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## **The effectiveness of the educational program among caregivers of children with autism spectrum disorders**

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**Abstract**---Psychiatric disorders are one of the leading causes of disability worldwide, Autism spectrum disorder (ASD) is a “developmental disorder” that is marked by social communication and interaction difficulties, as well as repetitive or restricted activities and interests. The study aims to evaluate the effectiveness of educational program for caregivers of kids with Autism Spectrum Disorders and to assess the knowledge and attitude of caregivers. The current study has used a quasi-experimental design to determine the impact of an educational program among caregivers of children with ASD. Between the 1st of December 2021 and the 2nd of February 2022, this research has been carried out among the caregivers of children with the ASD in Iraq / Najaf, both in the rural and urban areas. A non-probability purposive sample of (52) caregivers were selected from the Imam Hussein Autism Center (IHAC) along with (37) and (15) samples from Imam Ali Institute in Najaf city. The caregivers between the ages of 27 and 36 (46.2%), female caregivers (61.5%) those who are graduated in institute and college (28.8 %) and those with secondary school (28.8 %) .They show that the overall assessment of the knowledge of the caregivers of kids with Autism Spectrum Disorders before applying the educational program is (fair) with mean of scores = 1.51. The caregiver, age, level of education, Training on autism spectrum disorder, job and residency were statistically significant while other parameters regarding socio-demographic characteristics of caregivers were not significant, in terms of knowledge skills. The educational programs should be designed to increase the parents’ knowledge about how to deal with their children and Providing scientific booklet, publication and journal about ASD.

**Keywords**---ASD, education program, caregivers, autism spectrum.

## Introduction

Autism spectrum disorder (ASD) is a developmental disorder marked by social communication and interaction difficulties, as well as repetitive or restricted activities and interests (1). Psychiatric disorders are one of the leading causes of disability worldwide, some children may differ markedly as they develop, whether that's because they avert eye contact or interactions with their families or other people, have a specific fascination with certain things, or become distant and socially inactive, well, it's possible that they have infantile autism (ali et al., 2019 and (3). Standardized screening for autism spectrum disorder at 18 and 24 months of age with ongoing developmental surveillance continues to be recommended in primary care (although it may be performed in other settings), because ASD is common, can be diagnosed as young as 18 months of age(4). Previous Pervasive Developmental Disorders, the autism spectrum now includes conditions such as Rett's disorder, childhood disintegrative disorder, and Asperger's disorder, this change aids in resolving issues that arose from attempting to discern between these sometimes-confusing conditions. Furthermore, there is a wide range of behaviors and limits among those diagnosed with autism, ranging from moderate to severe, which is easier to grasp along a continuum (5).

The etiology of autism was formerly debated, Brunno Bettelheim proposed a theory that blamed the condition on "refrigerator mothers" and absentee fathers, his theory was that women who were distant and unloving toward their children created an environment that aided in the development of ASD in their children, the burden and responsibility of an autism diagnosis was shifted to parenting approaches, with a focus on mothers as caretakers (6). Many comorbid conditions affect ASD patients, including anxiety, depression, ADHD, and behavioral problems, a total of 59 percent of children with ASD were noticed to have at least one comorbid psychiatric disorder (7). The global prevalence of ASD is approximately around 1%, while estimates in high-income nations are higher, although massive brain damage is not a characteristic of autism, post-mortem, neuroimaging, and electrophysiological studies have revealed modest morphological and functional changes (8). In 2018, it was predicted that one in every 44 children aged 8 have ASD, with prevalence and median age of diagnosis varying greatly between regions, while the general frequency of Although ASD was similar across races and ethnicities, Hispanic children were less likely to have it than White or Black children to be recognized as having ASD at certain sites (9).

There is strong evidence that the prevalence of ASD has increased around the world as diagnostic and screening procedures have improved, approximately 52 million people worldwide have been identified as being on the autism spectrum (10). Early intervention for children with autism improves child and family outcomes, and early intervention can maximize long-term outcomes; as a result, it is vital that parents learn about and access programs as soon as feasible (11). It is best practice to empower families of children with autism spectrum disorder through training and educations, parent education and training programs are offered all over the world, while little are known about the characteristics of these programs, as well as notably in nations outside the United States, the study methodologies and outcomes utilized to evaluate them (12). The needs to be a

greater understanding of autism. And the goal for individuals to be well-informed is that all individual of autistic children's families face a significant financial and intellectual burden, and the more uninformed they are, the greater the risk of incorrect diagnosis, making their child more challenging and resistant to therapy (10). Parental assistance and psychoeducational programs can help families satisfy their needs, caregivers want ASD education and information presented in a way that is targeted to their specific requirements and provides guidance on future steps, according to qualitative research on the requirements of parents when their child is diagnosed with ASD, Parent satisfaction with the ASD diagnostic process is impact by the quality of information and help provided during and after diagnosis (13). A broad educational approach is a crucial and liberating first step in guiding parents to acceptance and a recovery process with their child. This may be the sole or primary intervention available to families in low-resource settings (12)

## **Methodology**

### **Study Design**

The current research used a quasi-experimental design to determine the impact of an educational program among caregivers of children with ASD. Between the 1<sup>st</sup> of December 2021 and the 2<sup>nd</sup> of February 2022. This research was carried out among caregivers of children with ASD in Iraq / Najaf province.

### **Administrative Agreements and Ethical considerations**

The researcher gets permission from the Nursing Specialties Department at the University of Kufa - Faculty of Nursing. In addition, in order to implement the study questionnaire included in the current study, an official authorization from the Ministry of Planning / Central Council of Statistics was required. Another approval was received from the \*\*Imam Hussein Autism Center in Najaf province, as well as a third from the Imam Ali Institute in order to conduct interviews with caregivers .

### **The Setting of the Study**

At the Imam Hussein Autism Center and the Imam Ali Institute in Najaf (Iraq), the study was done among caregivers of children with ASD.

### **Study Sample**

A non-probability purposive sample of (52) caregivers were selected from Imam Hussein Autism Center (IHAC) was (37) and (15) sample from Imam Ali Institute in Najaf city.

### **The Study Instrument**

This tool consists of two parts:

- Part I: Socio-Demographic Data: A socio-demographic characteristics sheet consists of 13 items, which included the caregiver's (gender, age, level of education, number of family, marital status, participation in training sessions about ASD, job, residency area, Housing, physical diseases and psychiatric disorders).
- Part II: Parent Knowledge and attitude scale: In order to achieve present study objectives, an educational program constructed and based on the program also a questionnaire has been created and developed as an instrument for data collection. Previous studies, guidelines and books were used in development and construction of the educational program.

### **Rating and scoring**

Knowledge part of the study instrument consist of two types of questions: true-false questions (1,3,5,6,7,9,13,14,15,16) with two responses one correct and one incorrect responses, the correct response was coded with (2) points and the incorrect response coded with (1) point. and multiple-choice questions (2,4,8,10,11,12) with four responses one correct and three incorrect responses the correct response was coded with (2) points and the incorrect response coded with (1) point. Regarding attitude part used three-point Likert scale (agree, Uncertain, disagree) and scoring was (3) points for agree, (2) point for Uncertain and (1) point for disagree. In this study, when measuring knowledge of the caregivers, it is found that the MS: Mean of Scores was poor at  $MS = 1-1.33$  and fair at  $MS = 1.34-1.67$  while it considered good at  $MS \geq 1.68$ . While, in measuring attitude of the caregivers, it is found that the MS: Mean of Scores was poor at  $MS = 1-1.33$  and fair at  $MS = 1.34-2.66$  while it considered good at  $MS \geq 2.67$ . (14).

### **Reliability of the Study Instrument**

The questionnaire's content validity was assessed by a panel of (20) experts (with more than four years of experiences in the medical and nursering professions) who were consulted in order to assess the current study questionnaire for its competence, relevance, intelligibility, and clarity in achieving the chosen objectives. Hardcopies of the questionnaire were supplied to all experts, who were asked to assess them to determine the tool's content clarity and suitability.

### **Data collection**

The evidence was gathered by dividing the sample into groups and utilizing the designed questionnaire, as well as using the self-reporting technique with the care providers who were included in the study and the Arabic version of the questionnaire. The researcher then administered the questionnaire before and after the educational program, which was separated into four parts, one for each week of the program. After getting verbal consent from the carers to participate in the program and the caregivers answering the questionnaire before and after the program, the program will run for a month with each portion lasting one hour. The data collection process took place between 1<sup>st</sup> December and 2<sup>nd</sup> February, 2022.

## Results of the Study

### The Study Sample Demographic Data

| Demographic Data   | Rating And Intervals   | Freq. | %    |
|--------------------|------------------------|-------|------|
| Caregiver          | Father                 | 14    | 26.9 |
|                    | Mother                 | 32    | 61.5 |
|                    | Sister                 | 1     | 1.9  |
|                    | Others                 | 5     | 9.6  |
| Age                | <= 26                  | 9     | 17.3 |
|                    | 27 – 36                | 24    | 46.2 |
|                    | 37 – 46                | 11    | 21.2 |
|                    | 47+                    | 8     | 15.4 |
|                    | Mean                   | 34.83 |      |
|                    | Sd                     | 9.847 |      |
| Family member      | <= 3                   | 9     | 17.3 |
|                    | 4 – 6                  | 36    | 69.2 |
|                    | 7+                     | 7     | 13.5 |
| Marital Status     | Single                 | 3     | 5.8  |
|                    | Married                | 46    | 88.5 |
|                    | Divorced               | 2     | 3.8  |
|                    | Widowed                | 1     | 1.9  |
| Level Of education | Illiterate             | 1     | 1.9  |
|                    | Literate               | 7     | 13.5 |
|                    | Primary S.             | 7     | 13.5 |
|                    | Secondary S.           | 15    | 28.8 |
|                    | Institute              | 7     | 13.5 |
|                    | College/High Education | 15    | 28.8 |
| Training           | Not Once               | 40    | 76.9 |
|                    | Once                   | 5     | 9.6  |
|                    | Two Times              | 4     | 7.7  |
|                    | Three Or More          | 3     | 5.8  |
| Job                | Employed               | 26    | 50   |
|                    | Free Work              | 12    | 23.1 |
|                    | Unemployed             | 14    | 26.9 |
| Residency          | Urban                  | 48    | 92.3 |
|                    | Rural                  | 4     | 7.7  |
| House              | Freehold               | 31    | 59.6 |
|                    | Rental                 | 21    | 40.4 |
| Physical Diseases  | Yes                    | 8     | 15.4 |
|                    | No                     | 44    | 84.6 |
| psychiatric        | Yes                    | 5     | 9.6  |

|          |    |    |      |
|----------|----|----|------|
| Disorder | No | 47 | 90.4 |
|----------|----|----|------|

Table (4.1) provides the statistical distribution of the study sample based on the socio- demographic data, and it illustrates that the caregivers' subgroup has the highest percentage of: caregivers between the ages of 27 and 36 with percentage (46.2%), female caregivers with (61.5%) those who are graduated in institute and college with (28.8 %) and secondary school with (28.8 %) , those who are married with (88.5 %) ; those who are employed (50 %) ; those who live in urban areas (92.3 %) ; those who are freehold owning their houses with (59.6 %) ; those who were not trained for autism spectrum disorder with (76.9 %) ; those with no physical disease with (84.9 %) ; those with no psychiatric disorder (90.4 %) .

Table 4.2

The Assessment of the knowledge of caregivers of Kids with the ASD after applying the educational program

| Items                                                                                | Levels | Freq. | %     | MS.  | Asses. |
|--------------------------------------------------------------------------------------|--------|-------|-------|------|--------|
| 1. Autism spectrum disorder is developmental disability.                             | Fail   | 6     | 11.5  | 1.88 | Good   |
|                                                                                      | Pass   | 46    | 88.5  |      |        |
| 2. Who are more likely to develop autism spectrum disorder?                          | Fail   | 3     | 5.8   | 1.94 | Good   |
|                                                                                      | Pass   | 49    | 94.2  |      |        |
| 3. Autism spectrum disorder is always genetic.                                       | Fail   | 5     | 9.6   | 1.9  | Good   |
|                                                                                      | Pass   | 47    | 90.4  |      |        |
| 4. Which condition is also on the autism spectrum disorder?                          | Fail   | 19    | 36.5  | 1.63 | Fair   |
|                                                                                      | Pass   | 33    | 63.5  |      |        |
| 5. There are no treatment for autism spectrum disorder.                              | Fail   | 16    | 30.8  | 1.69 | Good   |
|                                                                                      | Pass   | 36    | 69.2  |      |        |
| 6. The ASD is the same in every child?                                               | Fail   | 2     | 3.8   | 1.96 | Good   |
|                                                                                      | Pass   | 50    | 96.2  |      |        |
| 7. There unknown causes of ASD.                                                      | Fail   | 3     | 5.8   | 1.94 | Good   |
|                                                                                      | Pass   | 49    | 94.2  |      |        |
| 8. According to CDC autism spectrum disorder on estimated has many births.           | Fail   | 19    | 36.5  | 1.63 | Fair   |
|                                                                                      | Pass   | 33    | 63.5  |      |        |
| 9. Do all children with ASD have same set of characteristics?                        | Fail   | 0     | 0.0   | 2    | Good   |
|                                                                                      | Pass   | 52    | 100.0 |      |        |
| 10. The ASD is developmental disorder that affect the normal functioning of the..... | Fail   | 1     | 1.9   | 1.98 | Good   |
|                                                                                      | Pass   | 51    | 98.1  |      |        |
| 11. Early signs of ASD include:                                                      | Fail   | 37    | 71.2  | 1.29 | Poor   |
|                                                                                      | Pass   | 15    | 28.8  |      |        |
| 12. ASD can be diagnosis as early as                                                 | Fail   | 20    | 38.5  | 1.62 | Fair   |
|                                                                                      | Pass   | 32    | 61.5  |      |        |
| 13. Do children with ASD have delayed language development?                          | Fail   | 2     | 3.8   | 1.96 | Good   |
|                                                                                      | Pass   | 50    | 96.2  |      |        |

|                                                                    |      |    |      |      |      |
|--------------------------------------------------------------------|------|----|------|------|------|
| 14. Children with the ASD prefer being alone?                      | Fail | 4  | 7.7  | 1.92 | Good |
|                                                                    | Pass | 48 | 92.3 |      |      |
| 15. The ASD is caused by emotional deprivation in early childhood? | Fail | 33 | 63.5 | 1.37 | Fair |
|                                                                    | Pass | 19 | 36.5 |      |      |
| 16. Is there currently cure for ASD?                               | Fail | 7  | 13.5 | 1.87 | Good |
|                                                                    | Pass | 45 | 86.5 |      |      |

Freq: Frequency; MS : Mean of Scores ; Poor : MS = 1-1.33 ; Fair : MS = 1.34-1.67 ; Good : MS  $\geq$  1.68.

Table (4.2) Presents the descriptive statistics and assessment of the knowledge of the caregivers of Kids with autism spectrum disorders after applying the educational program for the study subjects. This table confirms that the assessment (mean of scores) for the study subjects, it demonstrates that the assessment of the majority items is (good) for items number (1,2,3, 5,6,7,9,10,13,14,16), while it is considered (fair) for the items number (4, 8, 15) ; finally, it is considered (poor) for the item numbered (11) . This assessment is based on the statistical scoring system that demonstrates the total mean of scores equal or more than (1-1.33) as (poor); and those between (1.34-1.67) as (fair) , those with scores equal or more than (1.68) as (good).

Table 4.3

The Overall assessment of the knowledge of caregivers of kids with the ASD before and after applying the educational program

|           | Level | Freq. | %    | Ms.  | Asses. |
|-----------|-------|-------|------|------|--------|
| Pre-test  | Fail  | 19    | 36.5 | 1.51 | Fair   |
|           | Pass  | 33    | 63.5 |      |        |
| Post-test | Fail  | 0     | 0    | 1.78 | Good   |
|           | Pass  | 52    | 100  |      |        |

Freq: Frequency; MS: Mean of Scores; Poor: MS = 1-1.33; Fair: MS = 1.34-1.67; Good: MS  $\geq$  1.68

Table (4.3) gives the overall assessment (mean and ratio of scores) of assessment of the knowledge of the caregivers of kids with the ASD before and after applying the educational program for the study subjects. They show that the overall assessment of the knowledge of the caregivers of kids with Autism Spectrum Disorders before applying the educational program is (fair) with mean of scores = 1.51, while after applying the educational program it is considered of kids with the ASD before and after applying the educational program.

(good) with mean of scores = 1.78 .

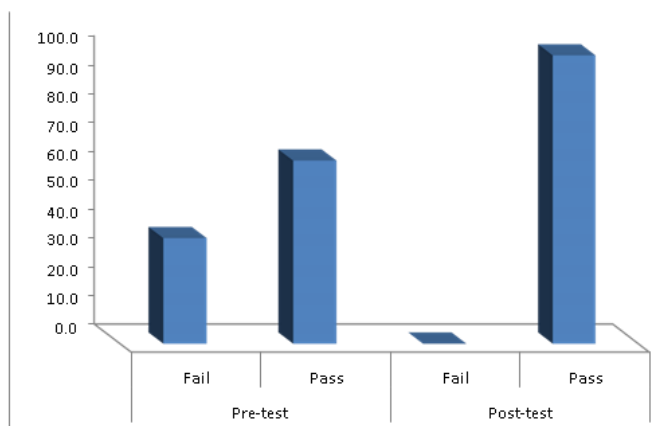


Figure (4.1) The Histogram of Overall assessment of the knowledge of caregivers

Figure (4.1) show the overall assessment of assessment of the knowledge of caregivers of kids with the ASD prior to and post applying the educational program for the study subjects.

Table 4.4

The Assessment of the attitude of caregivers of Kids with the ASD after applying the educational program

| Items                                                                                                                                                                  | Levels | Freq. | %    | MS.  | Asses. |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------|------|------|--------|
| 1-Do you think that children with autism spectrum disorder in reading, math, or writing expression is lower than expected for age, formal education, and intelligence? | 1      | 5     | 9.6  | 2.58 | Fair   |
|                                                                                                                                                                        | 2      | 12    | 23.1 |      |        |
|                                                                                                                                                                        | 3      | 35    | 67.3 |      |        |
| 2-Are you with the principle                                                                                                                                           | 1      | 2     | 3.8  | 2.83 | Good   |
| of reward and punishment for children with autism spectrum disorder?                                                                                                   | 2      | 5     | 9.6  |      |        |
|                                                                                                                                                                        | 3      | 45    | 86.5 |      |        |
| 3-Do you think the Picture Exchange Communication System for Autism Spectrum Disorder is effective?                                                                    | 1      | 5     | 9.6  | 2.75 | Good   |
|                                                                                                                                                                        | 2      | 3     | 5.8  |      |        |
|                                                                                                                                                                        | 3      | 44    | 84.6 |      |        |
| 4-Is music therapy one of the effective interventions for the treatment of autism spectrum disorder?                                                                   | 1      | 2     | 3.8  | 2.69 | Good   |
|                                                                                                                                                                        | 2      | 12    | 23.1 |      |        |
|                                                                                                                                                                        | 3      | 38    | 73.1 |      |        |
| 5-Do you think a gluten-free and casein-free diet affects children with autism spectrum disorder?                                                                      | 1      | 4     | 7.7  | 2.67 | Good   |
|                                                                                                                                                                        | 2      | 9     | 17.3 |      |        |
|                                                                                                                                                                        | 3      | 39    | 75   |      |        |

|                                                                                                                                                    |   |    |      |      |      |
|----------------------------------------------------------------------------------------------------------------------------------------------------|---|----|------|------|------|
| 6-Do you think that children with autism if they do not respond to their name, by the age of one year (for example, they do not seem to hear)      | 1 | 13 | 25   | 2.42 | Fair |
|                                                                                                                                                    | 2 | 4  | 7.7  |      |      |
|                                                                                                                                                    | 3 | 35 | 67.3 |      |      |
| 7-Do you think that a child with autism is upset by small changes in routine?                                                                      | 1 | 4  | 7.7  | 2.79 | Good |
|                                                                                                                                                    | 2 | 3  | 5.8  |      |      |
|                                                                                                                                                    | 3 | 45 | 86.5 |      |      |
| 8-One of the main signs of autism spectrum disorder, hands flapping or spinning in a circle and his answers have nothing to do with the questions? | 1 | 6  | 11.5 | 2.71 | Good |
|                                                                                                                                                    | 2 | 3  | 5.8  |      |      |
|                                                                                                                                                    | 3 | 43 | 82.7 |      |      |

Freq: Frequency; MS: Mean of Scores; Poor: MS = 1-1.33; Fair: MS = 1.34-2.66; Good: MS  $\geq$  2.67

Table (4.4) displays the descriptive statistics and assessment of the attitude of caregivers of Kids with the ASD after applying the educational program for the study subjects. This table shows that assessment (mean of scores) for the study subjects, it demonstrates that the assessment of the majority items is (good) for items numbered (2,3,4,5,7,8) while it is considered (poor) for the items numbered is zero ; finally, it is considered (fair) for the item numbered (1,6) . This assessment is based on the statistical scoring system that indicated total mean of scores equal and more than (1-1.33) as (poor) ; and those between (1.34-2.66) as (fair), those with scores equal and more than (2.67) as (good).

Table (4.5) Overall assessment of the attitude of caregivers of kids with Autism Spectrum Disorders before and after applying the educational program

|           | Level | Freq. | %     | Ms.  | Asses. |
|-----------|-------|-------|-------|------|--------|
| Pre-test  | 1     | 8     | 15.38 | 2.15 | Fair   |
|           | 2     | 23    | 44.23 |      |        |
|           | 3     | 21    | 40.38 |      |        |
| Post-test | 1     | 0     | 0     | 2.68 | Good   |
|           | 2     | 6     | 11.54 |      |        |
|           | 3     | 46    | 88.46 |      |        |

Freq: Frequency; MS: Mean of Scores; Poor: MS = 1-1.33; Fair: MS = 1.34-2.66; Good: MS  $\geq$  2.67

Table (4.5) provides the overall assessment (mean and ratio of scores) of assessment of the attitude of caregivers of kids with the ASD before and after applying the educational program for the study subjects. They affirm that the overall assessment of the attitude of the caregivers of kids with Autism Spectrum Disorders before applying the educational program is (fair) with mean of scores = 2.15, while after applying the educational program it is considered (good) with mean of scores = 2.68.

Table 4.6  
The Paired sample t-test table to evaluate the effectiveness of educational program  
for caregivers of kids with the ASD

|           |           | Number | Mean | SD.  | Df. | Sig.      |
|-----------|-----------|--------|------|------|-----|-----------|
| Knowledge | Pre-test  | 52     | 1.51 | 0.16 | 51  | 0.0001*** |
|           | Post-test | 52     | 1.79 | 0.11 |     |           |
| Attitude  | Pre-test  | 52     | 2.16 | 0.46 | 51  | 0.0001*** |
|           | Post-test | 52     | 2.68 | 0.29 |     |           |

\* Significant at  $P < 0.01$

Table (4.6) advances the effectiveness of the educational program for caregivers of kids with the ASD. It revealed that the program was effective in both Knowledge and Attitude at  $P < 0.01$ .

## Discussion

In comparison to pre-implementation, Table (4.2, 4.3) and Figure (4.1) assert that the caregivers of children with autism have a solid understanding of Autism after the educational program is implemented. It elucidates that an increasing of total score of caregivers after the educational program implementation (1.78) In comparison to the total mean scores prior to the educational program implementation (1.51). The current study illustrates that the caregivers scores according to their level of knowledge regarding autism post educational program implementation is good level as compared with pre educational program implementation. This finding is congruent with Keshk et al., (2020) reported that the post-test level of knowledge, and practice amongst principal caregivers of children with autism was significantly great ( $p < 0.0001$ ) when linked to the pre-test level. This study confirms that the improvement of total scores of caregiver's knowledges after the educational program implementation for their caregivers compared with total mean scores before educational program implementation.

These findings were contrast proposed that concentrated primary intervention can prime to better consequences for children with Autism. Also Developing results recommend that mothers may also help from their child's sharing in concentrated initial intervention lead to a positive result for greatest parents, including augmented parental skills, knowledge, and performance. This study is supported by Chavda and Singh, (2018) (15), who conducted a study entitled: "Intradialytic stretching exercises: A conservative way to reduce muscle cramps". The result of this study showed that the intradialytic stretching exercises enhance blood circulation, depression, and quality of life, in addition to physical function. Patients undergoing hemodialysis also can benefit from an intradialytic stretching exercise to avoid muscle cramps caused by fluid loss during the hemodialysis session. Also, other authors Salem and Elhadary, (2017) (16) conducted a study entitled: "Effectiveness of Intra-dialytic Stretching Exercises on Leg Muscle Cramp among Hemodialysis Patients" explained that there was a substantial difference in the severity and frequency of the study participants' leg cramps before and after applying leg stretching exercises, indicating that intra-dialytic stretching exercise

is an efficient method for improving leg muscle cramps among hemodialysis patients.

### **Discussion of the attitude of caregivers of Kids with autism spectrum disorders after applying the educational program**

Table (4.4, 4.5) assure that there is a good attitude of the caregivers of children with Autism after the implementation of educational program as compared with pre-implementation. It stipulates that there is an increase in the total scores of the caregivers after the educational program implementation (2.68) coupled with total mean scores before educational program implementation (2.15). This result comes along with Chandran et al. (2019) where after the video-assisted training, 51 (85%) of primary caregivers had a positive attitude, while the number of primary caregivers who had a negative attitude decreased to 9 (15 percent). The program was effective and will target the main parts of the education program.

### **Discussion the effectiveness of educational program for caregivers of kids with Autism Spectrum Disorders**

Table (4.6) of the statistical result (paired t-test) shows the effectiveness of educational program of knowledge and attitude for the caregiver of children with autism spectrum disorder was significant at  $P < 0.05$  (0.0001) through mean and standard deviation for pre and post-test. This result is consistent with that of Chiang (2014) who has examined the effectiveness of a parent education program for parents of Chinese American children with ASDs. Because caregivers among children with ASD intend to develop their knowledge and attitude about ASD to be able to deal with their children's needs in appropriate manner.

### **Conclusion**

Based on the study results and the discussion, the study confirms that the education program is effective and the knowledge and attitude of caregivers have increased. The caregiver's age, level of education, training about autism spectrum disorder, job and residency are statistically significant while other parameters regarding socio-demographic characteristics of caregivers are not significant, in relation to knowledge skills. Excepting the marital status, level of education, and job, most of the socio-demographic factors of autistic children had no impact on caregivers' attitudes. The caregivers were under the age of fifty, and greater than 50% of the caregivers' children were females. The highest percentage of the subjects were married, having a high degree of education and secondary school.

### **Financial Disclosure**

There is no financial disclosure.

### **Conflict of Interest**

None to declare.

## Ethical Clearance

All experimental protocols were approved under the University Of Kufa Faculty of Nursing and all experiments were carried out in accordance with approved guidelines.

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