

## The Association Between the Emotional Intelligence, Quality of Life and the Burden among Mothers of Children with Autism Spectrum Disorder

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### Abstract

**Introduction:** Autism Spectrum Disorder (ASD) is a chronic neurodevelopmental disorder with early developmental signs. Globally, about 1 of 68 children have been diagnosed with ASD. Parents of children with ASD face several challenges that can significantly affect their quality of life (QOL) and they must have an acceptable level of emotional intelligence to provide appropriate care. **Aim:** To evaluate the association between emotional intelligence, QOL, and the burden among mothers of children with ASD. **Methods:** Correlational descriptive design was used to recruit a convenience sample of 140 mothers of children with ASD, who were visiting the Psychiatric Health Hospital in Port Said, Egypt. Four tools were used to collect the data from the mothers, which are including sociodemographic sheet, burden assessment schedule (BAS), Wong and Law emotional intelligence scale (WLEIS), and world health organization QOL assessment-brief (WHOQOL-BREF). **Results:** The means for total scores ( $\pm$  SD) for the four tools were as follows: emotional intelligence scale ( $27.95 \pm 6.30$ ), WHOQOL-BREF ( $45.62 \pm 7.55$ ), and BAS ( $95.11 \pm 13.64$ ). The findings indicate a high positive correlation between mothers' emotional intelligence and QOL, and high negative correlation between mothers' emotional intelligence and burden scale, and a high negative correlation between mothers' QOL and burden scale. **Conclusion:** The emotional intelligence plays an important positive role in improving the burden level and QOL among the mothers of children with ASD. **Recommendation:** Continuing health education programs should be developed for mothers of children with ASD about the techniques for improving emotional intelligence to decrease burden level and improve their QOL

**Keywords:** *Burden level, Children with autism, Emotional intelligence, Mothers & Quality of life*

### Introduction

Autism Spectrum Disorder (ASD) is currently conceptualized as a neurodevelopmental disorder manifest in impaired social interaction and communication skills, as well as limited and repetitive behavioral patterns. Children with ASD also often have a higher verbal deficit than non-verbal skills and a deficit in their ability to use language functionally, which is detrimental to daily communication and social functioning (Christensen, 2016). Although the exact causes of ASD remain unknown, both environmental and genetic factors play a role. An estimated 3-6 per 1,000 children (aged under 16) worldwide have ASD, with four times more prevalence among boys. The number of children with autism in Egypt was estimated at 800,000 in 2017 according to the Ministry of Social Solidarity. One in every 160 children shows signs of having this mental condition (Masr, 2017). The burden of care is described as the psychological, emotional, social, and

economic difficulties faced by the caregiver of a mentally or physically ill person. Care is a stressful process for children with ASD and their parents, often requiring professional help. Mothers are the main caregivers of ASD children (Abdulla & Al Kurwi, 2020), with a lot of involvement and responsibility, but raising a child with ASD is a stressful event for parents and other family members (Ng et al., 2020). Mothers of children with ASD were found to feel more exhausted, spend more time providing childcare and homework, and spend less time doing leisure activities. In addition, parents of children with ASD face significant financial burdens in the form of high out-of-pocket health care costs, under-employment, or job losses (Picardi et al., 2018). Adequate social support for mothers can alleviate the difficulties of raising an ASD child because it offers substantial assistance to family members and others to cope with stressful events and contributes to the successful adaptation of mothers of children with developmental

(Akram et al., 2019). Quality of life (QOL) is a comprehensive, multidimensional term that includes physical, psychological, and social well-being, and is affected by factors of personal and environmental/contextual nature. According to the World Health Organization (WHO), QOL is how people view their role in life in the context of the community and value system, relative to their aims, prospects, standards, and concerns (Benson, 2020).

Parents of ASD children experience higher levels of stress, anxiety, and depression than parents of non-ASD children with normal developmental progress. Each of these individual consequences plays a role in the broader perceptions of QOL (Vincent, 2019). Mothers frequently ignore or reject the burden and suboptimal QOL they face, and never seek support. Burden reduces the self-care ability of individuals and can increase the challenges of raising a child with ASD (Deshpande et al., 2019).

Emotional intelligence is concerned with emotions and the production of emotional data as a collection of capabilities. It essentially pertains to the capacity to use feelings in the head effectively; the beneficial effect of emotional intelligence on stress management is characterized by perceived physical and mental wellbeing, with beneficial influences on patterns of contact and relationship happiness. Moreover, life satisfaction is under the influence of emotional intelligence (Alibakhshi et al., 2018).

In terms of the coping capacity used to cope with stressful situations, the theoretical advantages of emotional intelligence include impacts on selecting well-adapted coping mechanisms, encouraging emotional control, and reducing stressor strength, thereby enhancing QOL (Boily et al., 2018). Since it can be seen as a predictor for psychological adaptation to adverse life events, it is worth researching emotional functioning in the parents of autistic children (Manicacci et al., 2019).

### Significance of the study:

Up to the researchers' knowledge, no clinical research is conducted in Arab countries, including Egypt, to investigate the association between emotional intelligence, QOL, and burden among mothers who have children with ASD. Moreover, considering the importance of emotional intelligence, QOL, and burden on mothers with ASD children, these variables were investigated in this study. Studying the relationship between these variables will help develop interventional educational and training programs that aim for promoting the emotional intelligence, QOL, and mental health status of mothers who have children with ASD. Moreover, this will lead to improve their children's recovery and health status. Having good mental health helps the mothers of

children with ASD to positively deal with the challenges associated with their children's care. In addition, this study can be useful for planning health education programs and interventional measures to improve the QOL of mothers of children with ASD.

### The aim of the study

This study aims to evaluate the association between emotional intelligence, QOL, and burden among mothers of children with ASD.

### Subject and Methods

#### Research design:

A correlational descriptive study was conducted to examine the relationship between emotional intelligence, the feeling of burden and the QOL for mothers of children with ASD.

**Research hypotheses:** Before conducting this study, three hypotheses were determined:

**Hypothesis 1:** QOL is negatively associated with burden among mothers of children with ASD.

**Hypothesis 2:** Emotional intelligence is positively related to the QOL of mothers of children with ASD.

**Hypothesis 3:** Emotional intelligence is a predictor of the feeling of burden and the QOL for mothers of children with ASD.

#### Research setting:

A child psychiatric outpatient clinic at Port-Said Hospital for Mental Health and Addiction Treatment was selected to conduct this study and collect the data regarding mothers of children with ASD. The hospital is affiliated with the general secretariat for mental health and addiction treatment that follows the health insurance system. It includes a number of outpatient clinics one of them is the Child and Adolescent Psychiatry Clinic, which works one day per week for providing psychiatry care, psychosocial interventions, and therapeutic counseling and nursing services to patients from many Egyptian governorates such as Port Said, Ismailia, North Sinai, Suez, Damietta and Dakahlia.

#### Subject:

A convenience sampling method was used to recruit a total of 140 mothers of children suffering from ASD who were available in the selected clinic. The data collection procedure took about a period of 6 months.

**Inclusion criteria:** the Inclusion criteria for this study were the available mothers at the selected setting 1) who have one child only with ASD, 2) their children are aged between 2 and 12 years, and 3) their child is clinically diagnosed with only ASD and without other disorders.

#### Data Collection Tools:

A structured self-administered questionnaire was used to collect the data from the participants. This questionnaire includes: 1) socio-demographic sheet, 2) Burden Assessment Schedule (BAS), 3) World

Health Organization QOL Assessment-Brief (WHOQOL-BREF), and 4) Wong and Law Emotional Intelligence Scale (WLEIS).

WHOQOL-BREF was translated into several languages by the WHOQOL Group (**WHOQOL Group, 1978**). The researchers also used the Arabic language version of WHOQOL-BREF, which the validity and reliability are documented in a previous study (**Dalky et.al., 2017**). Regarding Emotional Intelligence Scale (WLEIS), the study authors used the translated version of the scale which the validity and reliability are documented in a previous study (**El Ghoudani et al., 2017**). On the other hand, BAS is translated and validated by this study's authors.

#### **Sociodemographic Sheet**

The sociodemographic sheet contains personal characteristics such as age, marital status, qualification, employment, commitment regarding work, monthly income, and chronic disease.

#### **Wong and Law Emotional Intelligence Scale (WLEIS)**

WLEIS is developed by **Wong & Law (2002)** to measure emotional intelligence. WLEIS contains 16 items, which these items are classified into four main dimensions: 1) self-emotion appraisal (4 items), 2) others' emotion appraisal (4 items), 3) use of emotion (4 items), 4) and regulation of emotions (4 items). The following statements are examples items for the four groups of WLEIS: 1) self-emotion appraisal, "I am quite capable of controlling my own emotions", 2) others' emotion appraisal, "I always know whether or not I am happy", 3) use of emotion, "I am sensitive to the feelings and emotions of others", 4) and regulation of emotions, "I always tell myself I am a competent person". Participants' responses on this five-point Likert scale were scored between (1 = strongly disagree) and (5 = strongly agree). Overall scores were ranged from 16 and 80, with the highest (80) score is indicating the highest emotional intelligence. The scores with more than 70% were considered as high emotional intelligence, the scores from 50 % to 70 % were moderate and the scores less than 50% were considered low.

#### **World Health Organization QOL Assessment-Brief (WHOQOL-BREF)**

WHOQOL-BREF is a short version of the WHOQOL-100 items scale (**WHOQOL Group, 1978**). This scale consists of 26 items, which 24 items (out of 26 Items) are cover the four dimensions (domains) of QOL: 1) physical health domain (7 items), 2) psychological health domain (6 items), 3) social relationships domain (3 items), and 4) environmental health domain (8 items). Also, one item is regarding to general QOL, and one is regarding health-related QOL. All these 26 items are scored using a five-point Likert scale, which are

ranging from 1 (very dissatisfied/very poor) to 5 (very satisfied/very good). The scale is an international QOL instrument, which is designed to measure the degree of respondents' satisfaction with different aspects of their QOL (**WHOQOL Group, 1998**). The overall scores for this scale are range from 26-130, with the highest score (130) indicating the highest improved/satisfied QOL. The scores with more than 70% were considered as high QOL, the scores from 50% to 70% were moderate and the scores less than 50% were considered low QOL.

#### **Burden Assessment Schedule (BAS)**

BAS was adopted from the previous study (**Thara et al., 1998**). It was used to assess both objective and subjective burdens experienced by the primary caregivers of chronic mentally ill patients, such as in this study it is used to assess the mothers who have ASD. BAS consists of 40-items for measuring nine different areas of subjective and objective caregivers' burden. These items (examples are mentioned) are classified to these nine groups: 1) spouse related items, (e.g. spouse helps with family responsibilities), 2) physical and mental health items, (e.g. caregiver is anxious, depressed ), 3) external support items, (e.g. family appreciates caregiver's effort), 4) caregiver routines items (e.g. caregiver has time to look after own health), 5) financial support of patient items, (e.g. reduced time spent with the patient), 6) taking responsibility items, (e.g. concern about future finances), 7) socialization items, (e.g. relationship with other family members affected), 8) patient behavior items (e.g. caregiver feels there is no solution), and 9) caregiver strategy items (e.g. support from friends). Each element of this three-point Likert scale is rated (1= very much), (2= to some extent), and (3= not at all). The overscore ranges between 40 and 120, which is the highest score (120) indicate greater participants' burden. The scores with more than 70% were considered as severe burden, the scores from 50% to 70% were moderate and the scores less than 50% were considered a mild burden.

#### **Content Validity and Reliability**

Because the BAS is not available in the Arabic language, the researchers translated it into Arabic language. Then, the back translation process was done for the Arabic translated BAS by the researchers. The back-translated version was given to a professor in nursing science and an expert in clinical researchers to prove the translation equivalence. Moreover, content validity was ascertained by a group of three experts in the Pediatric Nursing Department, the Port Said University. Their views were focused on the design, layout, accuracy, precision, and relevance of the tools.

**Pilot Study:** A pilot study was done to verify the clarity and reliability of the study's questionnaire. Ten mothers were recruited and interviewed to provide their opinion about the clarity of the study's questionnaire. Moreover, they requested to fill the used questionnaire, to identify its internal reliability. The piloted participants were excluded from the final statistical analysis of the current study. The results showed that Cronbach's alpha for the burden scale was 0.792, the emotional intelligence scale was 0.82, and the quality life scale was 0.857.

#### **Data collection procedure and Ethical Considerations**

Official approval was obtained from Port-Said Hospital for Mental Health and Addiction. A letter from the Faculty of Nursing at Port Said University was issued and given to the Hospital to gain their permission and cooperation to conduct this study. To recruit and collect the data from the eligible participants, the researchers met with the eligible participant (mothers) who had attended the selected settings, and they explained the purpose of the study and invited the mothers to participate in this study. Moreover, the researchers informed the mothers that they have the right to refuse to take part in this study, or to subsequently withdraw from the study at any time without affecting the care of their children, or

their statutory rights. For those who agreed to participate in this study, the researchers provided them with more details about the objectives and aims of the study. Then, a consent form was obtained from all the participants. The mothers were informed of the confidentiality and anonymity of all their collected personal data, and that the collected data would be used solely for research purposes.

The researchers visited the study setting at the time of the outpatient clinic duty to collect the participants' data, which were two days per week during the morning shift (8 a.m.-12 p.m.). During the interview with participants, the researchers filled the questionnaires within 30-40 minutes. Data were collected over a period of one year, from the beginning of December 2018 to the end of November 2019.

#### **Statistical Analysis**

Data collected from the studied sample was revised, coded, and entered SPSS version 22 for analysis. Data were presented using correlational, descriptive statistics in the form of mean and standard deviation (SD) values). A Linear regression model is a linear approach for modeling the relationship between a scalar response and one or more explanatory variables.

## **Results**

**Table (1): Participants' personal and demographic characteristics (N=140)**

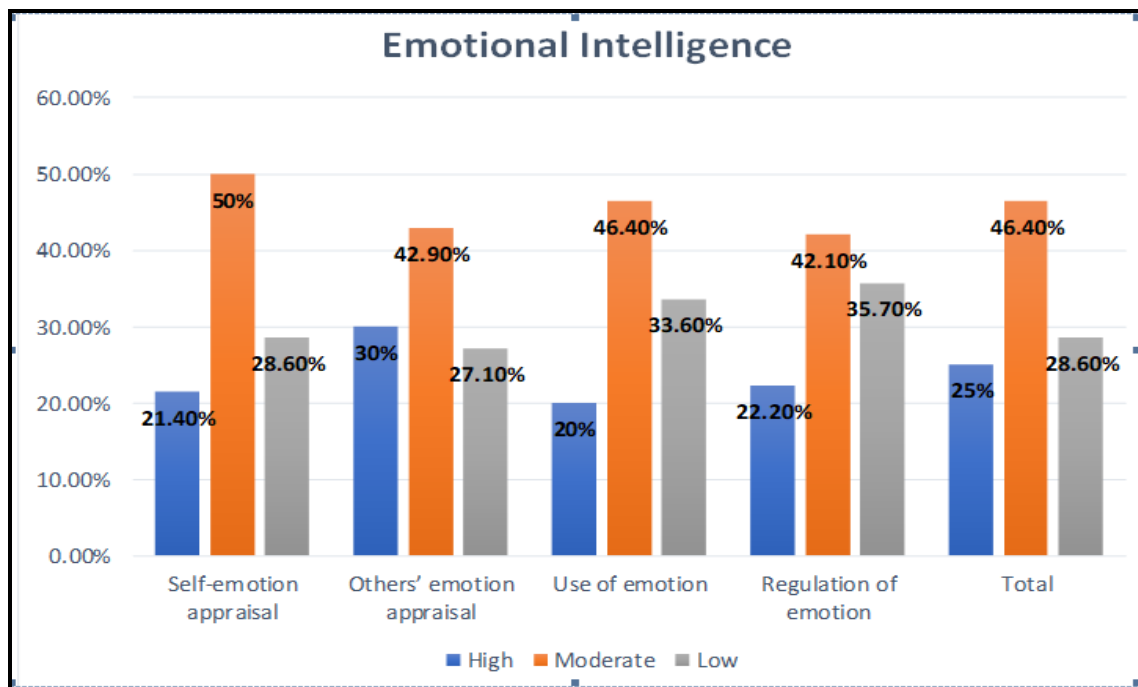
<b>Participants' demographic characteristics</b>	<b>N</b>	<b>%</b>
<b>Mothers' age (years): (Mean±SD= 45.66± 7.38)</b>		
20-34	28	20
35-49	62	44.3
≥50	50	35.7
<b>Marital status</b>		
Married	108	77.1
Divorced	22	15.7
Widowed	10	7.1
<b>Study qualifications</b>		
Illiterate	73	52.1
Primary education	19	13.6
Secondary education	28	20
University education	20	14.3
<b>Employment</b>		
Employed	94	67.1
Unemployed	46	32.9
<b>Committed in work (n=94)</b>		
Committed	90	95.7
Uncommitted	4	4.3
<b>Adequacy of monthly income</b>		
Not enough	76	54.3
Enough	64	45.7
<b>Chronic disease</b>		
Yes	50	35.7
No	90	64.3

**Table (2): Percentage distribution of children’s personal characteristics (N=140)**

Items	N	%
<b>Children’s’ age (years) (Mean ± SD=7.16± 4.32)</b>		
2 < 5 years	27	19.3
5 < 8 years	34	24.3
8 – 12 years	79	56.4
<b>Birth order</b>		
<b>Rank (according to other brothers or sisters)</b>		
First	42	30
Second	36	25.7
Third	33	23.6
Fourth	29	20.7
<b>Educational grade</b>		
Nursery	12	8.6
Primary	26	18.6
Preparatory	19	13.6
Not engaged in school	83	59.2
<b>At what age the ASD is discovered by parents (years)</b>		
< 2 years	25	17.9
2< 3 years	36	25.7
3<4 years	62	44.3
≥ 4 years	17	12.1

**Table (3): Mean score distribution of participants according to their emotional intelligence (n=140)**

Domain	Max	Min	Mean	SD
Self-emotion appraisal (out of 20)	9	4	7.23	1.97
Others’ emotion appraisal (out of 20)	8	4	6.47	1.25
Use of emotion (out of 20)	7	4	6.01	1.74
Regulation of emotion (out of 20)	10	4	8.24	2.69
Total	34	16	27.95	6.30



**Figure (1): Percentage distribution of participants according to emotional intelligence domains (n=140)**

Table (4): Mean score distribution of participants according to their QOL (n=140)

Domains	The maximum score for subscale	Max	Min	Mean	SD
General QOL	5	3	1	1.76	0.64
General health	5	3	1	1.64	0.58
Physical health	35	16	7	13.46	3.66
Psychological	30	14	6	10.67	2.81
Social relationships	15	6	3	5.68	1.09
Environmental	40	17	8	14.08	3.16
Total	130	59	26	45.62	7.55

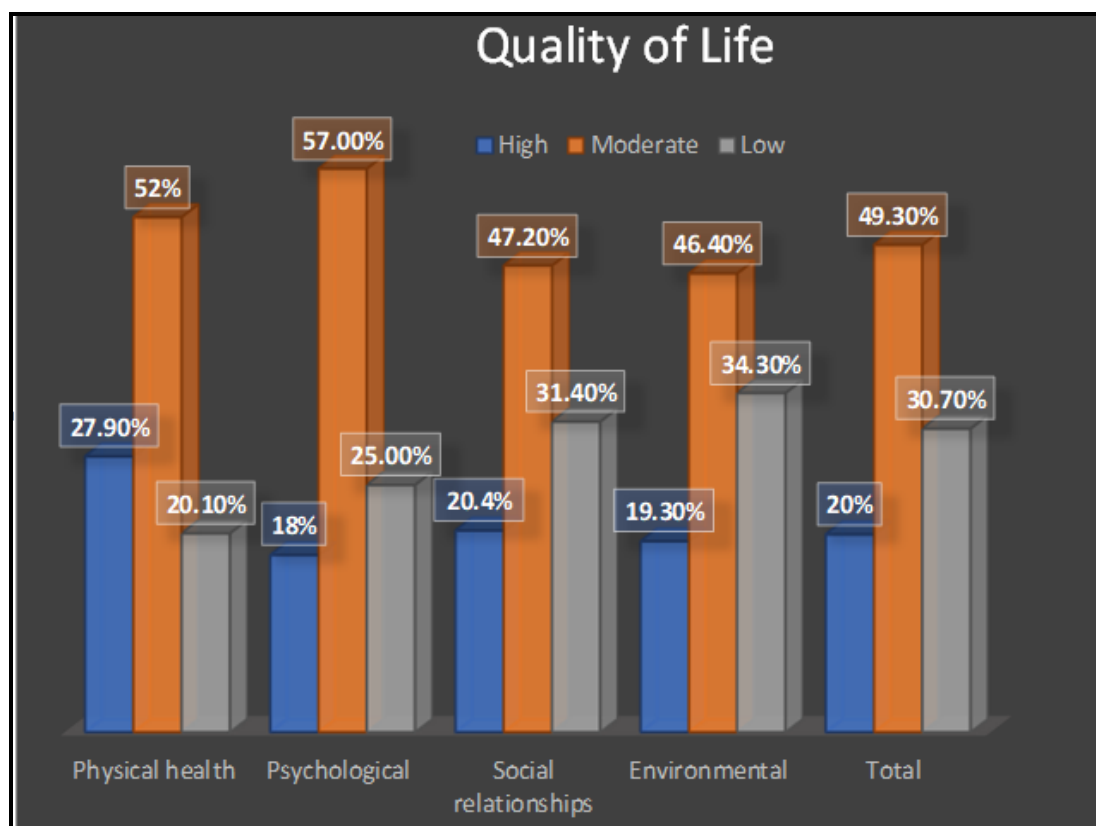


Figure (2): Percentage distribution of participants' QOL domains (N=140)

Table (5): Mean scores of participants' burden (n=140)

Domains	Max	Min	Mean	SD
Spouse related	12	4	6.99	2.68
Physical and mental health	21	7	16.29	4.17
External support	18	6	14.13	3.64
Caregivers' routines	12	4	8.02	2.33
Financial Support of patient	12	4	10.87	1.94
Taking responsibility	12	4	9.65	3.00
Socialization	9	3	7.76	1.48
Patients' behavior	12	4	9.55	2.07
Caregivers' strategy	12	4	8.13	2.06
Total	120	40	95.11	13.64

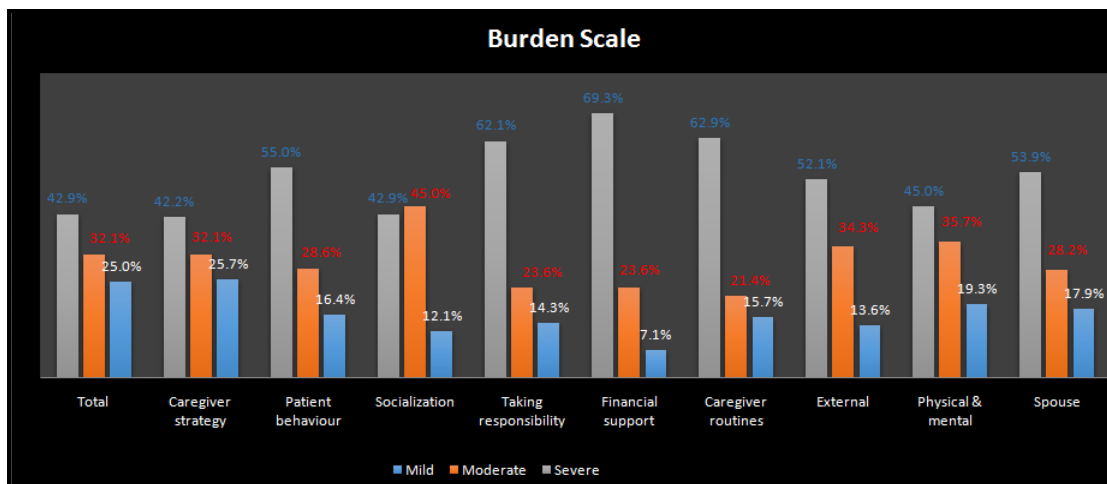


Figure (3): Percentage distribution of participants' burden scale (n=140)

Table (6): Correlation between the mothers' emotional intelligence, burden scale and QOL

Items	Emotional intelligence	QOL	Burden scale
Emotional intelligence		r. 0.654 p 0.002**	r. - 0.583 p 0.008**
QOL	r. 0.654 p 0.002**		r. - 0.716 p 0.000**
Burden scale	r. - 0.583 p 0.008**	r. - 0.716 p 0.000**	

(\*) Statistically significant at  $p < 0.05$ --

(\*\*) highly significant at  $p < 0.01$

Table (7): Multiple linear regression model for Quality of life

Predictors		Standardized Coefficients (β)	T	P value		
Age		.454	7.482	.014*		
Educational level		.717	16.407	< .001**		
Income		.321	5.361	.019*		
Burden level		.417	14.001	.001**		
Emotional intelligence		.811	14.251	.001**		
Model summary						
Multiple R	R square (R <sup>2</sup> )	Adjusted R <sup>2</sup>	Std. error of estimate	df	F	p value
.954	.912	.864	.524	139	6.89	0.01

a. Dependent Variable: QOL

b. Predictors: Age, Educational level, Income, Burden level, and Emotional intelligence.

(\*) Statistical significant difference

Table (8): Multiple linear regression model for Mothers' Burden level

Predictors		Standardized Coefficients (β)	T	P value		
Age		.374	8.133	.018*		
Income		.810	14.260	.001**		
Quality of life		.688	8.033	.009**		
Emotional intelligence		.641	15.201	< .001**		
Model summary						
Multiple R	R square (R <sup>2</sup> )	Adjusted R <sup>2</sup>	Std. error of estimate	df	F	p value
.894	.799	.751	.434	139	5.23	0.02

a. Dependent Variable: Burden level

b. Predictors: Age, Income, QOL, Emotional intelligence

(\*) Statistical significant difference

**Table (1):** Shows that the mean age of participants was  $45.66 \pm 7.38$ . Most of the participants (77.1%) were married, illiterate (52.1%) employed (67.1%), and committed to work (95.7%). Over a third (35.7%) of participants had a chronic disease.

**Table (2):** Reveals that the mean age of children was  $7.16 \pm 4.32$ . About a third of the children (30%) were the first in ranking among brothers and sisters, and about half of them (59.2%) were not engaged in school.

**Table (3):** shows that the emotional intelligence means for the studied domains were self-emotion appraisal ( $7.23 \pm 1.97$ ), others' emotional appraisal ( $6.47 \pm 1.25$ ), use of emotion ( $6.01 \pm 1.74$ ), and regulation of emotion ( $8.24 \pm 2.69$ ). The mean for the total emotional intelligence scale was  $27.95 \pm 6.30$ .

**Figure (1):** Shows that the most frequent of the participants had a moderate level of self-emotion appraisal (50%), others' emotion appraisal (42.9%), use of emotion (46.4%), and regulation of emotion (42.1%). Regarding the total scale, 46.4% of participants had a moderate level of emotional intelligence.

**Table (4):** Shows that the means of the studied domains: general QOL ( $1.76 \pm 0.64$ ), general health ( $1.64 \pm 0.58$ ), physical health ( $13.46 \pm 3.66$ ), psychological health ( $10.67 \pm 2.81$ ), social relationships ( $5.68 \pm 1.09$ ), and environmental ( $14.08 \pm 3.16$ ) domains. The mean of the total QOL scale was  $45.62 \pm 7.55$ .

**Figure (2):** Shows that 52% of participants had a moderate level of physical health, while 57.0% of them had a moderate level of psychological health. Also, they had low QOL levels related to social relationships (31.4%), and environmental health (34.3%). Regarding the total QOL scale, 49.3% of participants had moderate QOL.

**Table (5):** Shows that the mothers' burden means for the studied domains were as the follows: spouse related ( $6.99 \pm 2.68$ ), external support ( $14.13 \pm 3.64$ ), caregivers' routines ( $8.02 \pm 2.33$ ), financial support of patient ( $10.87 \pm 1.94$ ), taking responsibility ( $9.65 \pm 3.00$ ), and socialization ( $7.76 \pm 1.48$ ). The mean total score for the BAS scale was  $95.11 \pm 13.64$ .

**Figure (3):** Shows that of the participants had severe burden-related to spouse (53.9%), physical (45%), and mental and external support (52.1%). Also, most of the participants had severe burden-related to caregiver routines (62.9%), financial support (69.3%), and taking responsibility (62.1%). Furthermore, the participants had a severe burden on patient behavior (55%), and caregiver strategy (42.2%). The total burden scale score was (42.9%).

**Table (6):** Shows the correlation between participant characteristics, burden level, emotional intelligence, and their QOL. The results indicates that there is a

high positive correlation between emotional intelligence and QOL ( $r = 0.654$ ,  $p < 0.01$ ); a high negative correlation between emotional intelligence and burden scale ( $r = -0.583$ ,  $p < 0.01$ ); and a high negative correlation between QOL and burden scale ( $r = -0.716$ ,  $p < 0.01$ ).

**(Table 7): The relationship between Mothers' QOL and their Characteristics, Burden score, and Emotional Intelligence** Multiple linear regression test was used for test if the mothers' age, educational level, income, burden level, and emotional intelligence variables are significantly predicting the participants QOL. Table 6 shows the overall multiple linear regression was statistically significant ( $R^2 = .912$ ,  $F = 6.89$ ,  $p = 0.01$ ). The regression test shows that the mothers' age ( $\beta = .454$ ,  $p = 0.014$ ), educational level ( $\beta = .717$ ,  $p < 0.001$ ), income ( $\beta = .321$ ,  $p = 0.019$ ), burden level ( $\beta = .417$ ,  $p = 0.001$ ), and emotional intelligence ( $\beta = .811$ ,  $p = 0.001$ ) variables significantly predict the mothers' QOL. The regression test suggests that there was significant positive improvement in mothers' QOL when each one incensement of the score of the mentioned previous predictors (age, educational level, income, burden level, and emotional intelligence).

**Table (8):** Shows the multiple linear regression test, which was done to determine if the participants' age, educational level, income, QOL, and emotional intelligence variables significantly predict the mothers' burden level. The overall multiple linear regression shows statistically significant between the dependent variable (burden level) and the investigated predictors (age, income, QOL, emotional intelligence) ( $R^2 = .799$ ,  $F = 5.23$ ,  $p = 0.02$ ). The regression test shows that the mothers' age ( $\beta = .374$ ,  $p = 0.018$ ), income ( $\beta = .810$ ,  $p = 0.001$ ), QOL ( $\beta = .688$ ,  $p = 0.009$ ), and emotional intelligence ( $\beta = .641$ ,  $p < .001$ ) variables significantly predict the their burden level. The regression test demonstrates that there was significant positive improvement in mothers' burden level when each one incensement of the score of the mentioned previous predictors (age, income, QOL, and emotional intelligence).

## Discussion

The effect of raising a child with ASD on parents is multifaceted and varied. While ample evidence attests that these families are under extreme stress, several information gaps and unresolved problems are still present. Emotional intelligence, defined as the capacity to be aware, control, and express one's emotions and to manage interpersonal relationships judiciously and empathically, is essential to provide suitable care for children with ASD (Kord Tamini & Chadha, 2018). Regarding the emotional intelligence scale, the present study detected that half of the



participants had a moderate level of self-emotion appraisal, while less than half of them had a moderate level of others' emotion appraisal and regulation of emotion. In addition, around half and more than forty-two of participants had moderate levels related to the use of emotion and regulation of emotion, respectively. Regarding the total of the scale, around half of the participants had a moderate level. These results may be due to more than half of the participants being illiterate, and not having any orientation about the concept of emotional intelligence. These results affirm the previous findings of **Premanand, Kumari, & Mathew (2014)**, who reported that only a quarter of parents had high emotional intelligence, and more than a third had a moderate level. **Lovell & Wetherell (2016)** presented that the mean of emotional intelligence was a mid-range score of the total scale.

Regarding the quality of life, the current study reported that half of the studied subjects had a moderate level of physical health while less than two-thirds of them had a moderate level of psychological health. Also, about one-third of studied subjects had low levels related to social relationships and environmental health. Regarding the total QOL scale, slightly less than half of the studied subjects had a moderate level. These results may be due to two-fifth of studied mothers having severe burden, more than one third had chronic disease and more than half had not enough monthly income which had a negative effect on their quality of life. These results are inconsistent with the study by **Pisula & Porębowicz-Dörsmann, (2017)** who reported that mean of the physical domain was 15.18 (SD=2.62), the psychological domain was 12.95 (SD=2.93) and the social domain was 13.69 (SD= 3.31). While, irregular with the study performed by **Vasilopoulou & Nisbet, (2016)** who detected that lower QoL among parents of children with ASD and highlighted potential areas of support. But supported by **Bohadana, Morrissey & Paynter, (2019)** who showed that Parents reported a mean quality of life score of 72.24 (SD = 13.88).

In relation to the burden scale, the current study showed that the highest-burden level was related to caregiver routines, financial support, and taking responsibility, followed by patient behavior, spouse-related issues, and external support. These results may highlight educational difficulties, severe stigmatization, and anxiety, exacerbated by social and financial constraints, and the children's lack of emotional reciprocity. This relates to the higher caregiver burden among families of children with ASD particularly parents (**Ming, et al., 2019**) & (**Bozkurt, et al., 2019**).

Regarding to the correlation between studied variable, the findings of this study detected that there was high positive correlation between emotional intelligence and quality of life. While, there was high negative correlation between emotional intelligence and burden scale. Also, there was high negative correlation between quality of life and burden scale. These results affirm previous studies. **Nuske, et al. (2017)** also reported negative correlations between the maladaptive emotion regulation strategies of children with ASD and their parents' QOL. **Alibakhshi et al. (2018)** proved that there was a significant correlation between the scores of QOL and emotional intelligence ( $r = 0.304$ ,  $P = 0.032$ ). **Marsack-Topolewski and Church (2019)** stated that developmental burden and impact of caregiving on finances were statistically significant predictors of parents' QOL, and that developmental burden was the strongest predictor of parental QOL. The linear regression model related to QOL revealed that mothers' age, educational level, income, emotional intelligence, and burden level significantly predicted the improvement of mothers' QOL. This could be attributed to the positive impact of individuals' emotional intelligence in controlling their stress and enhancing their life satisfaction. Moreover, these results are consistent with the results of the recent study (**Cape et al.; 2018**). They presented that there was a highly significant positive relationship between the participants' QOL and sufficient income, and no significant difference between the participants' QOL and working settings. Also, **Mello et al. (2018)** reported a highly significant impact of employment experience and income on their QOL. However, they reported that no impact of mothers' education on their QOL. Moreover, **Zare et al. (2017)** revealed that providing the mothers with emotional intelligence training and continuing education programs can be an effective approach for improving their QOL. The linear regression model related to mothers' burden level revealed that there was a significant positive association between mothers' burden level and age, income, QOL, emotional intelligence. Whereas, increased mothers' age, income, QOL, emotional intelligence predicts significant improvement in mothers' burden level. These results were consistent with the previous study (**Moradi et al., 2011**). The researchers of this previous study stated that emotional intelligence has a significant positive impact on the individuals' choice of well-adapted coping strategies, promoting emotional regulation, and reducing the intensity of stressors. Also, **Jain et al. (2019)** presented that the perceived burden level was found to be affected by the permanent residence of caregiver, and rural or urban dwelling.

## Conclusion

The results of this study indicate that there was a high positive correlation between mothers' emotional intelligence and QOL, a high negative correlation between mothers' emotional intelligence and burden level, and a high negative correlation between mothers' QOL and burden level. Emotional intelligence had a positive role in improving mothers' burden level and QOL.

## Recommendations

Based on the findings of this study, it is very recommended for the nursing staff to design continuing health education programs for mothers, who have children with ASD, about techniques for improving emotional intelligence to decrease burden level and improve their QOL. Also, social support interventions are needed to increase emotional intelligence to promote their QOL and decrease the burden among mothers of children with ASD.

Considering that the mother is a member of the family that has the closest relationship with her children, it is suggested to conduct further experimental studies to explore the impacts of emotional intelligence training on the QOL of mothers with ASD.

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