

Research Paper

Perception of Burden and Stress Among Mothers of Autistic Children in Pakistani Cultural Background



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ABSTRACT

Objectives: The study aimed to explore the perceived burden and stress among mothers of autistic children.

Methods: This cross-sectional study was conducted at Riphah International University over 4 months, from October 2020 to January 2021. The samples were recruited using non-probability convenience sampling and comprised 84 mothers (23-60 years old) of children aged 3-16 years with Autism Spectrum Disorder (ASD) from different special education centers in Lahore. A demographic questionnaire, Parental Stress Scale (PSS), and Zarit burden interview (ZBI) were used to collect the study data, which were analyzed in SPSS v. 22 software.

Results: Forty-five Mothers (53.6%) suffered from moderate to severe burden with a high Mean±SD ZBI (41.75±10.62) and Parental Stress Scale (PSS) scores (48.67±8.04). Also, there is a significant positive correlation between the two scores ($r=0.585$, $P=0.000$). A significant association was noted between the mother's stress and the severity of autism ($P=0.006$) and the child's medication ($P=0.008$), also between the mother's burden and the child's age ($P=0.019$).

Discussion: According to the current study's findings, mothers of children with ASD perceived a high level of burden and stress. The association was seen with factors of children's age, severity level, and child medication.

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Highlights

- Mothers of children with ASD perceive moderate to severe burden and stress.
- Mothers' stress is significantly associated with the severity of autism in children and their medications.
- Mothers' burden is significantly associated with a children's age.

Plain Language Summary

Parenting a child with ASD is challenging and demanding for the caregivers, with the struggle of never-ending parenting and a probable source of burden and stress. In the Pakistani cultural background, where women are primarily involved in caregiving, studying the stress and burden posed by rearing an autistic child is of immense importance. This study explored the perceived burden and stress among mothers of autistic children. This cross-sectional study was conducted on 85 mothers (23-60 years old) of autistic children (aged 3-16 years), using the parental stress scale and Zarit burden interview. Results revealed moderate to severe burden and stress among most mothers. Association of mother's stress with severity of autism ($P=0.006$) and child's medication ($P=0.008$), as well as an association of mother's burden with child's age ($P=0.019$), was noted.

1. Introduction

Parenting is a God-gifted phenomenon. It is characterized by a feeling of belongingness in rearing a child and lasts till adulthood. However, in the case of a child with developmental disabilities, there is no end to parenting, which is challenging and characterized by burden and stress [1]. This situation is the case when rearing an autistic child [2]. In 1989, Pearlin et al. added the concept of caregivers' burden in their model "Pearlin Stress Process Model," which demonstrates how the care becomes a burden over time [3]. In 1980, Zarit et al. developed a self-report measure, "caregivers burden inventory," to assess the burden of caregivers [4].

Stress is a widespread phenomenon in Behavioral Health Sciences that can be explained in three stages, starting from circumstances that are likely to confuse and un-stabilize. As a result, a person is being subjected to different risks, and finally, the interaction between risky conditions and a person's response to this pressure [5]. The perceived stress, on the other hand, depends on the person, i.e., how he or she takes it, feels it, and eventually caters to it, along with the personality types, resources of coping, and support that can make a difference. The perception of stress also depends on a person's social and ethnic characteristics and religious values, varying from culture to culture [6]. The role of culture is redefining and shaping family, professional, and community understanding of developmental disabilities and management. The cultural aspect of disability cannot be undermined [7].

In the Pakistani cultural background, women are primary caregivers as mothers, wives, and adult daughters. They are predominantly involved in caregiving while putting their health and well-being on the back foot, thus creating a vicious cycle that leads to a lot of anxiety and depression [8]. The factors contributing to the development of stress followed by burden depend on multiple elements, including family, personal, financial as well as sociocultural issues [9]. Based on the evidence, parents of differently-abled children and especially those with autism, perceive a high level of stress compared to parents of typically developing children [10].

Autism Spectrum Disorder (ASD) is a pervasive neurodevelopmental disorder that includes autism, Asperger, Rett, childhood disintegrative, and other developmental disorders. ASD occurs with varying degrees of severity, affecting three significant areas of life, i.e., communication skills, social skills, and interaction, and repetitive, stereotypical patterns of behavior and activities that affect daily functioning from early childhood. However, its etiology is still unknown [11].

Autism has increased worldwide like an epidemic, with a prevalence of 1 in 54; however, the prevalence varies quite significantly across different areas [12]. A local study conducted in special education schools in Lahore, Pakistan, revealed a prevalence of 6.31% [13], with a higher prevalence of boys [14]. There are misconceptions regarding autism [15], and significantly less awareness among medical professionals compared to allied

medical professionals regarding autism in Pakistan has also emerged as a concern [16].

Considering a high prevalence rate, lack of awareness, misconceptions, and cross-cultural differences, this study investigated the perceived burden and stress among mothers of autistic children. This study will help understand the stress and burden among mothers of autistic children. The study findings can provide guidance, raise awareness, help better management by medical and allied health clinicians and ultimately improve the quality of life of primary caregivers of these children. The limited research on the mental health of the population residing in Islamic countries with varied cultural implications has led to addressing this gap in literature [17]. The culture shapes family, professional, and community understanding of developmental disabilities and their treatments. The cultural aspect of disability cannot be undermined [7]. Pakistan, an Islamic republic and developing economy with a majority of the Muslim population, dwells with certain cultural elements like discouraging birth control, keeping special children at home, considering them as God's gift, or vice versa. Hence, increasing financial constraints on the already struggling economic plight of the families is further aggravated due to the caring of a special child.

2. Materials and Methods

This cross-sectional study with a sample of 84 mothers of autistic children (selected by non-probability convenience sampling) was conducted at special education setups in Lahore (COMPASS, Rahein, Turning Point, Rising Sun Institute for Special Children, Lahore Autism Centre, Impact, Amin Maktab, Step Ahead autism Centre, and Autism Institute), over a period 4 months from October 1, 2020, to January 31, 2021. The sample included 23-60 years old mothers of autistic children. The autistic children belonged to both genders and were aged between 3 and 16 years. The lower limit of 3 years was taken because the age of autism diagnosis is usually 24 to 36 months. These children had mild to severe autism, with verbal and non-verbal communication skills. Mothers of children with comorbid conditions like epilepsy and those with other physical and mental illnesses were excluded from the study since this could increase the burden and stress on the mothers. The sample size of 87 was calculated, taking the prevalence proportion as 6 [12]. A basic demographic sheet, Parental Stress Scale (PSS), and Zarit Burden Interview (ZBI) [4] were administered for data collection. Three cases with incomplete data were excluded from the study leaving behind a sample of 84, which was our study sample.

PSS [18] is a self-report tool developed by Judy Berry and Warren Jones in 1995 and consists of 18 statements regarding parents' feelings and perceptions of being a parent, positive and negative feelings and perceptions. It is scored on a 5-point Likert scale (1-5) from 1=strongly disagree to 5=strongly agree. PSS total score ranges from 18 to 90; lower scores indicate a lower level of parental stress, and authors have reported good test and retest reliability and validity for this scale.

The Zarit Burden Interview [4] was developed in 1980 by Zarit et al. and is used to measure the burden consisting of 22 items that depict how the person feels about taking care of another person. It is scored on a 5-point Likert scale (0-4) from 0=never to 4=nearly always. A score range of 61-88 indicates severe burden, 41-60 moderate to severe burden, 21-40 mild to moderate burden, and <20 no or minimal burden. It has been reported to be a valid and reliable tool with the Cronbach α value of 0.93 and test-retest reliability being 0.89 [19].

The study was initiated after obtaining ethical approval of the research from Riphah International University vide registration number REC/RCRS/20/3019 dated August 1, 2020, and obtaining mothers' consent for inclusion in the study. The questionnaires were applied through special education teachers.

The collected data were tabulated in Microsoft Excel and statistically analyzed using SPSS v. 22 software. Mean \pm SD were calculated for ZBI and PSS scores. One-way ANOVA was used to see any association with socio-demographic variables, and further results were compared and discussed with national and international literature.

3. Results

The present study with a sample of 84 mothers of autistic children revealed the predominance of moderate to severe burden in 45 mothers (53.6%); however, 3 mothers (3.6%) reported no burden (Figure 1). Results revealed a high ZBI Mean \pm SD score (41.75 \pm 10.62) and PSS Mean \pm SD score (48.67 \pm 8.04) with a significant positive correlation between ZBI score and PSS score ($r=.585$, $P=0.000$) (Table 1).

Table 2 presents that 40 mothers (47.6%) were 30-40 years old and well-educated, with 29 mothers (34.5%) being graduates and only 13(15.5%) being single parents. Also, 69 mothers (82.1%) belonged to the middle class. However, 49 mothers (58.3%) were not working, and only 12(14.3%) were taking medications for stress.

Table 1. The Pearson Correlation Matrix for Zarit Burden Interview and Parental Stress Scale Score

Tool	Score	Mean±SD	Zarit Burden Interview	Parental Stress Scale
Zarit burden inventory score		41.75±10.62	1	0.585**
Parental stress scale		48.67±8.04	0.585**	1
			0.000	0.000

** Correlation is significant at the 0.01 level (2-tailed).

Gender distribution showed that most children were boys, with 61(72.6%) and 23(27.4%) being girls. Also, 44 children (52.4%) were 3-9 years old, and 40 (47.6%) were 10-16 years old (Table 3). Most children, i.e., 42 children (50%), had moderate autism and 14(16.7%) had the least severe autism. Also, 57 children (67.9%) were not taking any therapy at home, and 51(60.7%) were not on any medication.

Table 2 presents that ZBI and PSS mean scores did not show significant association with variables related to mothers of autistic children like age, marital status, education, employment status, socioeconomic status, availability of physical help and support, number of children, presence of another child with a disability and even if mother was on medication related to stress.

Regarding child’s characteristics, ZBI had a significant (P=0.019) association with age, and a higher Mean±SD ZBI score (44.58±9.74) was seen in the 10-16 years age group compared to 3-9 years (39.18±10.84) (Table 3).

Significant association (P=0.006) was noted between Mean±SD scores of PSS with the severity of autism with the highest score (54.14±5.92) with severe autism. A significant association (P=0.008) of PSS Mean±SD scores were noted between the medication status of a child and a higher score (51.55±6.08) in mothers whose children were taking medications. However, ZBI and PSS did not reveal any significant association with the child’s gender, birth order, type of communication, and whether a child receives therapy at home or not. No significant association of PSS was noted with age, and an insignificant association of Caregiver Burden (CGB) was noted with the severity of autism and the child’s medication status.

4. Discussion

Parenting a child with ASD is very challenging and distressing; hence this study investigated the perceived burden and stress among mothers of autistic children. The present study revealed that mothers of children with ASD perceived high levels of burden and stress as mea-

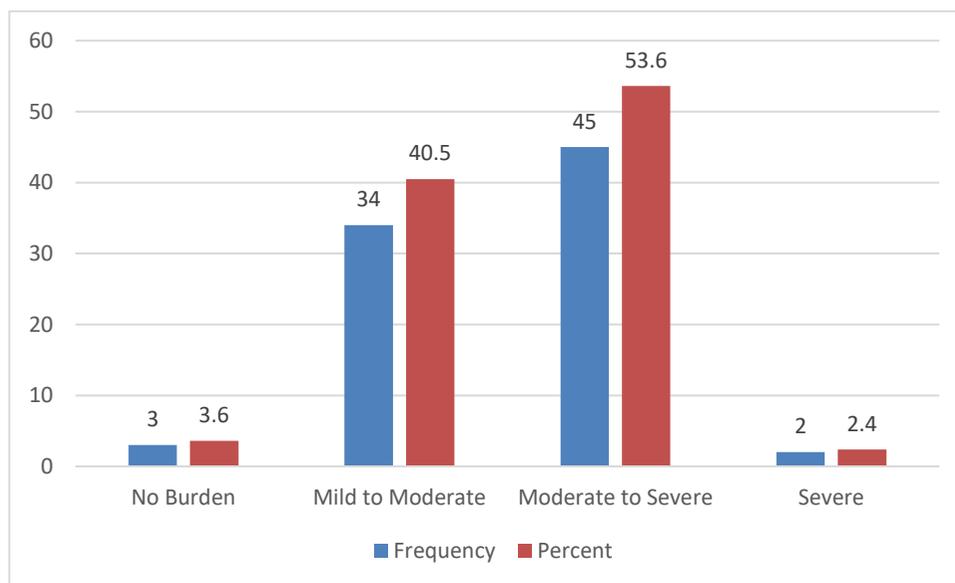


Figure 1. Severity of Caregiver Burden (n=84)

Table 2. Mother Characteristics VS Zarit Burden Interview and Parental Stress Scale Association, t-test and ANOVA statistics (cross tabulation)

Mother's Characteristics		No.(%)	Zarit Burden Interview		Parental Stress Scale	
Variables	Group		Mean±SD	F/t, P	Mean±SD	F/t, P
Age (y)	≤30	22(26.2)	40.36±10.95		47.18±10.47	
	31–40	40(47.6)	42.93±11.26	0.481 0.620	48.48±7.55	0.957 0.388
	>40	22(26.2)	41.00±9.23		50.50±5.85	
Social status	Single	13(15.5)	43.31±9.60	0.573 0.568	49.77±7.14	0.594 0.562
	Co-parent	71(84.5)	41.46±10.84		48.46±8.23	
Education	Middle	2(2.4)	39.00±5.66		53.00±0.00	
	Matric	1(1.2)	31.00±0.00		44.00±0.00	
	Intermediate	5(6)	41.60±10.11	1.387 0.246	45.20±8.32	0.837 0.506
	Graduated	29(34.5)	45.17±9.47		50.28±8.79	
	Post-graduated	47(56)	40.00±11.23		47.96±7.67	
Employment	Nonworking	49(58.3)	43.02±9.75	1.302 0.196	49.69±8.29	1.393 0.167
	Working	35(41.7)	39.97±11.64		47.23±7.56	
Socioeconomic status	Lower class	3(3.6)	33.00±9.17		42.33±7.64	
	Middle class	69(82.1)	42.19±10.77	1.085 0.343	49.41±8.18	1.924 0.153
	High class	12(14.3)	41.42±9.85		46.00±6.41	
Physical help and support	No	48(57.1)	40.56±10.37	-1.186 0.239	48.71±8.98	0.055 0.957
	Yes	36(42.9)	43.33±10.89		48.61±6.71	
Number of children		1(52)	41.10±9.96		47.50±8.62	
		2(21)	41.24±11.86	0.723 0.541	50.76±6.96	0.989 0.402
		3(10)	46.40±11.78		50.00±6.77	
		5(1)	40.00±0.00		52.00±0.00	
Other child disability	Yes	84(95.2)	41.67±10.47	-0.288 0.774	48.35±8.00	-1.63 0.107
	No	4(4.8)	43.25±15.17		55.00±6.98	
If mother is on any medication for stress	No	71(84.5)	41.34±10.64	-1.105 0.272	48.45±8.42	-0.779 0.438
	Yes	13(15.5)	45.00±10.47		50.42±5.52	

sured by ZBI and PSS, with a significant positive correlation between ZBI and PSS scores ($r=0.585$, $P=0.000$). Forty-five mothers (53.6%) reported moderate to severe burden, while only 3 mothers (3.5%) reported no burden. The findings are supported by Padden et al. [20], Sabih and Sajid [21], and Ishtaiq et al. [2], reporting a signifi-

cant level of stress in parents of ASD children. Firdouset al. [22] also recounted more stress in parents of children with intellectual disabilities than mothers of hearing-impaired children.

Table 3. Child Characteristics VS Zarit Burden Interview and Parental Stress Scale Association, t-test and ANOVA statistics (cross tabulation)

Child Characteristics		No.(%)	Zarit Burden Interview		Parental Stress Scale	
Variables	Group (N=84)		Mean±SD	t/F, P	Mean±SD	t/F, P
Age (y)	3-9	44(52.4)	39.18±10.84	5.708 0.019	47.50±9.10	1.968 0.164
	10-16	40(47.6)	44.58±9.74		49.95±6.56	
Gender	Girl	23(27.4)	42.65±11.02	0.476 0.635	48.48±7.85	-0.131 0.896
	Boy	61(72.6)	41.41±10.54		48.74±8.17	
Birth order	First	49(58.3)	43.00±9.35	0.827 0.483	49.20±8.60	0.264 0.851
	Second	23(27.4)	41.17±11.83		47.65±7.70	
	Third	11(13.1)	37.55±13.45		48.09±6.79	
	Fifth	1(1.2)	40.00±00		52.00±00	
Severity	Mild	28(33.3)	40.14±10.53	0.475 0.624	45.86±8.76	5.483 0.006
	Moderate	42(50)	42.57±10.15		48.71±7.32	
	Severe	14(16.7)	42.50±12.53		54.14±5.92	
Type of communications	Verbal	41(48.8)	43.12±10.84	1.346 0.182	48.37±8.23	-0.315 0.753
	Non-verbal	42(50)	40.02±10.12		48.93±8.03	
If child taking therapy at home	No	57(67.9)	41.96±9.98	0.268 0.789	48.96±7.72	0.492 0.624
	Yes	27(32.1)	41.30±12.05		48.04±8.80	
If child taking any medication	No	51(60.7)	40.22±11.29	-1.6663 0.1	46.80±8.64	-2.741 0.008
	Yes	33(39.3)	44.12±9.16		51.55±6.08	

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Regarding mothers' characteristics, most mothers belonged to the middle class, 30-40 years old, well educated, but non-working. Their ZBI and PSS mean scores had no significant association with variables of age, marital status, education, employment status, socioeconomic status, availability of physical help and support, number of children, presence of another child with a disability, and even taking medications for stress. However, divorced and widowed mothers scored higher on ZBI and PSS than co-parenting mothers. This finding agrees with previous studies like McAuliffe et al. [23] and Dyches et al. [24].

No significant association between working status was noted with ZBI and PSS, though non-working women scored higher on ZBI and PSS than working mothers. These findings are specific to our Pakistani culture, where women are primary caregivers as mothers, wives, and adult daughters and are predominantly involved in

caregiving while putting their health and well-being on the back foot, thus creating a vicious cycle that leads to a lot of anxiety and depression [7], and so are at higher risk of stress and burden compared to working mothers.

Also, in the current study, no significant association was found between physical help and support with ZBI and PSS, which is in contrast to Lei and Kantor [25], who concluded in their study that social support has a positive impact on the Quality of Life (QoL) of caregivers of children with ASD. While Llias et al., in a systematic review, reported a lack of support and six other factors in South Asia resulting in parental stress, including financial constraints [26]. In contrast, higher parental stress was noted in the middle class, followed by the higher class in the current study. The other factors reported causing parental stress are the severity of autism, financial constraints,

perception, and understanding of parents, worries for the child's future and anxiety, and religious beliefs [26].

Characteristics of autistic children revealed that most were boys (72.6%) with higher ZBI scores in mothers of female children; also, there is a significant association of ZBI and PSS scores noted with the gender of the child. In an Irish study, Fowler and O'Connor [27] reported that parents of girls with ASD face a higher stress level along with social similar stigmatization is commonly seen in Pakistan and the brunt is born the mothers. In a local study, Sabih F. found that parents of female-child with ASD experience more stress than parents of male children [21].

About 52.4% of mothers in the current study had 3-9 years old children, while 47.6% had 10-16 years old children, and a higher mean ZBI score was seen in the mothers of the 10-16 year age group. Similarly, Devi et al. [28] reported a positive correlation between stress and the burden of caregiving and the child's age. In contrast, no significant association of stress with age was noted, though the PSS score was higher for mothers having the 10-16 years old group.

There was no association of ZBI and PSS with birth order, type of communication, child's receiving therapy at home, and child's medication status. Though no significant association of Caregiver Burden (CGB) was noted with the severity of autism, the level of impairment increases parental stress. In our study, most children had moderate autism (50%), with the least having severe autism (16.7%) showing a significant association of stress with the severity of autism. Similarly, studies by Lias et al. [26] and Batool and Khurshid [29] revealed a correlation between autism severity and parental stress. Hence, children's problematic behavior and sensory issues increase the level of impairment, resulting in stress in parenting [30].

In the current study, 67.9% of children who did not take any therapy at home and their mothers had a higher burden and stress. Literature also reveals that ASD children who receive home therapy show improved behavioral results, thus reducing anxiety, stress, and depression in mothers [31].

In the current study, a significant association of PSS mean scores was noted with the medication status of the child. So higher scores were seen in mothers whose children were taking medications. This finding might be because many side effects do occur after taking medicines.

Hence healthcare staff should educate mothers about medications and their side effects [32].

Study Limitations

This study was conducted in one region of Pakistan, and hence the results cannot be generalized.

5. Conclusion

Mothers of children with ASD perceived a high level of burden and stress because they are primary caregivers as per the cultural norm. Also, an association was noted between mothers' stress with child's age, the severity level of ASD, and child's medication.

Ethical Considerations

Compliance with ethical guidelines

The study was approved by Research Ethics Committee of Riphah International University, Pakistan (Code: REC/RCRS/20/2019).

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Authors' contributions

Conceptualization, writing -review & editing: Nazia Mumtaz; Methodology, resources & data curation: Tanveer Fatima; Formal Analysis & writing-original draft preparation: Ghulam Saqulain; Supervision: Ghulam Saqulain.

Conflict of interest

The authors declared no conflict of interest.

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References

- [1] Khan S. Stress in the parents of children with physical disability. Journal of Pakistan Psychiatric Society. 2017; 4(1):36-43. http://www.jpaps.com.pk/article/stressinthepatientsofchildrenwithphysicaldisability_y%20predictor%20of

- [2] Ishtiaq N, Mumtaz N, Saqulain G. Stress and coping strategies for parenting children with hearing impairment and autism. *Pakistan Journal of Medical Sciences*. 2020; 36(3):538-43. [DOI:10.12669/pjms.36.3.1766] [PMID] [PMCID]
- [3] Pearlin LI. The sociological study of stress. *Journal of Health and Social Behavior*. 1989; 30(3):241-56 [PMID]
- [4] Zarit SH, Reever KE, Bach-Peterson J. Relatives of the impaired elderly: Correlates of feelings of burden. *The Gerontologist*. 1980; 20(6):649-55. [DOI:10.1093/geront/20.6.649] [PMID]
- [5] Steen R. How to understand and define stress in an operational risk context. *International Journal of Business Continuity and Risk Management*. 2017; 7(4):318-36. [DOI:10.1504/IJBCRM.2017.10010125]
- [6] Vallejo MA, Vallejo-Slocker L, Fernández-Abascal EG, Mañanes G. Determining factors for stress perception assessed with the Perceived Stress Scale (PSS-4) in Spanish and other European samples. *Frontiers in Psychology*. 2018; 9:37. [DOI:10.3389/fpsyg.2018.00037] [PMID] [PMCID]
- [7] Ravindran N, Myers BJ. Cultural influences on perceptions of health, illness, and disability: A review and focus on autism. *Journal of Child and Family Studies*. 2012; 21(2):311-9. [DOI:10.1007/s10826-011-9477-9]
- [8] Azeem MW, Dogar IA, Shah S, Cheema MA, Asmat A, Akbar M, et al. Anxiety and depression among parents of children with intellectual disability in Pakistan. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*. 2013; 22(4):290-5. [PMCID]
- [9] Toledano-Toledano F, Domínguez-Guedea MT. Psychosocial factors related with caregiver burden among families of children with chronic conditions. *BioPsychoSocial Medicine*. 2019; 13:6. [DOI:10.1186/s13030-019-0147-2] [PMID] [PMCID]
- [10] Pisula E, Porebowicz-Dörsmann A. Family functioning, parenting stress and quality of life in mothers and fathers of Polish children with high functioning autism or Asperger syndrome. *PloS One*. 2017; 12(10):e0186536 [DOI:10.1371/journal.pone.0186536] [PMID] [PMCID]
- [11] Boat TF, Wu JT. *Mental disorders and disabilities among low-income children*. Washington (DC): National Academies Press (US); 2015. https://books.google.com/books/about/Mental_Disorders_and_Disabilities_Among.html?id=HCcbjEACAAJ
- [12] Knopf A. Autism prevalence increases from 1 in 60 to 1 in 54: CDC. *The Brown University Child and Adolescent Behavior Letter*. 2020; 36(6):4. [DOI:10.1002/cbl.30470]
- [13] Suhail K, Zafar F. Prevalence of autism in special education schools of Lahore. *Pakistan Journal of Psychological Research*. 2008; 23(3-4):45-64. <https://www.proquest.com/docview/89070633>
- [14] Akhter M, Ashraf M, Ali A, Rizwan I, Rehman R. Integration of therapies in autistic children; A survey based in Karachi, Pakistan. *JPMA. The Journal of the Pakistan Medical Association*. 2018; 68(10):1508-1512. [PMID]
- [15] Imran N, Azeem MW. Autism Spectrum Disorders: Perspective from Pakistan. In: Patel V, Preedy V, Martin C, editors. *Comprehensive guide to autism*. 1th ed. New York: Springer; 2014. [DOI:10.1007/978-1-4614-4788-7_152]
- [16] Akhter N, Mumtaz N, Saqulain G. Autism Cognizance: A dilemma among medical and Allied Medical practitioners. *Pakistan Journal of Medical Sciences*. 2020; 36(4):678-82. [DOI:10.12669/pjms.36.4.1703] [PMID] [PMCID]
- [17] Hashemi N, Marzban M, Sebar B, Harris N. Acculturation and psychological well-being among Middle-Eastern migrants in Australia: The mediating role of social support and perceived discrimination. *International Journal of Intercultural Relations*. 2019; 72:45-60. [DOI:10.1016/j.ijintrel.2019.07.002]
- [18] Berry JD, Jones WH. The Parental Stress Scale: Initial psychometric evidence. *Journal of Social and Personal Relationships*. 1995; 12(3):463-72 [DOI:10.1177/0265407595123009]
- [19] Seng BK, Luo N, Ng WY, Lim J, Chionh HL, Goh J, et al. Validity and reliability of the Zarit Burden Interview in assessing caregiving burden. *Annals of the Academy of Medicine, Singapore*. 2010; 39(10):758-63. [PMID]
- [20] Padden C, Concialdi-McGlynn C, Lydon S. Psychophysiological measures of stress in caregivers of individuals with Autism Spectrum Disorder: A systematic review. *Developmental Neurorehabilitation*. 2019; 22(3):149-63. [DOI:10.1080/17518423.2018.1460769] [PMID]
- [21] Sabih F, Sajid WB. There is significant stress among parents having children with autism. *Rawal Medical Journal*. 2008; 33(2):214-6. <http://www.rmj.org.pk/fulltext/27-1304695711.pdf>
- [22] Firdous N, Mumtaz N, Saqulain G. Psychological stress among parents of hearing impaired versus intellectually disabled Pakistani children. *Journal of Islamabad Medical & Dental College*. 2019; 8(4):176-80. [DOI:10.35787/jimdc.v8i4.282]
- [23] McAuliffe T, Cordier R, Vaz S, Thomas Y, Falkmer T. Quality of life, coping styles, stress levels, and time use in mothers of children with Autism Spectrum Disorders: Comparing single versus coupled households. *Journal of Autism and Developmental Disorders*. 2017; 47(10):3189-203. [DOI:10.1007/s10803-017-3240-z] [PMID]
- [24] Dyches TT, Christensen R, Harper JM, Mandlco B, Roper SO. Respite care for single mothers of children with Autism Spectrum Disorders. *Journal of Autism and Developmental Disorders*. 2016; 46(3):812-24. [DOI:10.1007/s10803-015-2618-z] [PMID]
- [25] Lei X, Kantor J. Social support and family quality of life in Chinese families of children with Autism Spectrum Disorder: The mediating role of family cohesion and adaptability. *International Journal of Developmental Disabilities*. 2020:1-8. [DOI:10.1080/20473869.2020.1803706]
- [26] Ilias K, Cornish K, Kummar AS, Park MS, Golden KJ. Parenting stress and resilience in parents of children with Autism Spectrum Disorder (ASD) in Southeast Asia: A systematic review. *Frontiers in Psychology*. 2018; 9:280. [DOI:10.3389/fpsyg.2018.00280] [PMID] [PMCID]
- [27] Fowler K, O'Connor C. 'I just rolled up my sleeves': Mothers' perspectives on raising girls on the autism spectrum. *Autism*. 2021; 25(1):275-87. [DOI:10.1177/1362361320956876] [PMID]
- [28] Devi L, D'Mello M, Rent P. Stress and burden among parents of students in special schools of Mangaluru: A cross-sectional study. *Muller Journal of Medical Sciences and Research*. 2019; 10(2):66-72. [DOI:10.4103/mjmsr.mjmsr_24_19]

- [29] Batool SS, Khurshid S. Factors associated with stress among parents of children with autism. *Journal of the College of Physicians and Surgeons Pakistan*. 2015; 25(10):752-6. <https://www.jcpsp.pk/archive/2015/Oct2015/11.pdf>
- [30] Enea V, Rusu DM. Raising a child with Autism Spectrum Disorder: A systematic review of the literature investigating parenting stress. *Journal of Mental Health Research in Intellectual Disabilities*. 2020; 13(4):283-321. [DOI:10.1080/19315864.2020.1822962]
- [31] Agazzi H, Tan SY, Ogg J, Armstrong K, Kirby RS. Does parent-child interaction therapy reduce maternal stress, anxiety, and depression among mothers of children with Autism Spectrum Disorder? *Child & Family Behavior Therapy*. 2017; 39(4):283-303. [DOI:10.1080/07317107.2017.1375622]
- [32] Hanson E, Kalish LA, Bunce E, Curtis C, McDaniel S, Ware J, et al. Use of complementary and alternative medicine among children diagnosed with Autism Spectrum Disorder. *Journal of Autism and Developmental Disorders*. 2007; 37(4):628-36 [DOI:10.1007/s10803-006-0192-0] [PMID]

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