

# The Challenges Related to the Education, Physical, Job, and Future of Children with Down Syndrome

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**ABSTRACT:** Background and Aim: This study aimed to investigate the challenges related to education, physical, job, and future of children with Down syndrome. Method: In this study, qualitative phenomenological research was used to collect and evaluate information about identifying the problems of children with Down syndrome. Eleven participants who had experience living with a child with Down Syndrome were selected by purposive sampling. Data collection was continued through semi-structured interviews until the data reached saturation. Findings and Conclusion: The present study shows that multiple physical problems in children with Down syndrome, as well as periodic tests that must be repeated every 6 months, involve very high costs, and given that all families are insured. They do not have supplements or are not insured, and insurance bears part of these costs. Unfortunately, these families bear a significant financial burden. It shows that mothers are worried about their child's future careers and education. The mothers said that children with Down Syndrome, like other children, could attend regular schools because mothers considered their children to be gifted, adding that their children could do their homework and were concerned about the behavior of mothers of normal children. Their child was in class with Down Syndrome children.

**Keywords:** Down Syndrome, Physical Challenges, Academic Challenges, Job Challenges

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## INTRODUCTION

In today's world, the largest group of exceptional children with specific clinical symptoms are children with Down syndrome (Afrooz, 2008). Down syndrome is one of the most common Chromosoma causes of IQ (Speilman, 2013), with varying degrees of IQ from moderate to severe (Kaplan & Sadock, 2007). This syndrome is caused by three chromosomal abnormalities, including trisomy 21, Mosaicism, and chromosomal displacement (Farshbaf Khalili, Shahnazi, Hajizadeh, and Shakeri Khaniani, 2013). The most prominent signs of Down syndrome in children are general Hypotonia, oblique eyelid clefts, wrinkled neck skin, a small flat skull, bulging cheekbones, and a thick, broad tongue with no more than a transverse crease. And the little finger is short and bent outwards (Hallahan & Kauffman, 2003). Although children with Down syndrome have fewer problems than other children with disabilities, children with Down syndrome have more problems than normal children (Vanriper & Fidler, 2007).

These children, like other children, have a variety of behaviors and, like physical characteristics, specific behavioral characteristics can not be expressed to them, especially that individual differences, living conditions of the child, the behavior of parents and others, and physical-psychological changes of the child. At different stages of development is one of the most critical factors that affect their behavioral diversity (Afrooz, 2009). On the other hand, the family is an open and evolving system that constantly receives and gives data from outside and goes through development and transformation as an individual. The construction of the family must be able to adapt to changing conditions. Find and adjust to new situations (Minuchin 1994, Sanai, 2012).

### **Down syndrome**

The syndrome is named after an English physician called John Langdon Down, who first described the syndrome in 1866 (Wejerman, 2010). Dr. Down named them Mongols. But later, Asian geneticists objected to the naming, and the name was removed from all scientific literature and replaced with the term "Down." In 1959, Lijun first discovered that the cause of this disorder was a trisomy of chromosome 21 (Patterson, 2009). Down syndrome is a genetic disorder that leads to mild to moderate IQ in addition to a series of symptoms. People with Down syndrome have lower than average mental capacity, and a small number of people with Down syndrome have severe mental disabilities (Clark and Barbara, 2013).

Our average incidence of this syndrome is reported to be between 1 in 600 and 1 in 1,000 live births (Sherman, Allen, & Freeman, 2007). This rate is lower in young mothers and increases with increasing maternal age. However, about two-thirds of people with Down syndrome are born to mothers under 35. The incidence of Down syndrome is directly related to maternal age. The risk of having children with the syndrome is one in 1,500 at the age of thirty, one in 750 at the age of four, one in 280 at the age of thirty-five to thirty-nine, one in 130 at the age of forty to forty-four, and one in 65 at the age of forty-five. Morris and Aberman, 2002). A child born with Down Syndrome affects their family, school, medical community, social media, and the larger community (National Institutes of Health, 2011).

### **Types of Down Syndrome**

The human body cells have 23 chromosomes; down syndrome results from three abnormal cell divisions. These abnormal divisions give rise to extra genetic material on chromosome 21, creating three distinct types of Down syndrome: trisomy 21, mosaic, and Robertson's displacement. More than 90% of children with Down syndrome have trisomy 21. Instead of two copies, these children have three copies of chromosome 21 in all their cells. This problem is caused by abnormal cell division in the early stages of fetal development (Sherman, Allen & Freeman, 2007).

Down Mosaic Syndrome is a rare condition. According to the National Down Syndrome Society (2009), this type of Down syndrome occurs in only one or two percent of children with Down syndrome. Abnormal cell division after fertilization causes some (but not all) cells to have an extra copy of chromosome 21. Raertson Down Syndrome occurs in approximately 4% of patients. In this mechanism, two acrocentric chromosomes 1 (mid-pair) lose short arms, and their long arms are connected. In addition to these displaced chromosomes, these children have two other normal copies of chromosome 21. This type of Down syndrome is the only type inherited from parents, although only half of these children have a parent. In these cases, the parent is a healthy (phenotypically) Robertson-displaced pregnancy with no signs or symptoms; In other words, their genetic material is reorganized, but they do not have extra chromosomes. The risk of recurrence of the disorder, provided that one parent carries the translocation, is between 10 and 25 percent (Bansal, Suresh & Jagadeesh, 2010).

Ranweler (2009), from a nurse's perspective, has published guidelines for families with a child with Down Syndrome: All families with a child with Down Syndrome should receive genetic counseling to determine the chromosomal cause and probability of occurrence. Find out again. The genetic counselor can also determine if other family members may be at risk for having a child with Down syndrome or miscarriage (because of the possibility of inheriting the disorder).

**Risk factors.** Three main factors have been identified as factors that increase the risk of Down syndrome.

**Increasing the mother's age:** At the age of 35, the probability of a mother giving birth to a child with Down syndrome is 1 in 385. At the age of 40, this ratio becomes 1 in 106, and at the age of 45 this ratio becomes 1 in 30.

**Mothers who have a child with Down syndrome** are 1 percent more likely than other mothers to have their next child with the disorder.

**Genetic factors:** As mentioned above, parents who carry a transplant are more likely to have Down Syndrome in the future.

Although trisomy 21 is more likely to occur in pregnancies over 35 years of age, due to the high prevalence of pregnancies under 35 years of age, 70% of children with Down syndrome belong to mothers under 35 years of age, so some specialists recommend full screening. Pregnant women have been considered essential (Ibn & Glavitz, 2005).

#### Problems with Down Syndrome

In addition to intellectual disabilities, children with Down syndrome are at risk for many other problems (National Society for Down Syndrome, 2009). About half of all children with Down syndrome are born with some degree of heart defect. Children with Down syndrome are more likely to develop leukemia. Due to abnormalities in the immune system of these children, they are more likely to develop infectious diseases, especially pneumonia. Gastrointestinal obstruction may also occur. In one case, the duodenal membrane may become completely blocked, leading to duodenal obstruction; Or it may not be blocked entirely, leading to duodenal stenosis. Approximately one-third of children diagnosed with duodenal stenosis may also have Down syndrome (Freeman, Torfs, Romitti, Royle & Hobbs, 2009).

A study of 1892 children with Down syndrome showed that 6.7% had congenital gastrointestinal defects. Defects include esophageal atresia, tracheoesophageal fistula (4%), pyloric stenosis (3%), duodenal stenosis or obstruction (3.9%), Hirschsprung's disease (0.8%), and anal stenosis or obstruction (0.1). (Freeman et al., 2009).

#### Health risks to children with Down syndrome

Three-quarters of fetuses diagnosed with Down syndrome have a miscarriage or stillbirth, and 40% of them are born with Down syndrome and have congenital heart disease that affects children under 5 years of age. They die due to infection. Those who survive from the age of 5 survive an average of 45 years. 20% of children with Down syndrome die within the first ten years of life (Ranweler, 2009).

Other problems associated with Down syndrome include thyroid problems and hearing and vision problems. People with Down syndrome are more likely to develop dementia at an earlier age than the general population, sometimes before the age of 40. 49.8% of children with Down syndrome are hospitalized during the first three years of life. Down syndrome alone carries a significant risk of being hospitalized, at least in the early years of life. Down syndrome is broader than developmental delays. Therefore the care system for these children and their families must consider the age of these children and the nature of the syndrome, the accompanying physical problems that require hospitalization. Although over the past 50 years, we have been mainly confident that these children will survive. Despite their difficult early years, we now have to help them and their families with the many severe physical problems that children with Down Syndrome experience (Su So, Urbano & Hodapp, 2007).

#### Diagnosis of Down syndrome

Researchers are developing safer and better tests for the prenatal period to diagnose Down syndrome in the fetus. The current view of the National Down Syndrome Society (2010) on prenatal tests is: "Current tests because they do not provide a definitive result of Down Syndrome, create a dilemma for predisposed couples. Siknam and Stanford University have made advances in blood testing. 25% of physicians believe that when explaining the results of these tests to couples, we should emphasize negative information or actively persuade couples to have an abortion. However, policymakers in the National Down Syndrome Society, health care professionals, and the Down Syndrome community must work together to ensure that couples are not pressured to have an abortion after receiving the Down Syndrome test results. Instead, couples need to be provided with accurate and balanced information to make informed decisions (National Society for Down Syndrome, 2009). The only way to prevent the birth of babies with chromosomal abnormalities in prenatal diagnosis. These disorders are now diagnosed by screening tests that are part of prenatal care worldwide. Prenatal screening programs identify women at high risk for giving birth to a fetus with trisomy 21 or another primary chromosomal abnormality (Wild, Winer & Peters, 2011).

Maternal serum markers can be used to reliably differentiate pregnancies with fetuses with trisomy 21 from non-pregnant pregnancies. This is done between 11-14 weeks of gestation as dual tests and between 15-20 weeks as triple tests (Cunningham, Leveno & Bloom, 2010). The protocols currently in use include serum marker screening, ultrasound examination, or a combination of the two. For this purpose, screening in the first trimester of pregnancy includes pregnancy-related plasma protein A, free beta-subunit related to human chorionic gonadotropin and cervical trans lucination, and screening in the second trimester of pregnancy provides alpha chorionic gonadotropin beta subunit and estradiol, non-cenzoin. (Conjugate et al., 2010). In addition to trisomy 21, trisomy 13 and 18 are also detected by screening in the first trimester of pregnancy (Nicolaidis, Spencer, Avgidou, Failola & Falcan, 2005). Screening tests place mothers in three groups in terms of risk. After measuring biochemical markers and ultrasound, the first group is those in the high-risk group. These women are recommended to perform invasive diagnostic tests such as amniocentesis or chorionic villus sampling and embryonic tissues. Perform karyotypes. The second group is low-risk people who do not need any other tests, and the last group is medium-risk women who need to have difficulties in the second trimester of pregnancy. A positive Down Syndrome screening test indicates an increased risk but is not diagnostic for Down Syndrome or other aneuploidies. Therefore, according to the American College of

Obstetricians and Gynecologists, women who test positive for screening should be advised to undergo amniocentesis to determine the karyotype of the fetus (Cunningham et al., 2010).

#### Symptoms of Down syndrome

Signs and symptoms of Down syndrome vary from child to child. Some may have severe symptoms, while others may have milder symptoms. There are about 100 features identified for people with Down syndrome.

Some of the most common problems in children with Down syndrome are:

### Physical characteristics

1. Eyes: The eyes are upward or oblique, accompanied by small folds of skin in the inner corners of the eyes. The outer margin of the iris may lighten with colored dots. Light refraction errors are a characteristic of sufferers. The eyes are close together. The eyeball is small, and the eyelids are narrow. Visual problems occur in 38 to 80% of cases. Between 20 and 50 percent have strabismus in which the two eyes do not move together (Wiegerman and Winter, 2010). Cataracts occur in 15% and may be present at birth (Kligman and Robert, 2011). Keratoconus (thin, conical cornea) and glaucoma (increased eye pressure) are typical. Also, refractive errors require glasses (Malt, Dal, Hagsand, Olustad, Torres & Davieson, 2013). Brushfield spots (tiny white or gray/brown spots on the outside of the iris) are present in 38 to 85% of people (Weijerman & Winter, 2010).

2. Ears: The ears, especially earlobes, are usually small. The soft tissue of the ear is joined to the ear, and the ear looks round. The upper edge of the soft may be overly folded. Hearing problems are seen in 50 to 90% of children with Down syndrome (Rodman & Pine, 2012). This is often the result of otitis media, with effusions occurring in the 50s and 70s and chronic ear infections occurring in the 40s and 60s (Evans & Martin, 2009). Ear infections often begin in the first year of life and are partly due to poor Eustachian tube function. Even mild hearing loss can have negative consequences for speech and language comprehension. In addition, it is essential to rule out hearing loss as a factor in social and cognitive decline. Age-related hearing loss of an allergic-type occurs much earlier in life. It affects people with Down syndrome (Malt et al., 2013).

3. Mouth: Although the size of a child's tongue is normal because the mouth is relatively small and the roof is short, its muscle tone is weak, causing the child's tongue to come out of the mouth intermittently. In older children, the tongue becomes grooved. The person breathes through the mouth and increases their susceptibility to respiratory infections (Dean, Raiph, Mc Donald, Avery, Jeffrey & David, 2004).

4. Teeth: Tooth growth and germination are delayed, and teeth may be small and abnormal. One or two teeth may be lost, and even with strict dental hygiene, these children may develop inflammation and indentation of the gums and lose their teeth as they grow. People with Down syndrome are more prone to gum disease. Research shows that its severity is probably the result of a weak immune system, and a weak immune system also helps increase the incidence of yeast infections in the mouth (Dean et al., 2004).

People with Down syndrome also tend to have more alkaline saliva, which leads to greater resistance to tooth decay. Oral hygiene habits are less effective despite decreased saliva levels, and plaque indexes are higher. Down syndrome's other common oral manifestations include the enlarged hypotonic tongue, scaly lips, and narrow palate with crowded teeth. The teeth also have shorter roots (Carranza, Michae, Newman, Henry & Pery, 2006).

4. Fertility: Men with Down syndrome usually do not have children, while women have lower fertility rates than ineffective ones. It is estimated that fertility occurs in 30 to 50% of women. Menopause usually occurs at a younger age. Poor fertility in men is thought to be due to sperm growth problems. However, this may also be related to sexual inactivity. Since 2006, three men with Down Syndrome and 26 women with children have been reported. Without assisted reproductive technologies, almost half of the children with Down syndrome also have the syndrome (Howardner, Williams & Wilkins, 2013).

Endocrine glands: Thyroid problems occur in 20 to 50% of people with Down syndrome. An underactive thyroid is the most common form, occurring in about half of people. Thyroid problems can be caused by poor thyroid function or function at birth (known as congenital hypothyroidism), which occurs in 1%, or can be caused later by an attack on the thyroid by the immune system. Lead to Graves' disease, or autoimmune hypothyroidism is common in type 1 diabetes (Rapaport, Costin & Regelman, 2012).

7. Cancer: Although the overall risk of cancer in the DS has not changed, the risk of testicular cancer and some blood cancers, including acute lymphoblastic leukemia and acute megakaryoblastic leukemia, is increased while the risk of other non-blood cancers is higher. People with DS are believed to have an increased risk of developing cancers derived from germ cells, whether blood or non-blood cancers (Richard, 2010).

### General characteristics

Mental retardation is a significant feature of Down syndrome. Most people with this syndrome have moderate to severe mental retardation, and some of them have an IQ above 50, and their mental development seems normal from birth to six months. In Down syndrome, language function is one of the relative weaknesses. Social skills such as interpersonal cooperation and adaptation to social rules are among the strengths of these people. Down syndrome is relatively easy to diagnose in older children but is often difficult in infants. The most important symptoms in a baby are general hypotension, oblique eyelid clefts, wrinkled neck skin and large surface area, small, flat skull, protruding cheekbones, and tongue protruding from the mouth, and hands wide and thick. The creases are transverse (the little finger is short and curved inward). According to most sources, children with Down syndrome are cheerful, calm, and down-to-earth and easily adapt at home, but this seems to be the case. Clinically change during adolescence. Adolescents with the disorder may develop various emotional problems, behavioral disorders, and, rarely, psychotic disorders (Kaplan and Zadok, 2010).

### **1. Attention problems**

People with Down syndrome can also have ADHD but should be evaluated based on age, attention span, and impulsivity, and not just chronological age. Using parent-teacher assessment scales such as Vanderbilt and Converse Parents can be helpful in diagnosis. Anxiety disorders, language processing problems, and hearing loss can also appear as attention-grabbing problems. It is difficult for children with Down Syndrome to pay attention and maintain attention, especially in the classroom. For children to pay enough attention in school, they must have a healthy sense of sight and hearing. While vision and hearing problems are common in children with Down syndrome, a child with the syndrome should be evaluated for vision and hearing once a year from the earliest years of life (Dianne, 1998).

#### **2. Behavioral problems in children with Down syndrome**

One of the biggest causes of behavioral problems in people with Down Syndrome is their inability to socialize the skills they suffer from due to pathological problems. Lack of proper communication with peers and low self-esteem are other problems of these people (Lott & Diersson, 2010).

It also seems that people with Down syndrome, despite physical problems, suffer from other problems, the most important of which are externalized problems in these children. There are now various classifications for problems and behavioral problems in children. Classifying childhood problems into internalized and externalized problems is one of the most widespread and widely used classifications of childhood disorders (Guidetti, Franciosi, Gallotta & Bardly, 2010).

In the definition of children's behavioral problems, those behaviors are considered abnormal that, while not appropriate for age, are severe, chronic, or externalized problems, such as antagonism, conflict, and aggression. Regarding the etiology of these problems, several factors such as the inability of parents to manage child behavior and negative parent-child interaction have been mentioned. These children also experience high social problems, including less social contact with their healthy peers, which leads to the loss of the opportunity to learn the social skills necessary to communicate appropriately and effectively in society. Using a child behavior checklist in a sample of children and adolescents with Down syndrome, a high rate of disobedience (74%) and stubbornness (79%) was reported. In addition, violence and aggression were high concerning other extracorporeal behaviors and had an upward trend in childhood and adolescence (Muhata die, Zhau, Eiseberg & Wang, 2013). Many people with Down syndrome are exposed to maladaptive and challenging behaviors, despite having some basic abilities to adapt to society (Vangameren, Oosterom & Mohangoo, 2013). It is estimated that approximately one-third of children with Down syndrome have maladaptive behaviors. In addition to the challenges associated with maladaptive behavior, children with Down syndrome face severe conflicts with the dimensions of adaptive functioning or the ability to participate in daily activities. They take responsibility, including conceptual, practical, and social skills (Jacola, Hicky, How, Esbensen & Shear, 2014).

Similar findings have been reported in other examples of children with Down syndrome, where arguing, stubbornness, and disobedience have been reported. The primary source of low-level aggressive behaviors, maternal mood, and sensitivity, withdrawal, and isolation is another common non-adaptive behavior that is seen as problematic behavior in children with Down syndrome. Isolation, rather than being a social issue in children with Down Syndrome, is more of a concern for adolescents. Adolescents with Down syndrome have a higher rate of social isolation and prefer to be alone more than children with Down syndrome. It is one of the most common problems in Down syndrome that both children and adolescents have at home, and Social environments have problems in this area. Due to this issue, the need to recognize and treat externalization problems, including behavioral problems in children with Down syndrome, is evident. These disorders lead to dysfunction in various contexts, including academic and family contexts, which ultimately lead to academic failure or delinquent behaviors (Ekstein, Glick, Weill & Kay, 2011).

#### **Challenges of children with Down syndrome**

Many children who go to occupational therapy clinics, such as children with Down syndrome, experience lifelong developmental problems. Although a lot of research and studies have been done to identify and solve these problems in the form of treatment, education, and rehabilitation solutions, it does not mean that all the problems of these people can be identified in advance and a suitable program can be implemented for it (Smith, Cas & Humphry, 2005). Numerous factors can affect these people and their families and thus make their problems specific, specific and at the same time diversified. These factors can be divided into two levels: individual and environmental.

At the individual level: Personal and family factors such as the degree of physical and mental disorders, the presence of individual and family depression, and differences in emotional levels can be identified.

Environmental level: Factors such as parents' jobs and living in a busy environment can be mentioned. In addition, the parents' potential to get to know and work with the child and follow up on his treatment is different. Combining these various factors requires other treatment methods according to the specific treatment needs following individuals' problems and individual differences. Because the family is faced with many influencing factors, specialists may be able to identify and address only a few issues in the child. Instead, many issues remain unknown or unanswered. Involvement of the family itself can help solve this problem due to the vastness and awareness that surrounds the child's condition and the family unit. Thus the family plays a significant role in setting goals and planning treatment. This treatment approach forms the core of family-centered therapies (Cooper, Hoeldampf & Watson, 2010).

### **Potential treatment options for mental retardation in Down syndrome**

Many studies in the first decade of life have shown that even DS children who grew up at home have a gradual, almost linear, decline in their IQ starting from the first year of life. Compared with phenylalanine toxicity in patients with phenylketonuria, mental retardation in DS may also have a metabolic origin. It has been suggested that the metabolism of sulfur amino acids in the brain can lead to the production of the toxic compound hydrogen sulfide (Kamoun, 2001).

### **Two methods are used to reduce the toxicity of hydrogen sulfide in the CNS:**

- A) Control the production of hydrogen sulfide with specific CBS inhibitors
- B) The use of hydrogen sulfide depleting agents

In both cases, the chemicals must cross the blood-brain barrier to target the level of hydrogen sulfide in the brain (Dual, Qin & Jiang, 2018).

## **RESEARCH METHOD**

The method of this research is phenomenological. Phenomenology is, in fact, one of the qualitative study methods that often depicts the experiences, way of thinking, and attitude. In a word, the inner and mental world of people and the researcher without interpreting and interfering with mental assumptions about That person or phenomenon experienced (studied) moves from objectivity to increasing abstraction (Safaei, 1389; quoted by Toulabi and Ghanbari, 1394) and seeks to answer the question that the structure and nature of the experience of a phenomenon by people What is? And it is believed that beyond the various descriptions of reality offered by people who have experienced the phenomenon, there is a fundamental structure or common nature that can be discovered and linked throughout the research process. (Swanson, 2007).

In this study, the in-depth interview method was used due to the nature of the work. The value of this interview method is its flexibility, as it allows the interviewee's insights and perspectives to be understood (Strauss, Anselm, Karbin & Juliet, 2012). Of course, it should be noted that research tools in a qualitative approach are not the same as quantitative research.

### **Challenges arising from the child's physical condition**

Down Syndrome is a condition that can affect any aspect of a child's development, and the extent of its impact depends on the person's overall structure. Children with Down Syndrome show great abilities in physical, mental, and behavioral development at birth. , But some traits remain the same throughout the lives of these children. But some other features require timely and continuous care, treatment, and training.

Number	No.	Mother's age	Number of children	The age of the child
1	Participant 1	40	3	3 years and 2 months
2	Participant 2	39	2	14 years
3	Participant 3	34	2	4 years
4	Participant 4	26	1	3 years
5	Participant 5	36	2	4 years and 3 months
6	Participant 6	29	2	3 years
7	Participant 7	38	2	3 years
8	Participant 8	39	3	3 years and 10 months
9	Participant 9	45	2	7 years
10	Participant 10	47	2	13 years
11	Participant 11	29	2	8 years

Physical problems associated with Down syndrome

Children with Down Syndrome are often born with physical problems such as thyroid, congenital heart problems, delayed movement, stuttering, etc. In general, these children should be checked for health every 6 months. In addition to the syndrome, they have other physical problems and incur high medical costs.

"Thank God Participant 2 has no other problem than Down's problem. I started taking Maedeh to their special classes when I was about 3 years old. She had speech therapy, but her speech was good, and she did not have many problems" (Participant No. 2).

"Participant 3 does not have any particular disease. Fortunately, only one of the arteries outside his heart was open, which was closed with angiography " (Participant No. 3).

Participant 10 also had a heart problem and underwent heart surgery twice. At one point, he developed severe respiratory allergies that nearly turned into asthma, and we had this problem for several years. But finally, we overcame all these problems (participant number 10).

"Praise be to God, there is no other problem, but echocardiography, thyroid examination, hearing examination, blood cell count, and EBR test are very important. These tests are performed every six months to a year" (Participant No. 6).

"All parts of his body are healthy, thank God, even after his birth, when he was checked. I had several check-ups and healthy sugar" (Participant No. 4)

"Anyway, these children have some physical problems; for example, they often have constipation. I have to pour olive oil on my navel and massage it constantly, or they have flat feet, and their legs are bent when standing. To solve this problem, you also need shoes. Most people have kidney problems. They should be checked regularly, but I have not had any problems so far. I have not had it yet. They have intestinal issues. We have heart and thyroid problems. Speech problems that he does not speak except for Mom and Dad, he does not walk independently at the moment, but so far he is mentally well. Still, a doctor ultimately disappointed me; he told me that as his mind gets bigger, he will stop having problems with this mountain. I am struggling, but we thank God, in any case, God willing and whatever it is, we are satisfied, but we will not stop educating and taking care of him until what happens "(Participant No. 7).

"Participant 8 has had heart surgery for 5 months, and her heart is working with batteries, and her thyroid is underactive, and she is taking levothyroxine pills" (Participant No. 8).

"At birth, he had heart failure and underwent 2 surgeries, and thank God there is no other problem. Periodic check-ups every 6 months" (Participant No. 1).

### Challenges Related to the Child's Education, Job, and Future

Another concern of all mothers, especially mothers with children with Down Syndrome, is their children's education and future careers. There are many factors in the type of education and how to replace young people with Down syndrome. But factors such as social skills, sensory and motor characteristics, physical condition, and attitude of the individual and family are more important than their interest and motivation.

Type of performance in education and occupation

Children with Down Syndrome, like other children, differ in their talents and abilities; they can walk, talk, learn essential life skills, and in some cases, go to school.

"At the moment, I do not worry about the day when it does not come. But I do not underestimate his education; I do not underestimate him.

"Honestly, I always think about it, but I do not conclude. I think about what he should do after finishing school and studying. He can have a career future with the things he learned in school, but Well, God enlightens his performance in high school, and he is always victorious "(Participant No. 2).

"I am perturbed about his future and his job" (participant number 11).

"I'm sure he will succeed both in school and at work, which should be our iron shoe, but I know he can" (Participant No. 6).

"I do not think at all I hope the best happens to him" (Participant No. 7).

"I was worried about him before, but since I see that his actions and behaviors have become very normal and his understanding of God and sugar has increased and that I see that people with Down syndrome can also have jobs if we teach them" (Company No. 8).

"No, I do not care, I rely on God. I am the end of positive thinking. There is nothing negative in me. Let's think about tomorrow" (Participant No. 9).

"Honestly, I learned not to look too far away. About work and marriage, and sometimes I think about it, especially when he loves his doll. I see the big downs. I can not imagine Fatima like that at all. I see sports and art for a loving wife "(Participant No. 5).

"I did not think about the job, but in any case, I want to learn a skill or a technical field so that it can be successful" (Participant No. 4).

"Unfortunately, recognizing their talents is not done well and is unkind" (Participant No. 1).

### Select the type of school

Unfortunately, according to the country's education system, children with Down Syndrome have to go to special schools, but abroad, like the rest of the students, they go to regular schools and have only one assistant teacher who teaches them in the early years. → Slow to not fall behind the class. Of course, in Iran, a small number of children with Down syndrome have attended regular schools with the continuous follow-up of their families. Children with Down syndrome who have a milder degree of retardation can participate in traditional schools. Because children with Down syndrome have a very high ability to imitate, and when they see anything, they immediately imitate. A Down Syndrome child can hear a variety of words and phrases and a variety of terms from other children when they attend regular school. He runs, plays with them, and because he imitates, he likes to reach out to them.

"Going to an exceptional school could have been a normal school, but with the advice of a better counselor, we knew it was an exceptional lamb" (Participant No. 2).

"Exceptional school goes" (participant number 11).

"I'm sure he can go to a normal school, but he'll go back to looking at people and seeing right" (Participant # 6).

"If it becomes normal, it will be great, but if not, I will find a good exceptional school, and I will try harder for its success" (Participant No. 8).

"This year, when he had to go to the first grade, thank God he took the test and went to a normal school" (Participant No. 9).

"This year, when he goes to preschool, thank God, we made a good decision, God willing, it will be the right decision, but I would like it to be normal" (Participant No. 5).

"I try my best to go to a regular and exceptional school. I feel that he has intelligence. He is no less than an ordinary child. They say that these children should not go to a normal school because other families complain. I do not know why these children are underestimated, both the people and the government. Number 4).

"Even in a regular class, one student has a score of twenty, and another student has a score below ten and has different intelligence and talent, but they study and live together. The same is true for children with Down Syndrome when the gamer was three years old. I went to Behzisti to get a card, and my goal was to find out how many children with Down Syndrome in the country tell me about Behzisti. At the age of six, I took Parnian to an IQ test, where we were told that Parnian had very mild Down Syndrome. During the school year, the inspector entered the school and was surprised to see Parnian in the classroom and asked the teacher about his presence. The teacher explained to them that Parnian had been accepted in the intelligence test and was able to study with normal children. The inspector had personally read my daughter's file and asked the teacher about my daughter's educational status And he had said that the level of learning of gamers is like normal children in the class. The next day, the school principal told me to take my daughter to the IQ test again so that other inspectors would not be surprised by Parnian's presence in regular schools. Finally, I took my daughter to the counseling center again, and the answer to the Parnian IQ test was estimated to be between 95 and 100. I told the school principal that my daughter's intelligence was enough to attend normal

schools, but what mattered to me was not my daughter's intelligence, but I liked her among children—study normally "(Participant No. 10).

## CONCLUSION

### Challenges related to the child's physical condition

The present study shows that the numerous physical problems of children with Down Syndrome, as well as the periodic tests that must be repeated every 6 months, involve very high costs, and given that not all families do not have supplementary insurance, Or they are not insured at all and insurance bears some of these costs. Unfortunately, these families suffer a lot of financial burdens. Some mothers stated that due to the financial pressure of the fathers, they work in different places, and the mothers work according to the issues and problems they have with these children. Rosin and Nancy (2003) research show that medical issues such as cardiovascular, respiratory, neurological, endocrine problems, etc. Medical referrals and multiple hospitalizations involve costs to the family. Also, Hemmati, Asadi, and Mirsapasi's (2005) research show that despite not being covered by the desired insurance, most families are willing to pay for the maintenance, education, and rehabilitation of their children. Richman, Corman, and Noonan (2007) examined the effects of factors such as stress, guilt, blame, low self-esteem, and costs on mental and physical health. They also concluded that the families were having difficulty finding issues such as finding a child care center, paying attention to other aspects of the family, and paying for medical, education, and treatment.

### Challenges Related to the Child's Education, Job, and Future

The above research shows that mothers are worried about their child's future careers and education. The mothers said that children with Down Syndrome, like other children, could attend regular schools because mothers considered their children to be gifted, adding that their children could do their homework and were concerned about the behavior of mothers of normal children. Their child was in class with Down Syndrome children. Another concern of mothers with Down Syndrome children is their future career. Can a child with Down Syndrome have a career future after graduation?

Some other mothers said they were not worried when they saw their child succeeding. In a study conducted by Mainz and Stanner (2009) in Canada, researchers explored parents' experiences. They showed that their parents are concerned about care services and need support services for their jobs. In Hemmati, Tajrishi, Rasafiani, Teymouri, Kooshesh, and Shirin Bayan (2013), research shows that social skills in adolescents with Down syndrome who study in regular schools compared to their counterparts who study in special schools - Have more suitable growth. Lodi (2002) stated that very few disabled people can attend regular schools due to negative attitudes and many limitations. The findings of this part of the study are consistent with the above research.

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