

Mothers' Practice of Social and Cognitive Skills with Children with Down syndrome

Belgrainet Mokhtaria¹, Dr. Ben Maachou Mehaji²

¹Academic degree: PhD student, Research Laboratory: (Development) Laboratory for Research in Social and Human Sciences, Institution of Affiliation: Dr. Moulay Tahar University Saida (Algeria).

²Institution of Affiliation: Dr. Moulay Tahar University Saida (Algeria).

The Author's E-mail: belgrainetmokhtaria@gmail.com¹, mehadji.benmaachou@univ-saida.dz²

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Abstract:

This study aims to measure the degree of practice of social and cognitive skills with children with Down syndrome by their mothers and to measure the differences between the members of the sample attributed to the variables (economic status and educational level). To achieve the objectives of the study, a questionnaire has been designed, and the descriptive approach has been used. The study sample consists of (42) mothers of children with Down syndrome whose children were enrolled in the psychological and pedagogical centers (1), (2) and (3) in the Wilaya of Saida, Algeria. The results of the study revealed that there is a low degree of practice of social and cognitive skills with children with Down syndrome by their mothers. The results also showed that there are statistically significant differences in the practice of social and cognitive skills with children with Down syndrome by their mothers attributed to the variable of economic status and in favor of those with low income. There are also statistically significant differences in the practice of social and cognitive skills with children with Down syndrome by their mothers attributed to the variable of educational level and in favor of the secondary education level.

Keywords: Social Skills, Cognitive Skills, Mothers of Children with Down Syndrome, Down Syndrome Children

Introduction:

Addressing the needs of children with intellectual disabilities, particularly those with Down syndrome, represents a significant social and ethical obligation. These children require comprehensive support in the development of their social and cognitive skills, particularly during early childhood, as such interventions are critical to their psychological adaptation and social integration.

1. Problem Statement and Research Questions:

Parental care for children with Down syndrome presents substantial psychological and social challenges for families in both Arab and Western contexts. Children with Down syndrome often exhibit deficits in social and cognitive skills, along with verbal and non-verbal communication difficulties, resulting from intellectual impairments that limit their ability to adapt and engage in social interactions. These challenges frequently evoke anxiety and uncertainty among families regarding how best to equip their children with the essential skills required for daily life.

Extensive research has demonstrated that deficits in social and cognitive skills are correlated with various psychological difficulties experienced by mothers, including feelings of shame, guilt, and social withdrawal. **Lourdes et al. (2017)** observed that the social stigma associated with raising a child with Down syndrome significantly impacts the family's capacity to foster the development of social and cognitive skills, which are essential for the well-being of both the child and the family. Furthermore, **Alexandre et al. (2023)** emphasized that enhancing social skills in children with Down syndrome can alleviate psychological distress and contribute to the development of a range of adaptive skills, ultimately enabling these children to realize their potential and live harmoniously within society.

Mothers' engagement in social, cognitive, and emotional communication with their children has been shown to significantly enhance their children's cognitive abilities, promoting greater social interaction and integration. Moreover, cognitive skill development facilitates the organization of thought processes and adaptive behaviors in these children. **Saada and Al-Samadi (2018)** demonstrated that high-quality parental care for intellectually disabled children during early childhood positively influences their psychological, social, educational, and cognitive adjustment.

Clearly, children with Down syndrome require substantial psychological and social support from their families. The family unit, as the primary social institution, plays a crucial role in imparting values, attitudes, and behaviors that are socially acceptable. By enhancing their awareness of their child's unique needs and characteristics, families can more effectively engage in parental practices that promote the development of social, cognitive, and behavioral skills. These practices are instrumental in shaping the child's personality, enhancing cognitive abilities, and facilitating social integration. Based on these considerations, the study seeks to address the following central research question:

1. To what extent do mothers of children with Down syndrome engage in the practice of social and cognitive skills with their children?

– Sub-Questions:

1.1. Are there statistically significant differences in the practice of social and cognitive skills among mothers of children with Down syndrome that can be attributed to socioeconomic status (high income, middle income, low income)?

1.2. Are there statistically significant differences in the practice of social and cognitive skills among mothers of children with Down syndrome that can be attributed to educational level (primary, middle, secondary)?

2. Research Hypotheses:

2.1. General

Hypothesis:

Mothers of children with Down syndrome engage in the practice of social and cognitive skills with their children to a moderate degree.

2.2. Sub-Hypotheses:

2.2.1. There are no statistically significant differences in the degree of social and cognitive skills practice among mothers of children with Down syndrome that can be attributed to socioeconomic status.

2.2.2. There are no statistically significant differences in the degree of social and cognitive skills practice among mothers of children with Down syndrome that can be attributed to educational level.

3. **Research Objectives:** In alignment with the study's problem statement and research questions, the primary objectives of this study are as follows:

- To assess the extent to which mothers of children with Down syndrome engage in social and cognitive skills practice with their children.
- To identify the differences in mothers' engagement in social and cognitive skills practice with their children, attributed to the variables of socioeconomic status and educational level.
- To leverage the findings of this study to design a family counseling program aimed at fostering effective parental skills among families of children with Down syndrome.

4. **Research Significance:**

- The paucity of research on the social and cognitive skill practices of mothers of children with Down syndrome within the local context underscores the importance of this study.
- The need to raise awareness among mothers about early intervention and the importance of nurturing social and cognitive skills in their children to facilitate their integration into society.
- The potential to derive evidence-based outcomes that can inform the development of positive strategies for enhancing social and cognitive skills among mothers of children with Down syndrome.
- This study offers a valuable contribution to the theoretical literature and empirical research in the field of special education.

5. **Operational Definitions of Variables :**

- **Social Skills:** Defined as socially endorsed behaviors and practices that families foster in children with Down syndrome to enable positive social interactions in everyday contexts. These skills are cultivated through techniques such as modeling and reinforcement, with their assessment quantified through standardized scores from the research instrument.
- **Cognitive Skills:** Pertaining to mental faculties associated with learning activities, including reading, writing, drawing, and educational gaming. These skills are imparted by families to their children with Down syndrome to enhance concept

comprehension and memory recall capabilities. Cognitive skills are quantified through standardized assessment scores.

- **Mothers of Children with Down Syndrome:** Down syndrome families refers to parents of children officially diagnosed with Down syndrome, classified as "trainable" and under care at designated psychological-pedagogical centers (1, 2, and 3) in Wilaya of Saida.
- **Children with Down Syndrome:** Children diagnosed with Down syndrome, aged 6 to 12 years, with IQs between 35 and 50. These children are classified as trainable and are attendees of the specified psychological-pedagogical centers in Wilaya of Saida.

6. Study Scope and Delimitations:

- **Temporal Delimitations:** The study was conducted in May 2023 and 2024.
- **Spatial Delimitations:** The research was confined to psychological-pedagogical centers (1, 2, and 3) in Wilaya of Saida.
- **Population Delimitations:** The sample consisted of 42 mothers of children with Down syndrome.

7. Theoretical Framework

7.1. Social Skills:

Social skills are integrative competencies encompassing cognitive, affective, and behavioral dimensions that conform to socially accepted norms. These skills facilitate effective interaction and social satisfaction across diverse social contexts (Shash, 2015).

7.2. Mechanisms for Enhancing Social Skills:

- **Observational Learning (Modeling):** Children with Down syndrome engage in behavioral acquisition through observational learning, a process that involves the replication of behaviors observed in others. This mechanism extends beyond new behavior acquisition to include the modification of pre-existing behaviors through exposure to varied stimuli (Al-Hazmi, 2012).
- **Behavioral Reinforcement:** Reinforcement is critical in operant conditioning, reinforcing behaviors either positively (e.g., rewards, praise) or negatively (e.g.,

avoidance of adverse stimuli). Both positive and negative reinforcement can be administered consciously or occur automatically as part of the individual's interaction with their environment (**Abu Saad & Al-Khatatneh, 2011**).

In summary, social skills are foundational to the psychosocial development of children with Down syndrome. They support adaptive functioning by promoting effective social engagement and participation, which contribute to their psychological well-being and social integration.

7.3. Cognitive Skills:

Cognitive skills refer to higher-order mental processes essential for learning, problem-solving, and adaptive functioning. These skills encompass domains such as attention, perception, and conceptual development (**Awad, 2021**).

7.4. Domains of Cognitive Skills:

- **Selective Attention:** Selective attention is a critical cognitive process that underpins the ability of children with intellectual disabilities to focus on relevant stimuli, facilitating skill acquisition and the development of adaptive behavioral responses (**Al-Hazmi, 2012.P, 321**).
- **Short-Term Memory:** Short-term memory capacity refers to the ability to retain and retrieve information over brief intervals, enabling children with intellectual disabilities to recall names, objects, and events within a short time frame (**Al-Hazmi, 2012.P, 137**).
- **Perceptual Processing:** Perception involves the cognitive interpretation of sensory stimuli, translating environmental inputs into neural representations. In children with intellectual disabilities, perceptual processing requires targeted cognitive interventions to enhance attention and cognitive engagement (**Al-Nawaisa & Al-Qatawneh, 2010.P, 177**).

Thus, Cognitive skills are integral to the cognitive development and adaptive functioning of children with Down syndrome. These skills underpin their capacity for environmental awareness, self-concept formation, and the achievement of psychological and social adjustment.

7.5. Down Syndrome:

Down syndrome is a neurodevelopmental disorder characterized by intellectual disability resulting from trisomy of chromosome 21. This genetic anomaly leads to the presence of 47 chromosomes, as opposed to the typical 46 (Badawi, 2021). Individuals with Down syndrome often exhibit phenotypic similarities, with characteristic facial features, and present with intellectual deficits that range in severity. Most individuals fall within an IQ range of 25 to 50, though a smaller subset may demonstrate IQ scores between 50 and 70 (Al-Jawalda, 2012.P,41).

In conclusion, children with Down syndrome exhibit not only distinct physical characteristics but also cognitive impairments that impact their ability to engage in daily life activities. These impairments affect their adaptive functioning across domains, including independent living, social interactions, and cognitive processing.

8. Field Study Procedures:

The field study procedures encompass the selection of the research methodology, sampling method, research instrument, application methodology, and statistical techniques for hypothesis testing.

8.1. Research Methodology:

This study adopts a descriptive approach, deemed appropriate due to its compatibility with the objectives and nature of the research.

8.2. Research Population and Sample:

The study population comprises mothers of children with Down syndrome attending psychological-pedagogical centers (1, 2, 3) in Wilaya of Saida. A simple random sampling method was used to select a sample of 42 mothers. The sample distribution across socioeconomic and educational variables is as follows:

Table (01): Sample Distribution by Socioeconomic Status and Educational Level

Sample		Frequency	Percentage
Socioeconomic Status	High Income	3	7.14%
	Medium Income	27	64.29%

	Low Income	12	28.57%
Educational Level	Primary	19	45.24%
	Middle	12	28.57%
	secondary	11	%26.19

8.3. Research Instrument:

Given the study's focus on measuring the social and cognitive skills practiced by mothers towards their children with Down syndrome, a scale was developed by the researchers. This scale was informed by prior studies closely aligned with the current research objectives, featuring 7 items on social skills and 8 items on cognitive skills, with response options ranging from 'very high' (1), 'moderate' (2), to 'low' (3).

8.4. Validity and Reliability of the Instrument:

- **Instrument Validity:**

- **Content Validity:** To ensure the instrument's validity, it was evaluated by three experts in psychology and educational sciences. They reviewed the scale's items for appropriateness, clarity, and suitability for the target group. Based on their feedback, linguistic modifications were made, and eight items were removed for lack of relevance. Approximately 80% of the experts agreed on the instrument's validity, retaining 15 items in its initial form.
- **Internal Consistency:** Pearson correlation coefficients were calculated between individual item scores and the total score to establish internal consistency. The results are displayed in Table (02).

Table (02): Pearson Correlation Coefficients for Internal Consistency

Item	Correlation Coefficient	Significance Level	Item	Correlation Coefficient	Significance Level
1	0.370*	0.05	9	0.421**	0.01
2	0.562**	0.01	10	0.342*	0.05
3	0.529**	0.01	11	0.604**	0.01
4	0.403**	0.01	12	0.502**	0.01
5	0.397*	0.05	13	0.548**	0.05
6	0.501**	0.01	14	0.467**	0.01
7	0.310*	0.05	15	0.489**	0.01

8	0.423**	0.01			
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Correlation values ranged from 0.310 to 0.604, all statistically significant between 0.05 and 0.01 levels, reinforcing the internal consistency of the instrument.

- **Reliability of the Instrument:**

- **Cronbach's Alpha:** The reliability of the scale was confirmed using Cronbach's alpha method.

Table (03): Cronbach's Alpha Reliability Result

Cronbach's Alpha	Number of Items
0.793	15

The Cronbach's alpha value of 0.793 indicates a high level of reliability, making the instrument suitable for the study's purposes.

8.5.Implementation Procedures:

Following the validation and reliability testing of the instrument, the researchers administered the questionnaire to the study sample, composed of mothers of children with Down syndrome enrolled in psychological-pedagogical centers (1, 2, and 3) in the Wilaya of Saida. A total of 54 questionnaires were distributed, and 42 completed questionnaires were returned. The collected data were subsequently analyzed using **SPSS version 22**.

8.9. Statistical Analysis:

To address the research hypotheses, the following statistical techniques were employed:

- **Mean:** To identify central tendencies within the data.
- **Standard Deviation:** To assess the degree of variability or dispersion.
- **One-Way Analysis of Variance (ANOVA):** To test for statistically significant differences between group means.

9. Results and Discussion

9.1.Results and Discussion of the General Hypothesis:

The general hypothesis posited that mothers of children with Down syndrome engage in social and cognitive skills development at a moderate level. To validate this hypothesis, arithmetic means and standard deviations were computed, alongside weighted averages for scoring levels categorized as low, moderate, and high.

Table 4: Descriptive Statistics for Social Skills Dimension

Social Skills	Mean Score	Standard Deviation	Practice Level
Focus on enhancing my child's relationship with siblings	1.29	0.636	Low
Equitable attention between my child with Down syndrome and other children	1.31	0.582	Low
Effective and positive communication with my child	1.38	0.582	Low
Inclusion of my child in errands	1.45	0.670	Low
Allocating time for play and outings	1.67	0.754	Moderate
Encouraging play with normal peers	1.64	0.821	Moderate
Teaching social manners like greeting	1.31	0.604	Low
Cognitive Skills	Mean Score	Standard Deviation	Practice Level
Monitoring language development	1.36	0.656	Low
Academic follow-up	1.74	0.885	Moderate
Training on organizational skills	1.79	0.813	Moderate
Adherence to educational staff advice	1.52	0.707	Low
Assisting with homework and daily lessons	1.88	0.832	Moderate
Understanding of cognitive characteristics	1.86	0.843	Moderate
Educating about environmental dangers (e.g., hot water, fire, electricity).	1.62	0.764	Low
Familiarizing with everyday objects(e.g., cabinets, TV, phone).	1.48	0.707	Low

The arithmetic means predominantly fall within the low range for the social skills dimension, as indicated by the data in Table 4. This outcome suggests a considerable deficiency in the engagement of families in cultivating essential social skills among children with Down syndrome. Key factors contributing to this deficiency include the inherent cognitive challenges that hinder social integration, compounded by familial guilt and societal stigma associated with intellectual disabilities. Additionally, a general lack of parental awareness regarding the specific social developmental needs of these children exacerbates this shortfall.

Moreover, the data reveals that some mothers employ overly protective parenting strategies motivated by concerns over bullying and societal exclusion due to the distinctive physical features of their children. Such protective behavior often leads to social isolation, as families may avoid public and social activities that are crucial for developing necessary social skills like forming peer relationships and interacting with extended family members. This avoidance can lead to further neglect by siblings and other family members.

Resilient families adeptly manage psychological pressures, maintaining autonomy and positivity in their lives and those of their children grounded in acceptance, love, respect, and contentment. This proactive engagement enhances the self-confidence of children with Down syndrome and facilitates the articulation of their abilities and potentials. Like all children, those with Down syndrome experience emotions and require comprehensive psychosocial support from their family members to thrive. Integrating these children into social settings not only promotes their personal development but also fosters a broader understanding of their capabilities within the family and the community.

Conversely, the results for the cognitive skills dimension range from low to moderate levels, indicating that mothers are actively attempting to instill fundamental cognitive abilities in their children. These skills include object recognition, memory enhancement, and attention to detail, which foster greater independence and reduce dependency on caregivers. For instance, mothers encourage their children to manage personal belongings and engage in educational activities, which are essential for building self-reliance and facilitating cognitive development.

These efforts are in line with findings from Semona de Falco (2010), which highlighted the importance of symbolic and interactive play in cognitive development. Such activities not only advance cognitive skills but also promote socially acceptable behaviors. The use of modeling and reinforcement techniques by parents plays a pivotal role in this developmental process, as it helps establish a robust social framework that is critical for cognitive growth.

9.2. Results and Discussion of the First Sub-Hypothesis:

The first sub-hypothesis stated that there are no statistically significant differences in the social and cognitive skills practiced by mothers of children with Down syndrome based on their socioeconomic status (high income, middle income, low income). To test this hypothesis,

a**One-Way Analysis of Variance (ANOVA) F test** was conducted to determine if there were significant differences among the groups. The results are presented in the following table:

Table 5: ANOVA Results for Socioeconomic Status (High Income, Middle Income, Low Income)

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F-Value	P -Value
Between Groups	488.617	2	244.309	7.327	0.02
Within Groups	1300.359	39	33.349		
Total	1788.976	41			

The results from Table 5 indicate that the p-value (0.02) is less than the significance level of 0.05. Therefore, the null hypothesis is rejected, and the alternative hypothesis is accepted, which states that **there are statistically significant differences** in the social and cognitive skills practiced by mothers of children with Down syndrome based on their economic status.

To further explore the direction of these differences, the **Scheffé post hoc test** was conducted, as shown in the following table:

Table 6: Scheffé Post Hoc Test for Differences in Social and Cognitive Skills by Socioeconomic Status

Socioeconomic Status Comparison	Mean Difference	Standard Error	Significance Level
High Income vs. Low Income	11.84615*	4.38590	0.010
Middle Income vs. Low Income	6.62393*	1.94929	0.002
High Income vs. Middle Income	5.22222	4.23157	0.225

*Significant at the 0.05 level

The Scheffé test results in Table 6 indicate that the significant differences in social and cognitive skill practices are in favor of mothers from the low-income group.

The findings suggest that mothers from low-income families show a significantly higher engagement in practicing social and cognitive skills with their children. This may be attributed to the increased psychological and social pressures faced by these families, as they contend with the financial burdens associated with raising a child with intellectual disabilities, particularly those with Down syndrome. The cost of medical care, including treatment for common congenital conditions such as heart defects, and associated disabilities (e.g., hearing, visual, or motor impairments), creates additional financial stress on these families.

Moreover, the social stigma surrounding intellectual disabilities often exacerbates these challenges. Families, particularly those with limited financial resources, may experience social isolation due to societal misconceptions that view disability as a form of punishment for parental wrongdoing. This stigma, along with instances of pity and bullying directed at their children, may lead families to withdraw from social life, further isolating the child.

9.3. Results and Discussion of the Second Sub-Hypothesis

The second sub-hypothesis posited that there are no statistically significant differences in the social and cognitive skills practices of mothers of children with Down syndrome based on their educational level (primary, middle, secondary). To evaluate this hypothesis, a One-Way Analysis of Variance (ANOVA) F test was conducted. The results are summarized in the following table:

Table 7: ANOVA Results by Educational Level (Primary, Middle, Secondary)

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F-Value	SignificanceLevel(P-value)
Between Groups	393.274	2	196.637	5.495	0.008
Within Groups	1395.702	39	35.787		
Total	1788.976	41	-		

Table 7 reveals a p-value of 0.008, which is below the significance level of 0.05. Therefore, the null hypothesis is rejected, indicating significant differences in social and cognitive skill practices based on educational level. To further identify the direction of these differences, a Scheffé post hoc test was performed, with results shown below:

Table 8: Scheffé Post Hoc Test for Educational Level Comparisons

Total Score	EducationalLevelComparison	MeanDifference	Standard Error	SignificanceLevel
Primary	Middle	131955	2.10708	0.535
	Secondary	788304*	2.42072	0.002
Middle	Primary	1.31955	2.10708	0.535
	Secondary	6.56349*	2.55589	0.014
Secondary	Primary	7.88304*	2.42072	0.002
	Middle	6.56349*	2.55589	0.014

The findings in Table 7 demonstrate that educational level significantly influences the practice of social and cognitive skills among mothers of children with Down syndrome, with those possessing a secondary education showing the most favorable outcomes. This suggests

that higher educational attainment enhances mothers' awareness and ability to acquire effective parenting skills. Despite the psychological challenges posed by intellectual disabilities, which can disrupt family stability, a higher level of education appears to enable mothers to better understand and support their children's development.

This highlights the necessity for strong awareness and psychological resilience within the family, as intellectual disabilities, such as Down syndrome, are lifelong conditions. Many mothers, particularly those in rural areas or of advanced age, face difficulties in engaging their children in daily activities, such as emotional play and social or cognitive interactions. In contrast, some mothers may overindulge their children, believing them to be too weak or incapable of developing necessary skills, thereby neglecting the need for training and encouragement.

These results differ from those of Al-Qatawneh's study, which found no statistically significant differences in the challenges faced by mothers of children with disabilities based on educational level. Al-Qatawneh attributed this to the overarching negative impact of social, economic, and psychological challenges on families with intellectually disabled children, regardless of the mothers' educational background.

Conclusion

The study's findings reveal that mothers of children with Down syndrome demonstrate a low level of engagement in fostering social skills and a moderate level in developing cognitive skills. Furthermore, the results indicate statistically significant differences in the practice of these skills based on socioeconomic status, favoring mothers from lower-income households. Additionally, significant differences were observed with respect to educational attainment, with mothers holding a secondary education exhibiting more effective practices.

These findings are concerning, as they suggest that children with Down syndrome are not receiving adequate support for their social and cognitive development. This is particularly troubling given the contemporary emphasis on the importance of training and integrating children with Down syndrome into society to alleviate psychological and social issues such as shyness, social withdrawal, isolation, aggression, and antisocial behavior.

It is imperative that families and social institutions implement targeted intervention programs aimed at educating and training not only mothers but also fathers, siblings, and other family members. These programs should be designed to enhance both social and

academic skills in children with Down syndrome, thereby better equipping them to cope with the challenges of daily life and the demands of their social environments.

Recommendations

- Strengthen the role of psychologists and social workers in delivering culturally relevant counseling and guidance to families.
- Develop and implement family counseling programs that promote effective parenting practices.
- Advocate for comprehensive health, educational, and vocational support for children with Down syndrome.
- Provide both moral and financial support to families of children with Down syndrome to alleviate the burdens associated with caregiving.

Suggestions for Future Research

- Investigate the relationship between parental social skills and the social adjustment of children with Down syndrome.
- Explore the impact of effective parenting practices on family stability among mothers of children with Down syndrome.

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