The Defense Style Questionnaire – 40: Urdu translation, validation, and its uses among parents of children with autism spectrum disorder

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❧ ABSTRACT. Lo scopo del presente studio è stato quello di tradurre, validare e verificare l'uso rilevante dei meccanismi di difesa tra i genitori di bambini con disturbo dello spettro autistico. Sono stati reclutati: *N* = 60 genitori con uguale distribuzione per la validazione linguistica, *N* = 350 genitori per le proprietà psicometriche della scala *Defense Style Questionnaire – 40* e per testare il ruolo dei meccanismi di difesa, *N* = 600 genitori con uguale distribuzione da diversi centri per l'autismo del Punjab, Pakistan. I risultati dell'analisi fattoriale di conferma hanno supportato una struttura a tre fattori con indici di adattamento al modello ragionevolmente buoni ($\chi^{2/df}$ = 2.95, GFI = .92; CFI = .93 e RMSEA = .05). Il significato degli item e il loro contenuto nella versione Urdu del DSQ–40 erano simili alla versione originale inglese. Le correlazioni tra gli item (r = .99; p<.01) e l'alfa di Cronbach (.89) della versione tradotta del DSQ–40 hanno dimostrato un'affidabilità promettente. In conclusione la versione tradotta in Urdu del DSQ–40 è una misura valida che può essere usata con i genitori che hanno un figlio con disturbo dello spettro autistico o altre disabilità.

❧ SUMMARY. *The aim of the present study was to translate, validate, and see the relevant use of defense mechanisms among parents of children with autism spectrum disorder. In total sixty (N = 60) parents with equal distribution were recruited for the cross language validation, three hundred fifty (N = 350) parents were recruited for psychometric properties of the Defense Style Questionnaire – 40 scale and for testing the role of defense mechanism six hundred (N = 600) parents with equal distribution (300 fathers and 300 mothers) were recruited from different autism centers of Punjab, Pakistan. The result of confirmatory factor analysis supported three factor structure with reasonably good model fit indices $\chi^{2/df}$ = 2.95, GFI = .92; CFI = .93, and RMSEA = .05). The meaning of items and their content in Urdu version of DSQ–40 was similar to the original English version. The inter item correlations (r = .99; p<.01) and Cronbach's alpha (.89) of translated version of DSQ–40 had promising reliability. Further, most parents use neurotic defense mechanisms to overcome the reality of having a child with neurodevelopmental condition. We concluded that the Urdu translated version of Defense Style Questionnaire – 40 was a valid and reliable measure and we may continue to use it with parents having a child with autism spectrum disorder or other disabilities.*

Keywords: *Defense Style Questionnaire – 40, Urdu translation, Cross language validation, Validity, Reliability*

INTRODUCTION

In clinical psychology and psychotherapy, defense mechanism is an important concept for the identification and understanding of human behavior. It is believed that defense mechanism protects us from excessive anxiety and tension (Cramer, 2006; Valliant, 1994). Sigmund Freud theorized defense mechanism in 1894 and modified the concept several times ago over a period of 40 years (Freud, 1894, 1915, 1926). Freud endorsed for theorizing the defenses of projection, denial, repression, fantasy, displacement, dissociation, humor, suppression, sublimation, reaction formation and intellectualization (Valliant, 1992). In DSM-5, the concept of defense mechanism has been excluded due to the lack of scientific evidence to support it. But still researches have been undertaken on defense mechanism as on one hand, it helps in coping, but on the other hand, it may create negative effect. In the early 80's a movement began, to add defenses in a new axis in DSM-3-R (Karasu & Skodol, 1980) to provide the best definition of construct to operationalize the mechanisms. But, due to different opinions, defenses were exile to an appended glossary in DSM-3-R (American Psychiatric Association, 1987).

In 1986, an advisory committee on defense mechanisms was formed to develop a sixth axis completely for assessing defense mechanism, where the function of defense assessment was shown to have incremental validity above the DSM's global functioning scale to be transtheoretical and valid (Skodol & Perry, 1993). In such a positive decision, the committee was setup to reserve the axis for ranking a defense style, where client's characteristics of dealing with stress and conflicts were broadly described. Further, it was also suggested that axis would use maximum seven individual defenses to record which were reliable or less reliable to be clinically used (Skodol & Perry, 1993). In 1994, defensive functioning scale was included in DSM-4 as an axis which contained 27 specific defenses ranking form one of seven levels. Many studies confirmed the incremental validity in relation to the other axes and also check the reliability and their clinical utility, where the results demonstrated the importance of defense mechanism in mental health practice (Perry & Hoglend, 1998; Perry et al., 1998).

The *Defense Style Questionnaire* (*DSQ*) is one of the most esteemed scale, originally constructed by Bond and his colleagues (Bond, Gardner, Christian & Sigal, 1983). It was 88 items scale with 25 defenses having low reliability and 4 factor style scale. Later, the DSQ underwent through many revisions for increasing their reliability and validity. Many researchers failed to cite the proper version of the scale for instance, how many defenses and numbers of items were included etc. Andrews, Singh and Bond (1993) finalized 40 items and 20 defenses (2 items per defense mechanism) having 3 factor structure: Mature style (Sublimation, Anticipation, Humor and Suppression), Neurotic style (Undoing, Pseudo-altruism, Idealization and Reaction-formation) and the Immature style (Projection, Passive-aggression, Acting-out, Isolation, Devaluation, Autistic fantasy, Denial, Displacement, Dissociation, Splitting, Rationalization and Somatization). The 40 item version of the *Defense Style Questionnaire* has been declared to be stronger and more accurate version than the previous DSQ factor solutions (Thygesen, Drapeau, Trijsburg, Lecours & de Roten, 2008).

From the time, when *Defense Style Questionnaire – 40* was developed, it has been used in various settings to find out the importance and how it works in dealing with daily conflicts. Many researches claim that this tool is very helpful in clinical assessment. In various settings, mixed findings showed different factor structure solution, ranging from 3 to 6 factors and internal consistency varied from .51 to .81 (Andrews et al., 1993; Lopez & Gormley, 2002; Ruuttu et al., 2006; Watson & Sinha, 1998). Various versions of *Defense Style Questionnaire* has been translated and validated in various languages. Crasovan and Maricutoiu (2012) translated the *Defense Style Questionnaire – 60* in Roman language and administered on a sample of 1200 individuals, where 249 were students, 203 medical students, 30 were hotel employees and 469 adults from various occupations. The *Defense Style Questionnaire – 88* was translated in Italian (sample = 582), French (220 patients) and Greek (2308 patients) language. They administered the scale on different populations belonged to different occupations such as students, teachers, civil servants, outdoor patients, indoor patients and psychiatric patients (Bonsack, Despland & Spagnoli, 1998; Hypantis, 2010; Martini, Roma, Sarti, Lingiardi & Bond, 2004). Further, DSQ-40 was translated in Brazilian and Arabic (28 patients diagnosed with major depressive disorder) language (Blaya et al., 2004; Soliman, 1997). The scale has shown promising validity and reliability in different languages and cultures.

Defense Style Questionnaire – 40 was not available in Urdu. So in order to use DSQ-40 in Pakistan, it was mandatory to translate it into Urdu language, so that it is comprehensible and could be used for research purpose. In

Pakistan, autism spectrum disorder is growing rapidly and affecting approximately 400.000 children (SAAAC, 2022). In this study, we selected only parents of children with autism spectrum disorder because there been an increase in demand for psychological support from parents of children with ASD other than other developmental disabilities in Pakistan. As other developmental disabilities are already treated and their caregivers are getting proper treatment in Pakistan (Imran & Azeem, 2014). In Pakistan parents reported that there is lack of awareness among health professionals about ASD and parents developed non-acceptance behavior toward children and later when they accepted their child they started using different defense mechanism to cope the embarrassing situation i.e., denial, projection etc. (Hassan, 2021). So, in this study we specifically choose parents of children with ASD and we specified the age range to maintain the homogeneity of the sample. Further, the psychometric investigations of *Defense Style Questionnaire – 40* have never been established for parents having a child with autism spectrum disorder (ASD). So this study aimed to translate DSQ-40 in Urdu and establish its psychometric properties and see the relevance uses on the parents having a child with ASD.

Autism spectrum disorder is a lifetime neurodevelopmental condition; it affects not only the child but also the members of the family and can bring a number of changes in their lives. Autism is a complex neuro-developmental condition, usually identified in early childhood. It affects a child's communication, socialization, cognition, behavioral difficulties, and social interaction. It was first identified in 1943 by a child psychiatrist, Leo Kanner. In early years, autism was mostly diagnosed as childhood schizophrenia'(Tian et al., 2022; Tidmarsh & Volkmar, 2003).

The *Diagnostic and Statistical Manual of Mental Disorders – 5* (*DSM-5*) has changed the diagnosis of a multi-categorical model of a single diagnostic category of autism spectrum disorder (APA, 2013). Now it comes under neurodevelopmental disorder with core deficits in two domains: social interactions and social communication as well as restricted repetitive patterns of behavior, interests, or activities (APA, 2013). DSM-5 removed other categories of autistic disorder and replaced them with autism spectrum disorder (APA, 2013). Furthermore, DSM-5 has also included sensory disturbances such as hyper or hyposensitivity to sensory stimuli (e.g., excessive smelling or touching and visual fascination with objects) in its criteria (APA, 2013). Different levels of severity, based on the support needed, have

been mentioned in the new classification. In addition to ASD, a new category of social communication disorder has been created in DSM-5 (APA, 2013). In social communication disorder, there are persistent difficulties in the social use of verbal and nonverbal communication.

Therapists, physicians, and psychologists using different techniques (i.e., applied behavior analysis) to reduce the behavioral issues among children with ASD, but neglected to focus on parents. Professionals were not aware of the significance of stigma, which surrounded the parents of children with ASD (Weastell, 2017). Parents of children with ASD are discriminated against based on their child's abilities and behaviors that lead them to face different challenges such as parental stress. Autism spectrum disorder not only causes stress among parents but also has a delirium impact on social relations and marital relationships of the parents (Brobst et al., 2009; Gau et al., 2011; Higgins et al., 2005; Parker et al., 2011). Weastell (2017) reported in a review that the current situation and difficulties of parents in having a child with ASD contradicted with earlier theories of the 1940s and 1950s on autism etiology. Like, Freudian suggested that cold and unemotional parents such as mother, father, or legal caregiver were to blame for the generous love and care.

Chaturvedi (2014) reported, when families get to know about the neurodevelopmental condition of a child, their reaction are ranging from sadness to anger. Diagnosing of autism made families into an unhealthy pattern of denial. Parents reported that the word autism was no more than a label but created fear and feeling of failure. Most of the parents also reported that they neglected their child due to the fear that they could not handle them and misunderstanding led to denial.

Further, literature also evident that parent use different defense mechanism as coping which play significant role in reducing the stress and stigma of parents of children with ASD (Lazarus & Folkman, 1999). However, there are very less evidences on using defense mechanisms as coping that may help protect and even encourage caregiver quality of life and increase the level of sense of coherence.

In order to meet the objectives, present study was completed in four phases. Phase I aimed to translate the instrument, Phase II aimed at cross validation, Phase III aimed to establish psychometric properties and run the confirmatory factor analysis to indorse the original factor structure for the translated version of DSQ-40 and Phase IV to find out the mostly used defense mechanism among parents of children with ASD.

METHOD AND PROCEDURE

Transparency and openness

We describe our sampling plan and all data exclusion criteria below under the sample heading. In the current study, we used Brislin's (1980) proposed process was followed to maintain the similarity of the content and meanings of original and translated versions and we adhered to the *Journal of Psychological Assessment* methodological checklist. Analysis and research material including Urdu translated version of DSQ-40 and SPSS sheet were available on demand as this article is part of PhD dissertation. Data were analyzed by using SPSS version 22. The study design was purposive and its procedure was written in detail in the procedure section below.

PHASE I: TRANSLATION OF DSQ-40

Phase I was carried out to translate DSQ-40 in Urdu language to bring conceptual equivalence to the original English version of the scale. Permission was taken from the Authors of DSQ-40 (Andrew et al., 1993) for translation and validation of the scale. After that, Brislin's (1980) proposed process was followed to maintain the similarity of the content and meanings of original and translated versions. The process was divided into following three steps.

Phase I: Forward translation

The DSQ-40 was translated from English to Urdu by four bilingual experts (associate and assistant professor of linguistics and psychology from Government College University, and Kinnaird College for Women, Lahore). These bilingual experts were proficient in both languages, and were familiar with the Western culture as well. Experts were instructed to follow the technical uniformity of language such as grammar, question length, relationship to socio-cultural context, acceptable level of abstraction and tenses in translation and adaptation of each item according to Pakistani culture, without eliminating the items. In the end, there were four independent Urdu translations of DSQ-40 for further processing.

Phase I: Reconciliation of items

After getting translations of DSQ-40, four independent Urdu translated version of each items were reconciled by comparing them in order to assess the theoretical similarities of items by using a committee approach. The committee consists of four members (a professor and an assistant professor of Psychology, and two lecturers in Psychology from Women University, Multan and Government College University, Lahore). Each item was vitally evaluated and assessed by experts and they selected the best meaningful Urdu translation, which fulfilled the criteria of clear context, grammar and wording. After finalizing the finest Urdu translated items, proof reading was done to get the final print out.

Phase I: Backward translation

This step was performed to ensure that Urdu translated versions of DSQ-40 were suitable, reliable, correct and valid without linguistic biases. So, the finalized version of Urdu scale (DSQ-40) were translated back into English by a bilingual expert independently, who was unfamiliar with the original scale. The bilingual expert was provided with the final translated version of Urdu scale to translate it back into English language to ensure that Urdu translated version was correct and without linguistic biases. Back translation was done to validate the conceptual and linguistic similarity of the Urdu translated scale with the original one.

PHASE II: CROSS LANGUAGE VALIDATION

In the second phase of the current study, cross language validation was established by measuring correlation between three versions (Original, Urdu and Backward) of DSQ-40.

Phase II: Sample

A purposive sample ($N = 60$) with equal distribution of both parents of a child with ASD (father = 30 and mother = 30) was recruited from different autism centers of Lahore. Only those parents were included who had a child diagnosed

with ASD of age ranged between 4-12 years, and they were fluent in both Urdu and English languages. Parents who were living together and belonged to middle and high socioeconomic status took part in the study. Parents of a child with ASD along with any other co morbid disorder were not included in the study.

Phase II: Procedure

This phase of the study was intended to examine the cross language validation of the translated version of scale (DSQ-40). All three versions of the scale were administrated on three groups of parents in terms of order of administration of three versions (20 parents in each group). The order of administration was: Group 1: Original English, forward Urdu and backward English; Group 2: backward English, forward Urdu and original English; Group 3: forward Urdu, backward English and original English. Only 20 parents (10 fathers and 10 mothers = 20) were called in a day for the administration of three versions of DSQ-40scale because the sample was challenging. The parents were given three versions after an interval of one hour in three different orders to control the carry over effect due to same order of administration of all three versions of the scale.

Table 1 shows that all versions of DSQ-40 significantly correlate with each other and their pair wise correlation ranged from (.98 to .99). Hence the results show that the content of Urdu version of DSQ-40 is statistically equivalent to the original English version.

PHASE III: MEASUREMENT OF PSYCHOMETRIC PROPERTIES

In phase III, psychometric properties of the translated version of the scale were established.

Phase III: Sample

A purposive sample of three hundred and fifty ($N = 350$) with equal distribution of parents (175 mothers and 175 fathers) was recruited from different autism centers of Punjab, Pakistan and via social media. Only those parents were included who had a child diagnosed with ASD of age ranged between 4-12 years. Parents who were living together and belonged to middle and high socioeconomic status took part in the study. Parents of a child with ASD along with any other co morbid disorder were not included in.

Table 1 – Inter-correlations among original, Urdu and English versions of DSQ-40 (N = 60)

Scale	1	2	3
1. Urdu forward	–		
2. Backward English	.99**	–	
3. Original English	.99**	.98**	–

**p<.01*

Phase III: Procedure

Prior to administration of the scale, three hundred and fifty ($N = 350$) parents (175 mother and 175 fathers) were contacted and approached in person, on a time and place fixed with the consent of both parents for administrating the scale. After that, consent form was signed and the parents were briefed about the purpose of the study and assured that their responses would be kept confidential. They were told that there was no right or wrong answers. There was no time limit to fill the questionnaire and it took 20 to 25 minutes to read and respond the items of scale. Data were analyzed by using AMOS 22.0.

Phase III: Results

– *Confirmatory factor analysis*. Confirmatory factor analysis was run in order to validate the factor structure of Urdu translated measure, to ensure the likelihood and perfection of the scale according to Pakistani culture.

Table 2, Table 3 and Figure 1 represent the findings of the original model with three factor structure of DSQ-40. Confirmatory factor Analysis was run on Urdu translated DSQ-40 to get the best factor loadings and model fit indices. The initial criteria for the item loading is >.35. The final model of three factor structure shows the good model fit ($\chi^2 = 2159.01$ ($df = 731$); $p = .000$; $\chi^2/df = 2.95$; RMSEA = .05; GFI = .92; AGFI = .90; TLI = .91 and CFI = .93). Generally, a good model fit requires a non-significant chi-square; however when dealing with a large data set, the value of chi-square is nearly always significant. In such cases, Hatcher (1996) suggests that a model that has a value less than 3, when the value of chi-square is divided by the degrees of freedom, is a good fit. So, it is 2.95 which come under the acceptable range. Further, RMSEA should be below .05, which are showing a good fit model and in recommended range. Moreover, the final model is acceptable, the factor loadings of the items ranged from .35 to .95.

– *Reliability analysis*. In order to assess the reliability of the translated version of scale, Cronbach's alpha and inter-correlations among the sub-scales were calculated.

Table 4 indicates that three subscales of DSQ-40 have good Cronbach's alpha reliability values ranging from .81 to .94. Further correlations among three subscales are significantly correlated with each other ($r = -.87$, $r = -.80$, $r = .77$, $p<.01$) that support the reliability of the Urdu translated version of the scale.

PHASE IV: TESTING THE USES OF DEFENSE MECHANISM

In phase IV we investigate the relationship of demographic variables (education, income, and age) and uses of defense mechanism among parents of children with ASD and find out the group differences in using defense mechanism among parents of children with ASD.

Phase IV: Hypotheses

1. There are significant relationship of demographic variables (gender, age, income and education) and uses of defense mechanism among parents of children with ASD.
2. There are gender differences in uses of defense mechanism among parents of children with ASD.
3. Parents of children with autism spectrum disorder significantly differ on uses of defense mechanism in terms of different education levels.
4. Parents of children with autism spectrum disorder significantly differ on uses of defense mechanism in terms of different income groups.

Phase IV: Sample

A purposive sample with snowball technique was used, where six hundred ($N = 600$) with equal distribution of parents (300 mothers and 300 fathers) was recruited from different cities of Punjab, Pakistan. Only those parents were included having a child with ASD and already diagnosed. The child's age ranged from 4 to 12 years old was included and both parents were living together since the birth of a child.

Phase IV: Instruments

In this study, Urdu version of DSQ-40 was administered: its reliability is .89 which is good reliability. Originally, *Defense Style Questionnaire – 40* constructed by Andrews et al. (1993). It is clustered in three subscales and comprises 40 items using

Table 2 – The factor loadings of Confirmatory Factor Analysis on DSQ-40 (N = 600)

Subscales	Item no.	Factor I Mature	Factor II Neurotic	Factor III Immature
Sublimation	3	.91		
	38	.43		
Humor	5	.84		
	26	.40		
Anticipation	30	.35		
	35	.95		
Suppression	2	.83		
	25	.89		
Undoing	32		.60	
	40		.51	
Altruism	1		.74	
	39		.55	
Idealization	21		.59	
	24		.60	
Reaction formation	7		.45	
	28		.53	
Projection	6			.77
	29			.71
Passive aggression	23			.80
	36			.50
Acting out	11			.80
	20			.83
Isolation	34			.79
	37			.79
Devaluation	10			.48
	13			.71
Autistic fantasy	14			.81
	17			.50
Denial	8			.82
	18			.46
Displacement	31			.79
	33			.49
Dissociation	9			.50
	15			.55
Splitting	19			.45
	22			.89
Rationalization	4			.36
	16			.48
Somatization	12			.76
	27			.40

Table 3 – Model fit indices of CFA for DSQ-40 (N = 350)

Indices	χ^2	df	χ^2/df	p	GFI	AGFI	TLI	CFI	RMSEA
Model 1	2205.27	733	3.00	.000	.89	.87	.86	.88	.06
Model 2	2159.01	731	2.95	.000	.92	.90	.91	.93	.05

Legenda. df = degree of freedom; GFI = Goodness of Fit Index; AGFI = Adjusted Goodness of Fit Index; TLI = Tucker-Lewis Index; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation.

a 9-point Likert format that derive 20 different defenses (2 items per each). Mature factor includes (anticipation, humor, sublimation, and suppression), Neurotic includes (pseudo-altruism, idealization, reaction formation, and undoing and Immature factor include (acting out, denial, devaluation, displacement, dissociation, autistic fantasy, isolation, passive aggression, projection, rationalization, somatization, and splitting). DSQ-40 score range from 40 to 354.

Phase IV: Procedure

The study intended to examine the relationship between demographic and use of defense mechanism. Before collecting the data, permission was taken from the author of scale through email. After seeking permission, approval of data collection was taken from relevant institutions, centers for autism, and clinics. Before administration of the scale, parents were contacted in person, permission was taken and time for data collect was fixed when both parents were available and can visit clinic or center. Informed consent was signed by each parent and they were informed that if they found difficulty and any problem while completing the questionnaires, they could easily withdraw. After that, each parent was briefed about the study and questionnaire and assured that their responses and given information would be kept confidential. The autism rating scale (CARS) was administered to find out the severity of illness of every child. After that, each parent filled DSQ-40. There was no time limit to fill the questionnaire. Initially, 300 forms were distributed

and 220 forms were returned, in which only 182 forms were found complete and other 38 forms were discarded. Then we use autism resource group on Facebook for further data collection. In total, 516 parents were contacted in person, permission was taken and time for data collection was fixed when both parents were available and can easily visit autism center of Lahore. After that, 418 forms were found completed by both parents and 98 forms were discarded due to incomplete information and it was filled by single parent. So, the analysis was carried out on a sample of 600 parents. The scores on each item were entered in Statistical Package for the Social Sciences (SPSS) version 22.0 for Windows. Where a significant difference was displayed on ($p<.05$ or $p<.01$).

RESULTS

Frequencies and percentages

Demographic data sheet covered demographics like: parental age, monthly income, education, number of children with ASD, child age, gender, and birth order. The responses to the questions are listed below with their frequencies and percentages.

Table 5 explains the demographics characteristics of the sample. Though the sample was purposive and selected on the basis of convenience of the researcher. Still demographic data appear to be comparable on most of the variables, except some of the variables (e.g., gender of child, no of children with ASD, birth order of a child with ASD).

Figure 1 – Path diagram for the Urdu version of Defense Style Questionnaire – 40
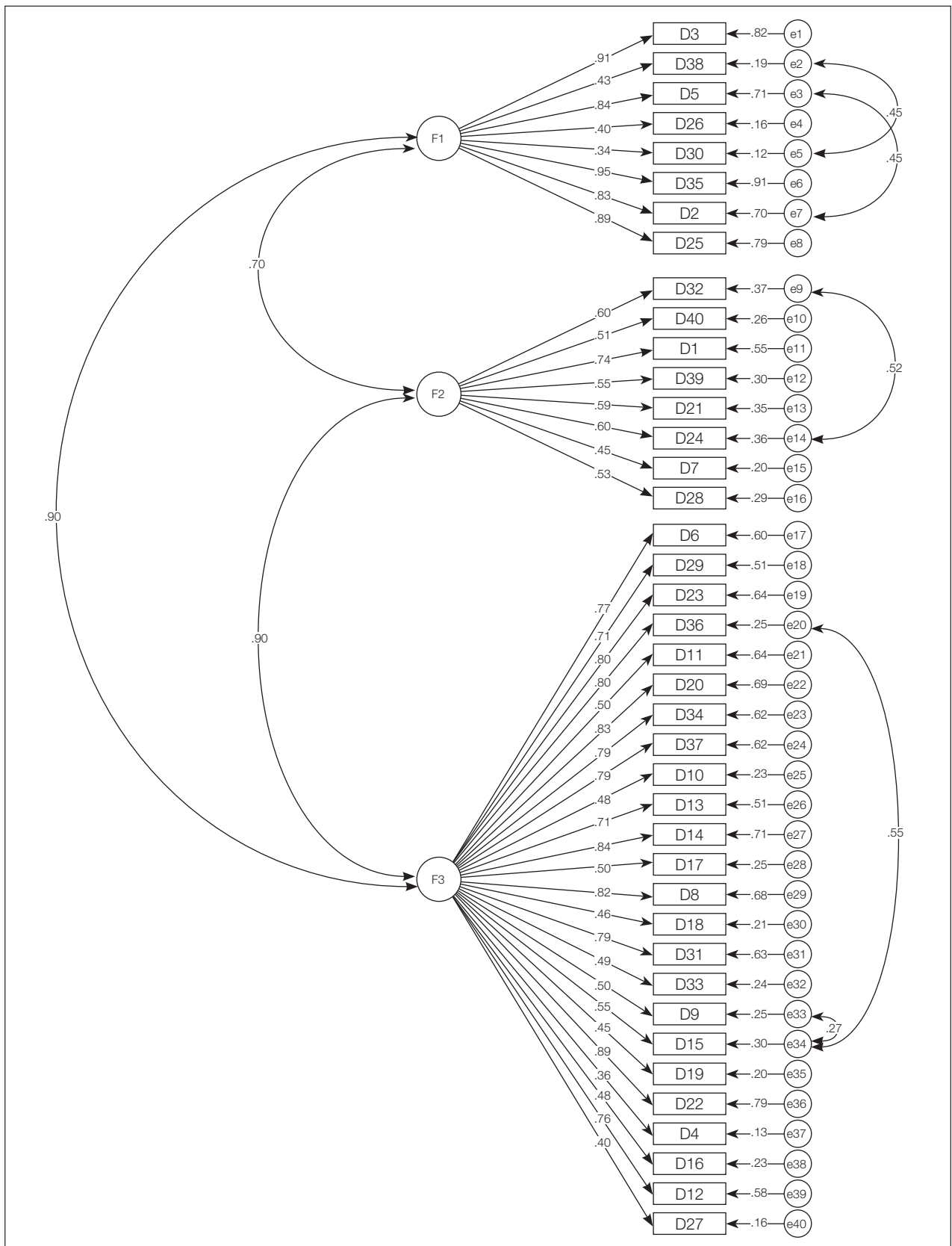
Table 4 – Means, standard deviations, alpha reliability and inter-correlations among DSQ-40 subscales (N = 350)

Subscale	*K*	*M*	*SD*	α	1	2	4	4	Rang Actual	Potential
1. Mature	8	40.0	16.1	.88	–	−.68**	−.84**	.89**	8-64	8-72
2. Neurotic	8	39.0	14.4	.81		–	.83**	.87**	8-64	8-72
3. Immature	24	119.3	43.8	.87			–	.98**	24-188	24-216
4. Total scale	40	198.4	70.4	.89				–	40-314	40-360

**p<.01*

Correlation

In order to see the relationship between demographic variables and uses of defense mechanism Pearson's product moment coefficient of correlation was used. Further, to test the relationship of defense mechanism among parents, we use total scale score, separate individual three factors scores and separate twenty defenses scores to find out which defense was used by both parents in raising a child with ASD.

Table 6 shows, correlation between demographics (gender, income, education, parental age, children with ASD, gender of child, child age and birth order of child) and defense mechanism. Gender significantly correlates with defense mechanism ($r = .13^{**}$) and its three factors Mature ($r = .17^{**}$), Immature ($r = .12^{**}$) and Neurotic ($r = .13^{**}$) defense mechanism. Further, income significantly negatively correlates with defense mechanism ($r = −.19^{**}$), Mature ($r = −.10^{*}$), Immature ($r = −.11^{**}$) and Neurotic ($r = −.18^{**}$). Furthermore, significant no relationship found between parental age, no of children with ASD, gender of child and birth order of child with defense mechanism. Results indicate that gender play significant role among parents in uses of defense mechanism as coping in having a child with ASD. Level of income of single family in having a child with ASD also play an important role.

Table 7 shows, correlation between demographics (gender, education, income and age) and twenty defense mechanisms. Gender significantly correlates with Sublimation ($r = .21^{**}$), Undoing ($r = .08^{*}$), Altruism ($r = .12^{**}$), Reaction formation ($r = .12^{**}$), Passive aggression ($r = .12^{**}$), Acting out ($r = .08^{*}$), Devaluation ($r = .17^{**}$), Denial ($r = .14^{**}$) and Dissociation ($r = .15^{**}$). Further, Education is only negatively correlates with Devaluation ($r = −.09^{*}$). Moreover, income negatively correlates with Sublimation ($r = −.13^{**}$), Altruism ($r = −.12^{**}$), Undoing ($r = −.10^{**}$), Reaction formation ($r = −.10^{*}$), Passive aggression ($r = −.10^{**}$), Devaluation ($r = −.14^{**}$), Denial ($r = −.13^{**}$) and Dissociation ($r = −.10^{**}$). Furthermore, age has significant no relationship with any defense mechanism. Result revealed that gender have significant positive relationship between certain defense mechanisms, which mean both parents try to hide their feelings by using reaction formation in diagnosis of their child. They try to control their unacceptable impulses by converting their behavior in acceptable form. They try to cope with stress by indulging their self in different activities and helping others to satisfying their internal needs or removing the bad experiences by using indirect anger toward others to stabilize their self-esteem. Similarly, education and income somehow help them positively and negatively by accepting the issues in stabilizing their feelings toward envy or some fear of loss by stabilizing their self-esteem.

Table 5 – Number and percentage of demographic variables used in study (N = 600)

Variables	Frequency	Percentage
Parent age		
Young age parents (18-34)	358	59.7
Middle age parents (35-45)	242	40.3
Education		
Schooling or less	94	15.7
College	253	42.2
University	253	42.2
Monthly income		
49,000 or less	257	42.8
50,000-99,000	204	34.0
100,000 or above	139	23.2
No of children with ASD		
1	564	94.0
2	36	6.0
Age of children with ASD		
4-7 years old	400	66.6
8-12 years old	200	33.3
Gender of child		
Boy	314	52.3
Girl	276	46
Twin	10	1.7
Birth order of child		
First born	502	83.7
Other	98	16.3

Table 6 – Pearson's product moment coefficient of correlation between the demographic and defense mechanism and its three factors (N = 600)

Demographics	Study variables			
	Defense mechanism	Mature	Immature	Neurotic
1. Gender	.13**	.17**	.12**	.13**
2. Education	−.05	−.04	−.03	−.06
3. Income	−.19**	−.10*	−.11**	−.18**
4. Parental age	−.03	−.03	−.02	−.04
5. No of children with ASD	−.04	−.07	.08	−.01
6. Gender of child	−.01	−.03	−.03	−.03
7. Child age	−.02	−.05	−.01	.02
8. Birth order of child	−.07	−.05	.03	.02

$**p<.01, *p<.05$

Independent sample *t*-test

Independent sample *t*-test was run to see the gender differences. Mean and standard deviations of the variables also used in the analysis are list below.

Table 8 shows, the result of independent sample *t*-test and mean and standard deviation of defense mechanism and its three factors (Mature, Neurotic and Immature). The results shows that mothers score higher on use of defense mechanism compared to father.

In order to examine the mean differences in term of income with reference to defense mechanisms three factors a multivariate analysis was conducted. MANOVA help in looking dependent/outcome variables simultaneously by detecting the effect of groups across the combination of variables (Field, 2013). In order to test the assumptions of MANOVA a series of correlation were run between all the variables (see Table 6), where correlation with each other

show a moderate range except few variables i.e., parental age, child birth order etc. so, we excluded these variables. For further, analysis of difference the measure of percent variance (Wilks's lambda) was analyzed (see below Table 9) and demographic variable i.e., income entered into MANOVA for analysis with a logical sequence.

Table 9 shows that income significant demographic variable in relation with defense mechanism uses. The detail of multivariate analysis results was explained with adjacent table of univariate analysis (see interpretation of Table 10).

The multivariate analysis result shows the main effect of income on defense mechanism is significant, Wilk's λ = .97, $F_{(6, 1190.0)}$ = 2.06, $*p<.05$, η^2= .10. The power to detect the effect was .75 (see Table 9).

Table 10 shows the result of univariant test, it indicated the main effect of income on uses of defense mechanism is significant: Mature $F_{(2,599)}$ = 3.11, $*p<.05$, Neurotic $F_{(2,599)}$ = 5.01, $*p<.05$, and Immature $F_{(2,599)}$ = 3.77, $**p<.01$. Therefore, its mean families with lower income, middle

Table 7 – Pearson's product moment coefficient of correlation between the demographic and defense mechanisms (N = 600)

Var	Ge	Ed	Inc	Pag	Sub	Hum	Ant	Sup	Und	Alt	Id	Ref	Pro	Paa	Aot	Iso	Dev	Afy	Den	Dip	Dis	Spl	Rat	Som
1. Ge	1	-.02	-.63**	.00	.21**	.02	-.04	.08	.08*	.12**	.01	.12**	-.01	.12**	.08*	.01	.17**	.03	.14**	.01	.15**	.03	.05	-.05
2. Ed		1	.32**	-.02	-.04	-.03	-.03	-.02	-.05	-.03	-.02	-.07	-.04	-.02	-.02	.09	-.09*	.05	.01	-.03	-.05	-.03	.07	.01
3. Inc			1	.05	-.13**	-.04	-.02	-.06	-.10**	-.12**	-.05	-.10*	-.03	-.10**	-.08	-.03	-.14**	-.03	-.13**	-.04	-.10**	-.03	-.07	-.09
4. Pag				1	.04	-.04	-.04	-.05	-.07	-.05	.03	-.05	-.02	-.01	-.05	-.01	.03	-.04	-.03	-.01	.01	-.02	.04	-.07
5. Sub					1	.25**	.26**	.36**	.14**	.17**	.18**	.17**	.22**	.28**	.34**	.23**	.35**	.18**	.35**	.17**	.29**	.30**	.14**	.15**
6. Hum						1	.27**	.42**	.26**	.19**	.25**	.24**	.33**	.32**	.26**	.18**	.23**	.26**	.36**	.20**	.19**	.34**	.18**	.29**
7. Ant							1	.22**	.11**	.07	.11**	.13**	.24**	.12**	.30**	.32**	.14**	.24**	.18**	.10**	.05	.12**	.04	.32**
8. Sup								1	.28**	.26**	.17**	.22**	.33**	.35**	.32**	.19**	.34**	.28**	.42**	.22**	.24**	.44**	.16**	.17**
9. Und									1	.36**	.48**	.49**	.29**	.37**	.03	.01	.43**	.42**	.39**	.46**	.38**	.45**	.46**	.06
10. Alt										1	.31**	.34**	.19**	.33**	.14**	-.01	.37**	.27**	.36**	.36**	.30**	.38**	.32**	.07
11. Id											1	.53**	.29**	.29**	-.03	.05	.42**	.42**	.41**	.52**	.29**	.35**	.52**	.08*
12. Ref												1	.22**	.32**	-.01	.10**	.43**	.41**	.41**	.50**	.35**	.37**	.50**	.11**
13. Pro													1	.36**	.20**	.10**	.29**	.32**	.25**	.27**	.27**	.33**	.29**	.24**
14. Paa														1	.19**	.01	.41**	.28**	.42**	.39**	.40**	.43**	.31**	.06
15. Aot															1	.26**	.24**	.15**	.19**	.03	.14**	.16**	-.07	.22**
16. Iso																1	.14**	.27**	.20**	-.02	-.01	.01	.05	.34**
17. Dev																	1	.38**	.41**	.39**	.43**	.41**	.40**	.09*
18. Afy																		1	.37**	.41**	.30**	.35**	.44**	.29**
19. Den																			1	.38**	.26**	.37**	.35**	.11**
20. Dip																				1	.33**	.41**	.53**	.15**
21. Dis																					1	.33**	.33**	.03
22. Spl																						1	.39**	.09*
23. Rat																							1	.10*
24. Som																								1

Legenda. Ge = Gender; Ed = Education; Inc = Income; Pag = Parental age; Sub = Sublimation; Hum = Humor; Ant = Anticipation; Sup = Suppression; Und = Undoing; Alt = Altruism; Id = Identification; Ref = Reaction formation; Pro = Projection; Paa = Passive aggression; Aot = Acting out; Iso = Isolation; Dev = Devaluation; Afy = Autistic fantasy; Den = Denial; Dip = Displacement; Dis = Dissociation; Spl = Splitting; Rat = Rationalization; Som = Somatization.
**p<.01, *p<.05

Table 8 – Independent sample *t*-test, means and standard deviations score of variables of study (N = 600)

Variables	M	SD	t	p	95% CI	
					Lower	Upper
Defense mechanism	193.6	46.3	−3.27	.01**	−19.69	−4.92
Father	187.5	62.74				
Mother	199.8	17.23				
Mature	39.0	11.08	−2.62	.04*	−4.13	−.597
Father	37.8	13.7				
Mother	40.2	7.44				
Neurotic	38.3	13.1	−2.79	.05*	−5.07	−.883
Father	36.8	16.9				
Mother	39.8	7.49				
Immature	116.3	28.5	−3.00	.03*	−11.50	−2.41
Father	112.8	37.8				
Mother	119.8	13.2				

*p<.01, *p<.05

Table 9 – Multivariate effects on Defense mechanism (N = 600)

I.V.	λ	F	df	Error df	p	η^2	Power
Income	.97	2.06	6	1190.0	**.05***	.10	.75

Legenda. df = degree of freedom.
Note. Table 9 present the results of multivariate analysis of the income of current study.
*p<.05

Table 10 – Group difference on study variables in term of parents income (N = 600)

Variable	DVs	SS	df	MS	f	p	η^2
Income	Mature	759.6	2	379.8	3.11	.04*	.01
	Neurotic	1711.0	2	855.5	5.01	.05*	.01
	Immature	3047.117	2	3047.1	3.77	.02**	.01

Legenda. df = degree of freedom.
**p*<.05, ***p*<.01

income and upper income had significant effect on uses of defense mechanism among parents in raising a child with ASD. The post hoc test analysis revealed that lower income families use more defense mechanism than other income levels (see Figure 2)

Reporting multiple a priori comparisons

Tests of three a priori hypotheses were assessed using three independent groups *t*-tests with a Bonferroni adjusted alpha level of .016 per test (.05/3). Results suggest that the parents of children with ASD having lower income ($M = 39.99$, $SD = 9.45$) was significantly higher in use of Neurotic defense mechanism than the middle income ($M = 37.98$, $SD = 13.86$) and upper income ($M = 35.68$, $SD = 17.01$), $t_{(599)} = -81.48$, SEM = .457, $p = .007$. Further, parents of children with ASD having lower income ($M = 119.3$, $SD = 21.48$) was significantly higher in use of Immature defense mechanism than the middle income ($M = 115.9$, $SD = 28.46$) and upper income ($M = 111.20$, $SD = 37.95$), $t_{(599)} = -67.38$, SEM = .541, $p = .02$. However, parents of children with ASD having lower income ($M = 40.24$, $SD = 9.60$) was significantly higher in use of Mature defense mechanism than the middle income ($M = 38.61$, $SD = 10.66$) and upper income ($M = 37.46$, $SD = 13.77$), $t_{(599)} = -97.98$, SEM = 1.168, $p = .04$. Therefore, parents of children with ASD having lower income uses more defense mechanism than the parents of middle or upper income level.

DISCUSSION

Most of the translation and validation studies of DSQ suggest that it is a reliable and valid tool for use on various populations. But it has appeared to be more useful in clinical assessments. Every person around the world undergoes through different stresses and they use defenses as a coping to protect themselves from conflicts. Moreover, people's perception in use of defense mechanism may be possibly prejudiced by different traditions and community. In early validation and translation studies of DSQ-40, the correlation of defenses was checked among students, adolescents, professionals and forensic departments, but neglected to test on parents having a child with any neurodevelopmental condition. So, in this study the focus was on cross-cultural and conceptual equivalence and gender difference in using defenses among parents having a child with a neurodevelopmental condition (ASD). Brislin's (1980) translation process was used to maintain the similar meanings of instrument in original and translated versions, since translation into another language or culture, demands a careful methodology when dealing with psychometric measures (Meyer et al., 2003). The empirical equivalence of the translated Urdu version was assessed by the finding the inter-correlations among original, forward and backward translated versions of DSQ-40. All versions were significantly positively correlated (see Table 1).

Further, confirmatory factor analysis was run to ensure the original factor structure of three subscales of DSQ-40 and model fit to the data obtained from parents of children

Figure 2 – Pie chart of income level in use of different defense mechanism
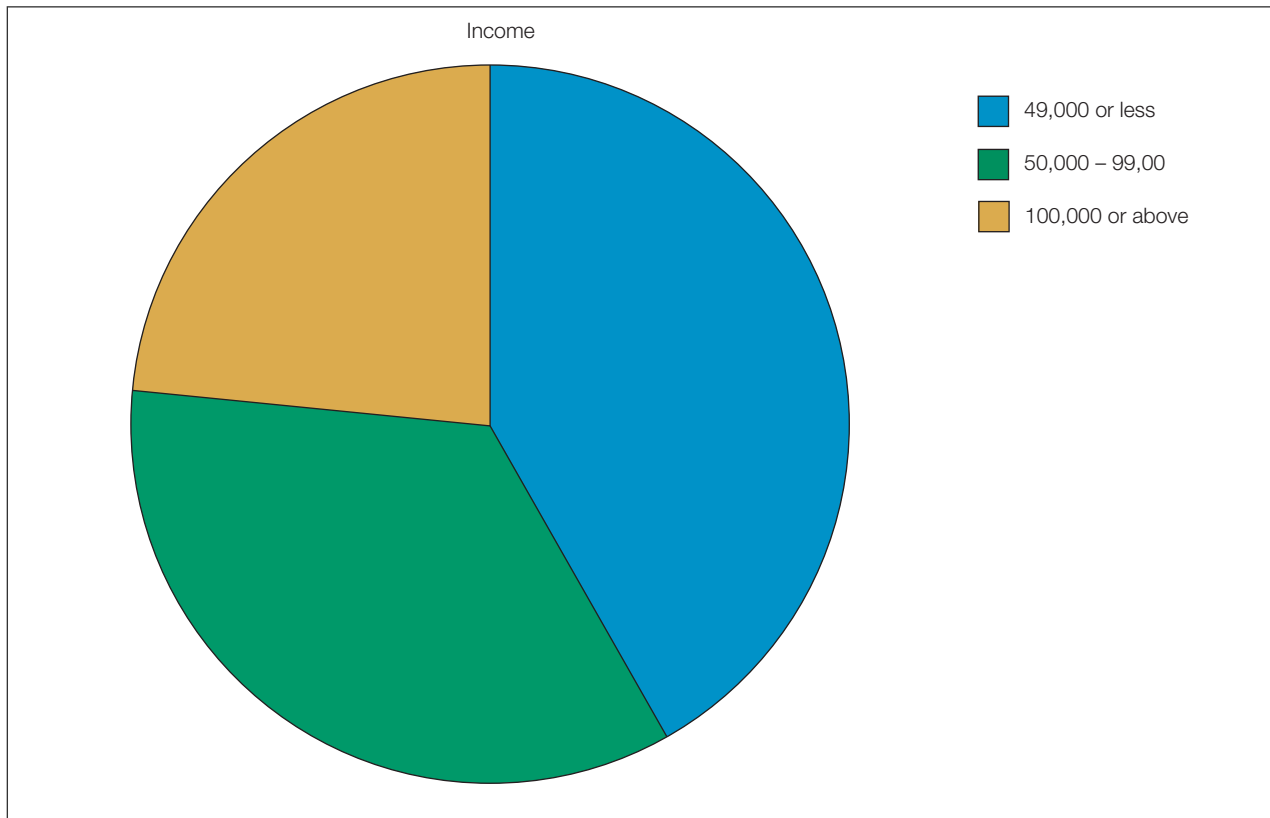
with ASD in the context of Pakistan. Based on the reported goodness of fit indices the CFA of three factor structure DSQ-40 was empirically supported (see Figure 1 and Tables 2-3). The results not only showed good model fit indices, but also supported the factor structure of the original scale (Cottle, Gannon & Christmas, 2017; Thygesen et al., 2008).

The findings of reliability analysis and correlation matrix of sub-scales of Urdu translated version of DSQ-40 support that the scale is reliable (see Table 4). Results are similar to Andrews' findings (Andrews et al., 1993). In comparison to other studies aimed at translation of DSQ-40 in Romanian, Greek, Arabic, Brazilian and Japanese version (e.g., Blaya et al., 2004; Soliman, 1997), the internal consistency for the DSQ-40 Urdu version is superior. The correlations between the subscales were also statistically significant and the overall scores maintained the results of previous researches, and showed that Urdu version of DSQ-40 is appropriate to be used in the context of Pakistan, especially with parents of children with ASD.

Further, correlation analysis was run to test the relationship of demographic variables and defense mechanism among parents of children with autism spectrum disorder. The result of correlation demonstrated that gender and income had significant relationship with defense mechanisms. Parents use different defense mechanisms to hide their feelings by using reaction formation in diagnosis of their child. They try to control their unacceptable impulses by converting their behavior in acceptable form. They try to cope with stress by indulging their self in different activities and helping others to satisfying their internal needs or removing the bad experiences by using indirect anger toward others to stabilize their self-esteem. Similarly, Gray and Holden (2013) and Koegel and colleagues (1992) reported when stigma by association is directly link to parental stress, it automatically increases the stress level in parents while interaction with family, friends or colleagues and its also effect parents daily activities and lead them to use different defenses as coping (Siman-Tov & Kaniel, 2011; Taati & Bahri, 2019).

Moreover, in current study mother use more defense mechanism than fathers. The findings are consistent with Abbasi and Pirani (2017) reported that mothers of deaf children and children with intellectual disability used more defense mechanism than fathers. Keeping in view the inconsistency of results on gender differences in the use of defense mechanisms, Watson and Sinha (1998) recommended that specific norms of DSQ-40 needed to be reconstructed with regards to gender.

Further, MANOVA result showed that lower income families use more defense mechanism as the economic and monetary burden is considered as a contributing factor (Karst & Van-Hecke, 2012) as yearly expenditures in taking care and raising a child with ASD are significantly very high than those for non-affected children (Croen, Najjar, Ray, Lotspeich & Bernal, 2006). Parents are at high risk of being not employed and having financial issues in taking care of children with special health problems (Heck & Makuc, 2000; Kuhlthau et al., 2014; Kuhlthau & Perrin, 2001). Furthermore, Kuhlthau et al. (2014) reported that parent's health affected by direct and indirect financial strain in parenting a child with ASD. Overall, half of the parents had reported financial problems, and combining care tasks with daily activities affected their performance in the office and they faced difficulty in maintaining a job. These issues were considered important, as they had reduced family income and social connection between the two parents.

Implications

Translated DSQ-40 in Urdu language will help health professionals and clinical psychologist in Pakistan to find out which coping mechanism was used by parents of different neuro development conditions or people who need psychological help. As defense mechanism put positive or negative impact on lives of people who need psychological help. So Urdu version of SDQ-40 will help in hospitals for enhancement of psychodynamic research on patients and their care givers. This translated version of DSQ-40 will open new vistas of research on defense styles in the field of health psychology and interpersonal and marital relationships in Pakistan.

Limitation and suggestions

Only parents of children with ASD were taken as a sample for determining the psychometrics of DSQ-40, so further validity studies for Urdu version should investigate the validity and reliability of the scale by involving family members and parents of children with other disabilities and mental disorders. Further, investigation on validity of the Urdu translated DSQ-40 with subject to age range, income and education 600 parents were included form Punjab province so further data should be collected from different provinces of Pakistan to demonstrate the inter-province variations. We only use demographic variables so further other variables like family structure, sibling relationship, parental stress etc. need to be explored. Further, parents are living in urban areas were taken which is not enough. For, comparative analysis both areas urban and rural should be included for future research direction. Cross-cultural and longitudinal studies should need to be conducted as they will be beneficial for therapists and doctors to find out whether defense mechanisms are risk or protective for parents in raising a child with autism spectrum disorder. In the present study only those parents were included who are married and living together. Single and divorced parents also need to be explored in future research.

CONCLUSION

Based on the present results, we conclude that the Urdu translated version of DSQ-40 is a highly valid and reliable measure and we may continue to use it with parents having a child with ASD, other disabilities, or a person with mental health issues in Pakistan. The results of the study have not only support the original three factor structure of DSQ-40, but also indicate that Urdu translation is superior to the translation done in other languages in terms of cross language validation and scores on reliability measures.

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