily driven by the presence of alexithymia itself rather than being influenced by specific sequences of demographic factors.

However, the interaction between alexithymia and school type (government vs. private) shows a marginal effect ($F(\text{total degree}) = 0.868$, $p = 0.353$). While not statistically significant, this finding hints at a potential influence of the school environment on the self-perception of children with alexithymia. This aligns with the initial finding from Table 1, where children with alexithymia in government schools exhibited more pronounced differences in self-perception compared to their peers.

In summary, the MANOVA conclusions provide convincing evidence for the effect of alexithymia on self-perception dimensions. While the association with school type suggests a potential influence of the school environment, further research is needed to confirm this finding. The overall conclusion is that alexithymia is a significant factor in shaping self-perception, even after considering demographic factors.

Question 2: What are the dimensions of self-perception that distinguish children with alexithymia from their normal peers? From the answer to the previous question, it is evident that demographic variables do not function as mediators in the differences between children with alexithymia and their normal peers in terms of self-perception. Moreover, significant differences are observed between the mean scores of the two groups in overall self-perception dimensions, regardless of demographic variables. Therefore, discriminatory analysis is suitable for identifying significant differences between the two groups in dimensions of self-perception and allows us to interpret the nature of these differences.

Table 3 provides a detailed analysis of self-perception differences between children with alexithymia (Alex) and their TDP (NP), utilizing t-tests to compare group means and discriminant analysis to identify significant unique dimensions. The results show significant disparities in self-perception, particularly in areas related to academic and social competence. Children with alexithymia

report significantly lower scores in academic competence (M = 14.22) compared to their peers (M = 17.05), indicating a potential struggle with academic performance and motivation. This difference is statistically significant (t = 5.26, p < 0.001), with a large effect size as indicated by the discriminant function coefficient (β = 0.566) and structure coefficient (R = 0.862). Also, children with alexithymia exhibit significantly lower scores in achievement motivation (M = 17.32) than their peers (M = 20.94), further highlighting a potential struggle with academic drive and aspirations. This difference is also statistically significant (t = 4.59, p < 0.001), with a moderate effect size (β = 0.025, R = 0.752).

Table 1: Mean scores and standard deviations for self-perception variables in individuals with Alexithymia and their normal peers by gender, educational stage, and type of kindergarten/school

Self-perception variables	Children with Alexithymia (Mean ± SD)					Normal Peers (Mean ± SD)				
	B	G	Kg	PS	GS	B	G	Kg	PS	GS
Academic competence	14.29 ± 2.87	14.19 ± 2.92	14.27 ± 2.76	14.19 ± 2.98	14.19 ± 2.79	16.10± 2.67	17.61± 2.71	17.13± 2.09	16.94± 3.58	17.26± 2.68
Achievement motivation	17.64 ± 3.34	17.15 ± 3.47	17.53 ± 3.25	17.19 ± 3.53	17.17 ± 3.29	20.00±4.45	21.49± 4.38	21.25± 3.73	20.48± 5.33	21.36± 4.34
Social competence	13.71 ± 4.07	12.59 ± 4.40	13.87 ± 3.96	12.46 ± 4.43	12.67 ± 4.22	15.47± 1.74	14.51± 2.77	15.08±2.37	14.55± 2.61	14.51± 2.58
Peer acceptance	18.79 ± 3.51	18.59 ± 3.37	18.53 ± 3.52	18.73 ± 3.35	18.50 ± 3.44	20.90± 6.72	23.22± 6.26	22.06± 5.71	22.79± 7.55	23.22± 6.55
Depression-anxiety	29.36 ± 8.74	30.26 ± 7.33	30.00 ± 8.78	29.92 ± 7.26	30.58 ± 7.24	32.70± 6.64	29.31± 6.98	30.19± 6.47	31.12± 7.80	29.31± 6.47
Aggression-hostility	12.64 ± 3.88	13.11 ± 3.45	12.87 ± 3.83	13.00 ± 3.46	13.03 ± 3.51	14.70± 2.12	13.80± 3.16	14.65± 2.09	13.39± 3.58	13.80± 2.75
Overall self-perception	106.43 ± 15.75	105.89 ± 16.70	107.07 ± 15.30	105.50 ± 16.90	106.14 ± 16.05	119.8± 10.89	119.94± 12.84	120.35± 8.12	119.27± 16.36	119.94± 11.62

B: Boys; G: Girls; Kg: Kindergarten; PS: Primary stage; GS: Government school; PS: Private school

Table 2: Results of the MANOVA on the Self-Perception between (Dimensions, total degree)

Source of variation	F-value (dimension)	Significance (dimension)	F-value (Total degree)	Significance (Total degree)	Error df
Alexithymia	4.908	0.00	24.92	0.00	120.00
Gender	1.157	0.334	0.007	0.933	120.00
Alexithymia * Gender	0.735	0.622	0.012	0.911	120.00
Alexithymia	5.241	0.00	24.99	0.00	120.00
School Stage	1.156	0.335	0.239	0.626	120.00
Alexithymia * School Stage	1.226	0.298	0.008	0.929	120.00
Alexithymia	2.09	0.07	8.62	0.004	120.00
School Type	2.165	0.052	1.148	0.286	120.00
Alexithymia * School Type	1.384	0.227	0.868	0.353	120.00

df: Degree of freedom

The observed differences extend to social competence, where children with alexithymia report significantly lower scores (M = 12.98) than their peers (M = 14.86), suggesting difficulties in social interactions and peer acceptance. This difference is statistically significant (t = 3.10, p < 0.002), with a moderate effect size (β = 0.379, R = 0.561). Furthermore, children with alexithymia have significantly lower scores in peer acceptance (M = 18.66) compared to their peers (M = 22.36), further supporting the notion of social challenges (t = 3.42, p < 0.001, β = 0.410, R = 0.705). While no significant differences were found in anxiety-depression or aggressiveness towards others, the observed disparities in academic achievement and social competence provide valuable insights into the unique self-perception challenges faced by children with alexithymia. These findings highlight the need for interventions and support systems that address these specific areas of self-perception, potentially improving overall well-being and social integration for children with alexithymia.

Question 3: Does the profile of self-perception dimensions differ between children with alexithymia compared to their TDP?

The researchers conducted a profile analysis using Z-scores to standardize the raw ratings for each dimension. The profiles of the two groups were then compared using these standardized ratings. The results in Table 4 indicate that children with alexithymia and their TDP have significantly different Z-scores in several areas. For instance, in Academic Competence, children with alexithymia have a mean Z-score of -0.330435, which is lower than that of their TDP (-0.084084); in Social Competence, the mean Z-score for children with alexithymia is 0.197183, compared to 0.420054 for their TDP; in Peer Acceptance, the mean Z-score for children with alexithymia is significantly lower (-0.770833) compared to their peers (-0.282883); and in Depression Anxiety, children with alexithymia have a higher mean Z-score (0.343023) compared to their TDP (-0.079060). To determine whether these observed differences are statistically significant, a repeated measures ANOVA was performed. The ANOVA test is important for assessing whether there are significant differences in self-perception profiles across multiple dimensions for the two groups, as it helps to control the variability within subjects and evaluates whether the profile patterns differ between the groups. The results of the repeated measures ANOVA showed a significant effect (F = 8.974, df = 5, p = 0.003), indicating that the self-perception profiles of children with alexithymia are significantly different from those of their TDP. The substantial p-value (p < 0.01) provides strong

evidence that these differences are not due to random variation but are likely insightful of true differences in self-perception between the groups. Because of this strong proof of non-equivalence, further analysis to examine parallelism or congruence was not considered necessary. This comprehensive analysis highlights the distinct ways children with alexithymia perceive themselves compared to their normal peers, highlighting the importance of considering these differences in educational and psychological interventions. Fig. 1 illustrates the self-perception profile in comparison with their normal peers. It reports a higher self-perception across academic competence, achievement motivation, social competence, peer acceptance, and emotional problems. Children with alexithymia display lower self-perceptions in these areas, indicating potential academic challenges. Social competence and peer acceptance have a significant gap, reflecting social worries. Emotional problems, such as depression, anxiety, aggression, and hostility, have sophisticated negative perceptions, underlining the necessity for mediation.

Table 3: The t-test results for self-perception dimensions, discriminant function coefficients, and structure coefficients

Dimension	Alex (n = 41)	NP (n = 81)	β	R	T	Sig.
Academic competence	14.22	17.05	0.566	0.862	5.26	0.001
Achievement motivation	17.32	20.94	0.025	0.752	4.59	0.001
Social competence	12.98	14.86	0.379	0.561	3.10	0.002
Peer acceptance	18.66	22.36	0.410	0.705	3.42	0.001
Anxiety-depression	29.95	30.57	0.057	0.327	0.44	0.659
Aggressiveness toward others	12.95	14.14	0.205	0.073	2.00	0.048

Alex: Chidden with alexia; NP: Normal peers; β: Discriminant function coefficients; R: Structure coefficients T: T-test results; Sig.: Significant level

Table 4: Mean and standard deviation of standardized scores (Z-scores)

Dimension	Alexithymia Z-score	Normal Z-score
Academic competence	-0.330435	-0.084084
Achievement motivation	-0.265487	0.045045
Social competence	0.197183	0.420054
Peer acceptance	-0.770833	-0.282883
Depression anxiety	0.343023	-0.079060
Aggression hostility	0.230337	0.110329

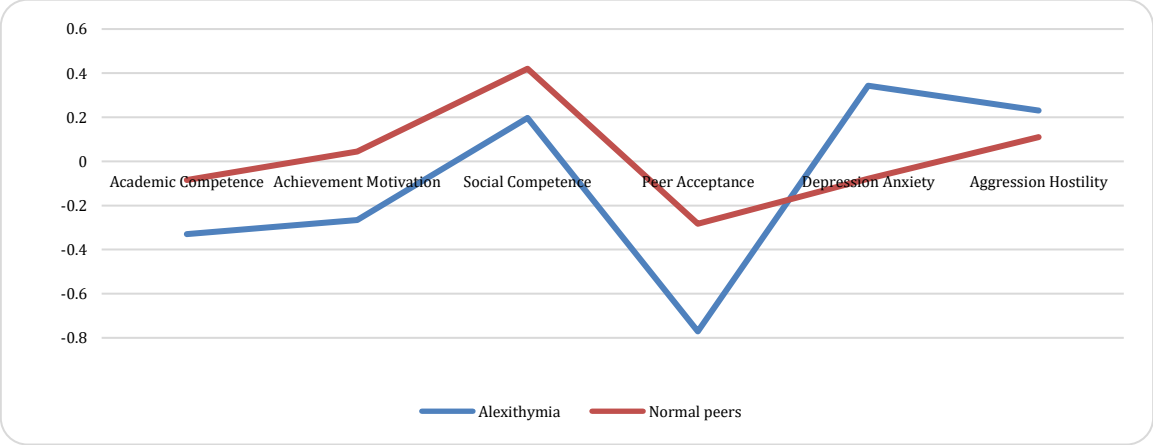

Fig. 1: The self-perception profile in comparison with their normal peers

4. Discussion

This study investigates the sophisticated world of self-perception in children with alexithymia, comparing them to their normal peers. The research employed a causal-comparative approach, using statistical analyses to realize potential differences in self-perception across various dimensions while considering demographic factors such as gender, educational stage, and school type. The initial findings in Table 1 suggest a complex interplay between individual characteristics and environmental influences on self-perception. While whole self-perception scores appear similar between the groups, closer examination reveals potential differences in specific dimensions. Children with alexithymia consistently report lower academic competence, achievement motivation, and social competence scores, suggesting potential challenges in these areas. These differences are remarkably pronounced in government schools, hinting at the potential influence of the school environment. Additionally, children with alexithymia exhibit higher scores in depression-anxiety, indicating a potential link between alexithymia and emotional well-being. It is vital to mention that the observed variations in Table 1 are not statistically significant, and they are prone to the small sample size. Further inquiries with a larger sample size are needed to verify these results and explore the underlying mechanisms driving these observed patterns. As a result, alexithymia impacts children's overall self-perception regardless of their demographics. Following previous research (Wang et al., 2021; Rosenberg et al., 2020; Kauhanen et al., 1993), alexithymia is strongly correlated with social factors,

emphasizing the potential influence of broader social and emotional challenges on children's well-being.

To further inspect the impact of alexithymia on self-perception, a Multivariate Analysis of Variance (MANOVA) was performed (Table 2). The finding provides compelling evidence for the influence of alexithymia on self-perception dimensions. The MANOVA reveals a significant effect of the "Alexithymia" adaptable on self-perception scores, indicating a clear difference in self-perception between the two groups. This finding aligns with the initial analysis of Table 1, highlighting the lower scores in academic competence, achievement motivation, and social competence among children with alexithymia. While the interaction between alexithymia and other demographic factors, such as gender and school stage, is not statistically significant, the interaction between alexithymia and school type (government vs. private) shows a marginal effect. This cues a capability influence of the school environment on the self-perception of children with alexithymia, aligning with the initial observations from Table 1. Further investigation is needed to confirm these results. While there were no significant differences in self-perception overall between children with alexithymia and their TDP, variations emerged across different self-perception domains. This attaining aligns with the multiple nature of self-perception, as proposed by Harter (1983), who suggested that self-concept involves distinct domains, such as academic, social, and emotional competence.

Children with alexithymia reported a higher sense of general perception than their counterparts. However, their perception of health, relationships, and social activities was lower. This pattern proposes a potential compensatory mechanism whereby children with alexithymia may focus on aspects of their lives linked to general perception to mitigate lower perception in other domains (Zhao et al., 2022). This also reveals that children with alexithymia may focus more on their internal experiences and perceived competence in various areas due to their challenges in understanding and expressing emotions (Romano et al., 2019; Loas et al., 2017; Marchesi et al., 2000; Berthoz et al., 1999). On the other hand, normal peer children show similar levels of perception with living conditions, relationships, social activities, and general happiness, with slightly lower scores on satisfaction with health and total self-perception. This more balanced profile suggests that typically developing children place greater emphasis on external factors and social connections when shaping their self-perceptions. A discriminant analysis was conducted to discover the specific dimensions of self-perception that are perceived between children with alexithymia and their TDP (Table 3). The results reveal significant disparities in self-perception, particularly in areas related to academic and social competence. Children with alexithymia report significantly lower academic competence, achievement motivation, social competence, and peer acceptance scores, highlighting their potential struggles in these areas. These findings underscore the need for interventions and support systems that address these specialized areas of self-perception, potentially improving overall well-being and social integration for children with alexithymia. Comparable overall self-perception between the two groups may be due to differences in cognitive abilities. According to Orth and Robins (2013), individuals with low self-esteem, which is closely related to alexithymia, often view cognitive prejudices that safeguard their self-image, resulting in a distorted perception of their overall self-worth. Similar cognitive mechanisms could be at play in children with alexithymia, allowing them to maintain a comparable level of overall self-perception despite experiencing lower satisfaction in specific domains.

Brown and Dutton (1995) deliver additional evidence for this idea. They underline that groups with low self-esteem tend to generalize negative faces and outcomes, which can affect how they see themselves in general. The participants in the study mostly lived with their parents or other family members, and this stable living situation meant that demographic factors did not have much of an impact on their self-perception. Living with family can offer both financial and emotional support, which might help lessen the challenges linked to alexithymia for people from different demographic backgrounds. This is particularly relevant in the context of Saudi society, which is often characterized by extended family networks. This may lessen the perceived differences in social life between children with alexithymia and their TDP (Peng and Huang, 2024; Aljaffer et al., 2022; Alzahrani et al., 2020; Ungerer et al., 1990). The observed differences in satisfaction levels across various domains between the two groups can be attributed to both cognitive and social factors. Aro et al. (2014) demonstrated that early language delays, often associated with alexithymia, are linked to poorer self-regulatory skills and social competence in kindergarten, potentially leading to lower satisfaction with relationships and social activities. Moriguchi et al. (2007) found that alexithymia is associated with reduced empathy and difficulty understanding the pain of others, which could hinder the pattern of strong social connections and contribute to lower relationship perception. Constantinou et al. (2014) confirmed the effects of deep data processing intervention in alexithymia. The study concluded that individuals with high alexithymia showed a reduction in emotional response and a weak correlation between physiology and self-report. This suggests they tend to avoid intense emotions and have less defensive preparation.

Finally, a profile analysis using Z-scores was conducted to compare the self-perception profiles of the two groups (Table 4). The results indicate that children with alexithymia and their TDP have significantly different Z-scores in several areas, especially in academic competence, social competence, peer acceptance, and depression

anxiety. A repeated measures ANOVA advocated that the self-perception profiles of children with alexithymia are significantly different from those of their TDP. This comprehensive analysis highlights the distinct means by which children with alexithymia observe themselves, emphasizing the importance of considering these differences in educational and psychological interventions. Children with alexithymia reported reduced satisfaction with their health, which is consistent with previous research indicating that they are more susceptible to physical illnesses and have reduced coping abilities (Goerlich-Dobre et al., 2014; Matti et al., 2008). This susceptibility to health issues, combined with challenges in identifying and expressing their needs, may result in lower satisfaction with their overall self-perception. The distinct focus on self-perception in children with alexithymia, compared to the more balanced profile of typically developing children, highlights the importance of kindergarten or school as a source of social connection and self-affirmation for these children.

Montroy et al. (2014) exposed that social skills and problem behavior intermediate the relationship between self-regulation and academic achievement in preschool, emphasizing the fundamental role of social interactions in learning. For children with alexithymia, who may have obstacles to forming social relationships outside of school, the school could offer a structured environment for social interaction and a sense of achievement, leading to enhanced perception. The condition of organized environments where children with alexithymia can practice and improve these skills can be greatly aided by schools and kindergartens. Proving social relationships, providing academic support, and implementing activities related to emotional regulation can all make a significant difference in how well children with alexithymia feel about themselves. Incorporating families into these interventions can also strengthen the support networks that are essential to the development of these children.

This study specifies proving proof for the distinct self-perception profiles of children with alexithymia matched to their TDP. The findings emphasize the importance of adopting the unique challenges faced by children with alexithymia, particularly in areas related to academic and social competence. The study also suggests an ability influence of the school environment on self-perception, justifying further investigation. By acknowledging these differences and implementing tailored interventions, we can create more helpful and inclusive surroundings for children with alexithymia to succeed.

4.1. Implications

The study confirmed the consequence of adapted interventions for children with alexithymia, highlighting the need for emotional awareness, expression, regulation skills, social competence, and peer acceptance. It also emphasizes the necessity for family assistance and promoting social inclusion. Accessible healthcare services are crucial for children with alexithymia, providing appropriate medical care and psychological support. By prioritizing self-perception and understanding the unique challenges faced by children with alexithymia, we can create a more inclusive and compassionate school.

5. Conclusion

The research examined early self-perception differences in children with alexithymia and their normal peers. It considers a wide range of self-perception profiles throughout multiple aspects and the potential influence of demographic factors. The conclusion emphasizes the challenges and coping mechanisms children with alexithymia face and explains the complex interaction between these factors. The study recommends a compensating system where strengths in one area could offset deficiencies in another. Importantly, self-perception was consistently impacted by alexithymia, regardless of demographic factors such as gender, age, or type of school. The traits of children with alexithymia are distinct; they prioritize social and academic skills but struggle to fit in with their peers and experience obvious levels of anxiety and depression.

5.1. Limitations

The researchers follow self-measures to confirm cultural specificity, representing the need for wider, longitudinal research that includes several assessment techniques and cross-cultural comparisons.

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Compliance with ethical standards

Ethical considerations

Informed consent was obtained from the guardians of all participants, and confidentiality was ensured throughout the research.

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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