

## **Social Interaction in a Child with Down Syndrome**

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### ***Abstract:***

*The present study aimed to determine the level of social interaction in a child with Down syndrome, as well as to identify differences in the level of social interaction according to the variables of age, gender, and degree of disability. The descriptive method was used with the Social Interaction Scale prepared by Nebras Mohammed Al-Murad (2004) to achieve this objective. The study sample consisted of 30 children with Down syndrome attending the Pedagogical Psychological Centre for Mentally Disabled Children – Esto–Oran. The study yielded the following results: there is a high level of social interaction in children with Down syndrome; statistically significant differences exist in the level of social interaction according to the age variable; no statistically significant differences were found according to the gender variable; and statistically significant differences were found according to the degree of disability.*

***Keywords:*** Down syndrome, child with Down syndrome, social interaction

## **Interaction sociale chez un enfant atteint du syndrome de Down**

### **Résumé :**

*La présente étude visait à déterminer le niveau d'interaction sociale chez un enfant atteint du syndrome de Down, ainsi qu'à identifier les différences dans le niveau d'interaction sociale en fonction des variables de l'âge, du sexe et du degré de handicap. La méthode descriptive a été utilisée avec l'échelle d'interaction sociale préparée par Nebras Mohammed Al-Murad (2004) pour atteindre cet objectif. L'échantillon de l'étude était composé de 30 enfants atteints du syndrome de Down et fréquentant le Centre psychopédagogique pour enfants handicapés mentaux d'Esto-Oran. L'étude a donné les résultats suivants : il existe un niveau élevé d'interaction sociale chez les enfants atteints du syndrome de Down ; des différences statistiquement significatives existent dans le niveau d'interaction sociale en fonction de la variable de l'âge ; aucune différence statistiquement significative n'a été trouvée en fonction de la variable du genre ; et des différences statistiquement significatives ont été trouvées en fonction du degré d'invalidité.*

**Mots-clés :** *Syndrome de Down, enfant atteint du syndrome de Down, interaction sociale*

## **Introduction**

### ***Problem Statement***

Childhood is a fundamental stage in forming an individual's personality, during which the child acquires language, self-care skills, and social behaviours. Therefore, researchers and specialists in psychological and social sciences pay great attention to this stage, seeking a more profound understanding and solutions to its most important problems. They aim to extract appropriate educational and psychological methods to assist parents at home and specialists in special education centres in providing the highest upbringing models to raise a well-adjusted, socially integrated generation. Down syndrome is considered a neurodevelopmental disorder that causes families of affected children to face numerous problems encompassing all aspects of life. Children with Down syndrome suffer from multiple developmental impairments that prevent them from being fully independent and from learning typically like their peers, which negatively affects their social interaction both within the family and in social environments. Psychological studies addressing social interaction in children with Down syndrome have demonstrated an apparent deficit in communication skills compared to their peers. This was highlighted by the study of Dickens and Hudacek (1994), which examined the development of social adaptation behaviours in children with Down syndrome by measuring social adaptation according to the age variable. The researchers applied a social adaptation scale to 80 children between 10 and 11.5 years old. The results revealed weaknesses in communication skills and indicated that the strengths and weaknesses of adaptive behaviour in children with Down syndrome are subject to change and decline with age and developmental progression.

The study conducted by Leveland and Kelley (1991) aimed to measure social skills in two groups of children: children with Down syndrome and children diagnosed with autism. The study yielded the following results: children with Down syndrome demonstrated better ability to acquire social skills than children with autism; however, the researchers found no differences between the two groups in communication ability. Children with Down syndrome showed better adaptation than children with autism in behaviours such as sitting, toileting, social conduct, and walking. Furthermore, children with Down syndrome exhibited more significant progress in social skills and daily living skills compared to children with autism.

Meanwhile, Dykens, Hodapp, and Evans (1994) investigated the strengths and weaknesses in adaptive behaviour among children with Down syndrome, revealing deficits in communication specifically related to social skills in these children.

The study by Sami Al-Azzawi (2012) aimed to determine the level of social interaction among a sample of Riyadh children born to working and non-working mothers. The results indicated no statistically significant differences related to the gender variable (male-female). The researcher recommended fostering a spirit of friendship among children, as it enhances their social interaction.

Based on the foregoing, the present study was designed to investigate social interaction among children with Down syndrome within a local environment, aiming to assess the level of social interaction under a set of demographic variables. Accordingly, the research problem was formulated through the following questions:

- What is the level of social interaction in a child with Down syndrome?

- Are there statistically significant differences in the level of social interaction in a child with Down syndrome according to the age variable?
- Are there statistically significant differences in the level of social interaction in a child with Down syndrome according to the gender variable?
- Are there statistically significant differences in the level of social interaction in a child with Down syndrome according to the degree of disability variable?

### ***Study Hypotheses:***

- There is a moderate level of social interaction in children with Down syndrome.
- There are statistically significant differences in the level of social interaction in children with Down syndrome according to the age variable.
- There are statistically significant differences in the level of social interaction in children with Down syndrome according to the gender variable.
- There are statistically significant differences in the level of social interaction in children with Down syndrome according to the degree of disability variable.

### ***Study Objectives:***

Based on the proposed hypotheses, the objectives of the study are as follows:

- To determine the level of social interaction in children with Down syndrome.
- To identify differences in the level of social interaction in children with Down syndrome according to the age variable.

- To identify differences in the level of social interaction in children with Down syndrome according to the gender variable.
- To identify differences in the level of social interaction in children with Down syndrome according to the degree of disability variable.

### ***Significance of the Study:***

The present study's importance lies in its focus on a specific group of children with unique characteristics within society, namely children with Down syndrome. This is achieved by gaining closer insight into them, understanding their developmental characteristics and needs, and identifying their problems, with particular emphasis on their level of social interaction under a set of variables: age, gender, and degree of disability.

## **1. Theoretical Framework of the Study:**

### **1.1 Down Syndrome:**

#### ***1.1.1 Definition of Down Syndrome:***

Down syndrome is one of the most prevalent syndromes. It was named after the English physician John Langdon Down in 1866, who was the first to identify its physical characteristics. The syndrome results from a chromosomal abnormality in chromosome 21, where the total number of chromosomes becomes 47 instead of the usual 46, a discovery made in 1959 (Ubaidi, 2021, p. 52).

A child with Down syndrome is defined as any child whose cells contain 47 chromosomes instead of the usual 46, precisely due to an extra copy of chromosome 21, and who displays distinctive congenital traits compared to typical peers (Al-Areed, p. 263).

In this study, a child with Down syndrome is operationally defined as any child with Down syndrome aged between 6 and 12 years, enrolled at the Pedagogical Psychological Centre for Mentally Disabled Children - Esto - Oran.

### *1.1.2 Types of Down Syndrome:*

- a. **Trisomy:** Each cell contains an additional chromosome in this type, resulting in 47 chromosomes instead of the usual 46. This extra chromosome is located on chromosome 21. This type is the most common, representing approximately 94% of Down syndrome cases.
- b. **Translocation** occurs when a portion of chromosome 21 attaches to chromosome 14 in most cases. The prevalence of this type accounts for about 4% of all Down syndrome cases.
- c. **Mosaicism:** This is the least common type among the three, accounting for approximately 2% of children with Down syndrome. In this case, chromosomal abnormalities occur in some cells while others remain normal. Some body cells have an extra chromosome 21, while others do not. This condition is the closest to the typical genetic structure (Mu'in, p. 34).

### *1.1.3 Characteristics of Down Syndrome:*

Children with Down syndrome are distinguished by a set of characteristics summarised in the following domains:

- a. **Physical Characteristics:** These include:
  - The face is round, flat, and broad; the head is small; the hair is fine and thin. The nose is small, flat, and broad with upward-facing nostrils. The ears are small and square-shaped.

- The mouth is small and often open due to an enlarged tongue that protrudes outward and contains fissures. The eruption of deciduous and permanent teeth, often weak, is delayed.
- The hands are small with short fingers; a single prominent crease appears in the palm. Finger use is weak, and fingerprint patterns are predominantly in the shape of the letter L.
- The skin surface is thick and dry, with folded layers covering the edges of the eyes. The eyes are slanted upwards at the sides, giving an atypical appearance. The iris contains white spots, and overall muscle tone is reduced.
- The neck is short and broad, with loose skin on the sides. The shoulders are broad and thick, the chin is small, and the trunk is long with abdominal protrusion. The arms and legs appear small relative to the trunk, giving an impression of dwarfism.
- The feet are flat with weak toes, and a gap exists between the big and other toes.
- The pelvis is small, and there are congenital malformations in internal organs, significantly affecting the respiratory system and the heart. The brain is smaller than average.
- They exhibit abnormal alignment of facial bones and the risk of developing osteoporosis increases with age.
- There is a delay in the emergence of secondary sexual characteristics, accompanied by underdeveloped genitalia.
- Speech defects and hoarseness of voice are present from childhood.
- There is impaired motor development and poor coordination between body parts (Ibrahim, 2022, p. 158).

**b. Intellectual Characteristics: These include:**

- The intellectual ability of children with Down syndrome ranges from moderate to mild impairment, with an intelligence quotient (IQ) between 50 and 70.
- There are individual differences in demonstrating cognitive abilities and skills.
- Females with Down syndrome tend to have higher intellectual abilities compared to males, especially during puberty.
- They experience deficits in perception and abstract thinking, manifesting difficulties with discrimination and recognition and noticeably affecting sensory processing.
- Cognitive development is delayed due to memory deficits, evident in difficulty retaining and recalling words during speech and attentional deficits (Al-Adl, 2013, p. 145).

**c. Social Characteristics:**

Some children with Down syndrome are characterised by affection and warmth towards others, while others display negative behaviours such as excessive stubbornness and aggression. They are outgoing, greeting and shaking hands with everyone they meet. They seek to approach those older than themselves, whether at home or in the centre. They tend to imitate and mimic others and exhibit a love for music. They are also inclined towards playfulness, cheerfulness, and enjoyment of activities. Their social development tends to progress more rapidly than their intellectual development (Al-Shammari, 2001, p. 24).

## **1.2 Social Interaction:**

### ***1.2.1 Definition of Social Interaction:***

Social interaction is a reciprocal influence process between the individual and the group through which integration into social life occurs. It relies on studying and analysing the behaviour produced by an individual in social situations as a response to a stimulus originating from another person. In turn, this response acts as a stimulus for a subsequent reaction from the first person. This alternation of reactions constitutes social interaction, which forms the basis of relationships between individuals and groups (Bakoush & Ahmed, 2021, p. 309).

In the present study, social interaction is operationally defined by the score obtained by a child with Down syndrome on the Social Interaction Scale developed by Nebras Mohammed Al-Murad (2004) through its four dimensions: communication, expectation, role perception, and meaningful symbols.

### ***1.2.2 Modes of Social Interaction:***

Social interaction is based on four modes:

- a. **Communication:** This refers to the transmission of a specific idea or meaning from the mind of one individual to another individual or a group through communication, which is fundamental for social interaction.
- b. **Expectation:** This involves a mental orientation and readiness for anticipated responses such as acceptance or rejection. A person's behaviour is shaped according to the expected reaction of others, and they adjust their behaviour based on these expectations.
- c. **Role Perception and Performance:** Interaction among individuals relies on their awareness of their role in society, which provides a practical explanation of human behaviour through the performance of different roles during in-

teractions with others. This is based on the experience gained from social relationships.

- d. **Meaningful Symbols:** Meaningful symbols include language, facial expressions, and hand gestures recognised by society that convey specific meanings, facilitating accurate communication, expectation, and role perception (Hilal, 2010, p. 41).

### 1.3. Objectives of Social Interaction:

These are summarised as follows:

- To achieve common goals and thereby satisfy shared needs.
- To enable individuals and groups to acquire various behavioural patterns and learn attitudes that regulate relationships among them within the framework of prevailing societal values and traditions.
- To help individuals avoid isolation and achieve self-realisation through positive interaction with the group.
- Social interaction prepares individuals for good social upbringing by instilling shared characteristics among family members.
- It assists in continuous self-evaluation and evaluation of others (Al-Azzawi & Qais Kareem, 2012, p. 54).

### 1.4. Social Interaction in a Child with Down Syndrome:

Social interaction in a child with Down syndrome is manifested through their daily life behaviours and relationships with others. It encompasses any skill the child demonstrates in expressing themselves to others, their willingness to approach and communicate with others, participation in various daily social activities, forming new friendships, using different social signals to communicate, and adhering to social etiquette in interactions. Children with Down syndrome acquire social be-

haviours from their environment indirectly and unintentionally, which may be either positive or negative (Al-Azzawi & Qais Kareem, 2012, p. 57).

Numerous studies have shown that children with Down syndrome possess many skills that are capable of development, such as social communication and social interaction skills. These skills enable them to engage with their environment, feel a sense of importance and belonging, and support the development of other aspects of their lives, including cognitive, sensory, motor, and language skills. They also enhance their capacity for learning and interacting with others.

## **2. Methodological Framework of the Study:**

### **2.1 Research Method:**

The descriptive method was used since the study aims to determine the level of social interaction in children with Down syndrome under a set of variables. This method involves describing the phenomenon under study and collecting accurate quantitative and qualitative information about it. The Social Interaction Scale developed by Nebras Mohammed Al-Murad (2004) was employed to achieve the study's objective. The scale consists of 54 items divided into four dimensions:

- a. **Communication Dimension:** This dimension demonstrates cohesion by uplifting others, providing help and assistance, showing comfort and signs of tension relief, and expressing satisfaction, agreement, acceptance, understanding, and obedience. It includes the following items: 1, 2, 11, 12, 16, 19, 25, 30, 31, 39, 40, 49, 50, 51, 52, 54.
- b. **Expectation Dimension:** This involves decision-making, self-reliance, influencing others, expressing opinions, articulating feelings and desires, controlling expected behaviour, and anticipating actions. It includes items 3, 9, 10, 13, 20, 27, 32, 35, 36.

- c. **Role Perception and Performance Dimension:** This includes awareness and affirmation of duties, participation in activities, the ability to represent others' roles, feeling a sense of importance, and knowing one's capabilities. Items included are: 4, 7, 8, 14, 17, 22, 24, 26, 33, 37, 41, 42, 45, 46.
- d. **Meaningful Symbols Dimension:** This covers language, facial expressions, hand use, unity of thought, goals and thinking, ideas, feelings, and execution. Items included are: 5, 6, 15, 21, 23, 28, 29, 34, 38, 43, 44, 47, 48, 53.

Responses to the scale items are measured on a three-point Likert scale: Never (0), Sometimes (1), Always (2), considering the direction of each item, whether positive or negative. The levels of social interaction are estimated according to the key presented in the following table:

**Table 1**  
*Scoring Key for the Social Interaction Scale*

Level of Social Interaction	Score Range
Low	0 - 27
Moderate	28 - 55
High	56 - 83

To assess the psychometric properties of the scale, results obtained from the study by researcher Maryam Bouziani Bettoul (2013) in Ghazlan on social interaction among children with intellectual disabilities were used. The scale's validity was verified through content validity (expert validity) by presenting it to 10 specialised clinical psychology professors affiliated with the University of Oran 2, Ghazlan University, and Chlef University. They confirmed that the scale items were clear and suitable for the study objectives, with a validity percentage ex-

ceeding 50%. Reliability was verified by applying the scale to a sample of 80 intellectually disabled children attending the Medical Pedagogical Centre for the Mentally Disabled in Oued Jemaa-Ghazlan. Using Cronbach's alpha and split-half methods, correlation coefficients were high, ranging between 0.71 and 0.72, indicating that the scale possesses psychometric properties suitable for application in the present study.

## 2.2 Study Sample and Characteristics:

The study sample consisted of 30 children with Down syndrome attending the Medical Pedagogical Centre - Esto-Oran. They were selected randomly and exhibited the following characteristics:

**Table 2**  
*Characteristics of the Study Sample*

Variable	Category	Frequency	Percentage (%)
<b>Gender</b>	Male	16	53.33
	Female	14	46.66
<b>Age</b>	7 to 12 years	8	26.66
	13 to 18 years	22	73.33
<b>Degree of Disability</b>	Moderate	23	76.66
	Mild	7	23.33
<b>Total</b>		30	100

Based on Table 2, which presents the characteristics of the study sample according to the gender variable, it is observed that the number of males exceeds that of females, with males representing 53.33% and females 46.66%. Regarding the age distribution, the majority of the sample is between 13 and 18 years, accounting for 73.33%, whereas children aged between 7

and 12 years represent 26.66%. In terms of degree of disability, children with Down syndrome classified as having a moderate level of disability constitute 76.66%, a high percentage compared to those with mild disability, who represent 23.33%.

### 3. Presentation and Discussion of Results:

#### 3.1 Presentation and Discussion of the First Hypothesis Results:

The first hypothesis states that "there is a moderate level of social interaction in children with Down syndrome." To test this hypothesis, frequencies and percentages were used, yielding the following results:

**Table 3**

#### *Level of Social Interaction in Children with Down Syndrome*

Percentage (%)	Frequency	Level of Social Interaction
33.3	10	Moderate
66.7	20	High
100	30	Total

Based on Table 3, which presents the level of social interaction among children with Down syndrome, it is observed that the majority of the sample (66.7%) exhibit a high level of social interaction. In comparison, the remaining 33.3% demonstrate moderate social interaction.

This result aligns with the study conducted by Leveland and Kelley (1991), which measured social skills in two groups of children: children with Down syndrome and children diagnosed with autism. Their findings indicated that children with Down syndrome had a better ability to acquire social skills compared to children with autism. Furthermore, children with Down syndrome showed superior adaptation in behaviours such as sitting, toileting, social conduct, and walking, as well as

more significant advancement in social skills and daily living skills relative to children with autism.

Dykens, Hodapp, and Evans (1994) examined the strengths and weaknesses in adaptive behaviour among children with Down syndrome. Their findings did not align with those of the present study. Their findings indicated a deficit in communication-related to social skills in children with Down syndrome.

### 3.2. Presentation and Discussion of the Second Hypothesis Results:

The second hypothesis states that "there are statistically significant differences in the level of social interaction in children with Down syndrome according to the age variable." To test this hypothesis, an independent samples t-test was used, yielding the following results:

**Table 4**  
*Differences in the Level of Social Interaction According to the Age Variable (Significance Level at 0.05)*

Statistical Method / Dimensions		N = 30				
		Mean (M)	Standard Deviation (SD)	t-value (t)	Degrees of Freedom (df)	Significance (p-value)
Communication	7 to 12	23.3750	2.19984	2.542	28	0.001 Significant
	13 to 18	18.6364	5.05725			
Expectation	7 to 12	11.5000	2.44949	1.225	28	0.258 Not Significant
	13 to 18	10.3182	2.29671			

Role Perception and Performance	7 to 12	20.6250	2.77242	4.166	28	0.000 Significant
	13 to 18	14.8182	3.55416			
Meaningful Symbols	7 to 12	20.3750	1.76777	2.274	28	0.002 Significant
	13 to 18	16.3636	4.82598			
Total Scale Score	7 to 12	75.8750	6.97828	2.973	28	0.000 Significant
	13 to 18	60.1364	14.24712			

Based on Table 4, which presents the t-values and their statistical significance for differences in social interaction levels according to the age variable (significance level at 0.05), it is evident that there are differences between the two age groups (7 to 12 years and 13 to 18 years) in the level of social interaction. This is reflected in the differing mean scores across the dimensions: communication, role perception and performance, meaningful symbols, and the overall scale. This is further supported by the t-values for all scale dimensions except for role perception and performance.

Therefore, we can conclude that the hypothesis stating, "There are statistically significant differences in the level of social interaction in children with Down syndrome according to the age variable," favouring the older age group (13-18 years), has been confirmed. This result aligns with the study by Dykens and Hodapp, which found that adaptive behaviour in children with Down syndrome improves with age.

### 3.3 Presentation and Discussion of the Third Hypothesis Results:

The third hypothesis states that "there are statistically significant differences in the level of social interaction in children with Down syndrome according to the gender variable." An independent samples t-test was used to test this hypothesis. The results are presented as follows:

**Table 5**  
*Differences in the Level of Social Interaction According to the Gender Variable*

Statistical Method		N = 30				
Dimensions		Mean (M)	Standard Deviation (SD)	t-value (t)	Degrees of Freedom (df)	Significance (p-value)
Communication	Male	20.6250	4.68864	0.858	28	0.402 Not Significant
	female	19.0714	5.22515			
Expectation	Male	11.3125	2.38659	1.747	28	0.089 Significant
	Female	9.8571	2.14322			
Role Perception and Performance	Male	17.0000	4.42719	0.875	28	0.386 Not Significant
	Female	15.6429	4.01166			
Meaningful Symbols	Male	18.0625	4.53826	0.801	28	0.341 Not Significant
	Female	16.7143	2.66457			
Total Scale	Male	67.0000	14.31084	1.084	28	0.288 Not Significant
	Female	61.2857	14.52016			

Based on Table 5, which presents the differences in the level of social interaction according to the gender variable, it is observed that there are no significant differences between males and females in the level of social interaction. This is evident from the close means for the overall scale and the dimensions (communication, role perception and performance, meaningful symbols). However, a slight difference was observed in the means, which was statistically significant at the 0.05 significance level in the expectation dimension, favouring males. Therefore, we can conclude that the hypothesis "There are statistically significant differences in the level of social interaction in children with Down syndrome according to the gender variable" was not supported. This result aligns with the study by Sami Al-Azzawi (2012) on social interaction among children in Riyadh from working and non-working mothers, which found no statistically significant differences in social interaction based on the gender variable.

#### **7.4 Presentation and Discussion of the Fourth Hypothesis Results:**

The fourth hypothesis states that "there are statistically significant differences in the level of social interaction in children with Down syndrome according to the degree of disability." To test this hypothesis, an independent samples t-test was used, and the results are presented as follows:

**Table 6**  
*Differences in the Level of Social Interaction According to the Degree of Disability Variable*

Statistical Method		N = 30				
		Mean (M)	Standard Deviation (SD)	t-value (t)	Degrees of Freedom (df)	Significance (p-value)
Dimensions						
Communication	Mild	23.5000	1.60357	2.656	28	0.000 Significant
	Moderate	18.5909	5.08648			
Expectation	Mild	12.5000	1.19523	2.942	28	0.001 Significant
	Moderate	9.9545	2.31922			
Role Perception and Performance	Mild	18.8750	2.85044	2.070	28	0.021 Significant
	Moderate	15.4545	4.31749			
Meaningful Symbols	Mild	20.7500	2.71241	2.631	28	0.003 Significant
	Moderate	16.2273	4.54535			
Total Scale	Mild	75.6250	5.50162	2.889	28	0.000 Significant
	Moderate	60.2273	14.56327			

Based on Table 6, which presents the differences in the level of social interaction according to the degree of disability variable, it is observed that there are differences in the level of social interaction between children with mild and moderate disabilities across the overall scale and all its dimensions. This is reflected in the significant differences in the mean scores. Therefore, we can conclude that the hypothesis stating "There are statistically significant differences in the level of social interaction in children with Down syndrome according to the degree of disability" in favour of mild disability has been confirmed.

## Conclusion:

Children with Down syndrome are considered part of society and fall within the group of individuals with special needs who require special care and attention in all physical, psychological, intellectual, and social aspects. Many studies have highlighted the sensitivity of this group, emphasising the importance of providing them with the necessary care and support. Social interaction is a fundamental way a child with Down syndrome can connect to the outside world and communicate with others. It also provides them with numerous experiences that help in acquiring social, linguistic, motor, and expressive communication skills. Furthermore, it contributes to learning new and varied behaviours that regulate their social relationships within societal values, customs, and traditions. Social interaction is an essential means of acquiring experience.

Given the importance of social interaction in the lives of children with Down syndrome, we aimed to investigate this topic to assess their level of social interaction under a set of variables, including age, gender, and degree of disability. To achieve this, a descriptive study was conducted on a sample of 30 children and adolescents with Down syndrome, aged between 7 and 18 years, attending the Medical Pedagogical Centre for Mentally Disabled Children - Esto - Oran. After applying the Social Interaction Scale developed by Nebras Mohammed Al-Murad, the study produced the following results:

- There is a high level of social interaction in children with Down syndrome.
- There are statistically significant differences in the level of social interaction in children with Down syndrome according to the age variable.

- There are no statistically significant differences in the level of social interaction in children with Down syndrome according to the gender variable.
- There are statistically significant differences in the level of social interaction in children with Down syndrome according to the degree of disability.

Based on the above, the current study concludes with a set of recommendations and suggestions, which are summarised as follows:

- Allocate recreational sessions, motor activities, and group activities within the centres that integrate children with social interaction deficits.
- Develop therapeutic programs by psychological specialists and educators at the centre aimed at enhancing the social skills and various abilities of children with Down syndrome.
- Pay more attention to activities involving games, as they ensure emotional release, enable behaviour modification, and provide opportunities for self-expression among peers and family.

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