



ORIGINAL ARTICLE

## Correlation between body image disturbance and psychological distress among burn patients.

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**ABSTRACT... Objective:** To evaluate relationship between body image disturbance and psychological distress in burn patients of Jinnah Burn and Reconstructive Surgery Center. **Study Design:** Cross Sectional study. **Study Setting:** Jinnah Burn and Reconstructive Surgery Center, Lahore. **Period:** July 2022 to January, 2023. **Material & Methods:** Correlation research design was used in the study to check the relation between the variables. Purposive sampling was used. The population of research was burn patients. Appearance Anxiety Inventory (AAI) and Kessler Psychological Distress Scale (K-10) were used to access the Body image disturbance and Psychological distress. Descriptive of demographic, reliability analyses, Pearson's product moment correlation analysis, regression analysis, t-test and ANOVA analysis were conducted. **Results:** Among 150 subjects mean age was 28.532+ 12.345. 117 (78.0%) were females and 33 (22.0%) male. A positive correlation exists between Body image disturbance and Psychological distress  $r(149) = .37, p = .00$  and Body image disturbance is negatively correlated with age  $r(149) = -.18, (p = .02)$ . **Conclusion:** We concluded that there is a strong correlation between body image disturbance and Psychological distress. Psychological distress increased with increasing body image disturbance and psychological distress is negatively predicting, gender, family system and surgical intervention.

**Key words:** Appearance Anxiety Inventory, Body Image Disturbance, Burn, Burn Patients, Gender Differences, Kessler Psychological Distress Scale, Psychological Distress.

### INTRODUCTION

Burn injury on visible areas of body like head, neck and face lead to visible scarring and areas are associated with social anxiety, avoidance and poor quality of life: in contrast to visibility, severity of scar was not associated with distress.<sup>1</sup> Body image Disturbance is a multifaceted, subjective, and dynamic idea that includes a person's perceptions, ideas, and emotions towards their body.<sup>2,3</sup> It emphasized on the following basic aspects; avoidance and threat monitoring.

Psychological distress is a range of manifestations and symptoms of a man's internal mental states that are disturbing and Psychological distress is among the most frequent and debilitating complications post burn injury and clinically significant and reliable change in symptom severity by follow-up visits occurred infrequently.<sup>4</sup> Preliminary reports

using the BMS dataset indicated that one third of patients with major burns ( $n = 162$ ) had clinically significant psychological distress at the time of discharge 34 - 46% of the patients.<sup>5</sup>

In burn patients body image disturbance is commonly observed as most of them have scares, contractures and even lost their body parts during the incident.<sup>6-8</sup> Burns are, psychologically, physically as well as economically challenging injuries, whereas their leading factors are being studied. Furthermore the study will try to find out variables related to burns as in Pakistan this issue is scarcely addressed.<sup>9-13</sup> Although the relationship of body image to self-concept and disturbances relating to the body structure are not being understood clearly, it is very important to identify facially disfigured burn patients with body image disturbances since intervention can

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be beneficial. Body image disturbance leads to psychological distress.<sup>14,15</sup> In the present study, we hypothesized that there is likely to be positive relationship between body image disturbance and psychological distress in burn patients and body image disturbance will positively predict the psychological distress in burn patients.

## OBJECTIVE

To evaluate any relationship between body image disturbances and psychological distress in burn patients.

## MATERIAL & METHODS

This Cross Sectional study was conducted at Jinnah Burn and Reconstructive Unit, Lahore from 150 Patients after approval from ethical review board were recruited for the study. Sample size of 150 subjects were calculated with 95% confidence interval, 8% margin of error assuming 46.0% had significant psychological distress.<sup>5</sup> After informed consent subjects of age 20 - 50 years of either gender with mixed thickness burns of 6 month duration having contractures and scars were included in the study through a non-probability / purposive sampling technique. Patients with known psychiatric illness on treatments, drug addicts and burns with suicidal or homicidal intentions were excluded from the study.

Appearance Anxiety Inventory consisted of 10 items was used to assess Body image disturbance. Response is given on a 5-point scale (0=Not at all, 4=all the time). It has two subscales; Avoidance subscale and Threat Monitoring subscale. Reliability of scale was reported to be .74. Cronbach's alpha was reported by Veale et al., (2013) to be 0.87.<sup>16</sup>

To quantify psychological distress, the Kessler Psychological Distress Scale(K-10). was utilized high score predicting more stress. K10 originally developed by Kessler and Mroczek (1994) was translated into Urdu language by Khalid (2014) was used to measure psychological distress.<sup>17</sup> Its response pattern is five point Likert scale ranging from all of the times=5, Most of the times=4, some of the times =3, a little of time=2 and none of the time=1. The total score is obtained by adding all

responses. The maximum score can be 50 which indicate severe distress; the minimum score can be 10 which indicate no distress.

Scoring was categorized as 1) Scores under 20 are probably healthy, 2) Scores 20 to 24 are probably suffering from a mild mental illness, and 3) Scores of 25 to 29 indicate a moderate mental health problem; 4) Scores of 30 and higher are likely to be the result of a severe mental illness. Ryrie reports Cronbach alpha coefficient for scale as 0.88.<sup>18</sup> The factor analysis indicates multidimensional nature of the scale.

SPSS-21 was used for data analysis. To ensure that the data on the data sheet was recorded correctly, the minimum and maximum actual scores were examined. The reliability of scales for the current sample was assessed. Multiple Linear Regression analyses predicting body image disturbance and Psychological distress were used. To determine the correlation coefficients between demographic factors, key study variables Pearson Product Moment Correlation Analysis was applied and inter Correlation between Body Image Disturbances and Psychological Distress independent t test was used to analyze Body image disturbance and Psychological distress among gender with  $p < 0.05$  as statistical significant.

## RESULTS

One hundred fifty subjects were included in the analysis and the reliability of scales for the current sample was assessed indicated that all variables have acceptable reliability. Reliabilities of all the variables are more than .70 suggesting a good index of reliability. (Table-I)

All study scales and subscales are sufficiently dependable. According to the research hypothesis, reliability values of scales are found to be substantial enough to warrant further analysis. Data distribution is normal if skewness is positive. There are no highly skewed distributions for the present variables.

A positive correlation exists between Body image disturbance and Psychological distress  $r(149)$

=.37, p = .00 and Body image disturbance is negatively correlated with Age  $r(149) = -.18, p = .02$ . The findings of product moment correlation shown in Table-II indicates that highly positive significant relationship is found among Body image disturbance and Psychological distress and highly negative significant relationship is found among Body image disturbance and Age. (Table-III)

Tolerance value against each variable was checked and found more than .2, indicating that there is no multi-collinearity between the variables. The Independence of errors was tested through the value of Durbin Watson which is between 1.81. The value falls in acceptable

range of values yet it is acceptable.

The model was found fit  $F(7-142) = 4.09, P .00$ , which indicates well-fitted value. The theoretical model based on theory and previous literature, and observed model based on data collected fit each other. So the observed model based on all variables (demographics and all study variables) is a fit model. Beta values are indicating that from demographic variables, body image disturbance is positively predicting psychological distress. A significant regression was found  $F=4.09(7142), P .00$  with  $R^2$  of .16 with Body image disturbance and psychological distress. Participant's predicted Subjective psychological distress is equal to Standardized Coefficient Beta = .37.

Variable	K	$\alpha$	Mean + SD	Range Actual Potential	Skewness
Body image disturbance	10	.74	12.8(6.21)	2-27 0-40	.12
Psychological Distress	10	.88	19.4(7.88)	10-40 10-50	.84

**Table-I. Descriptive and reliability analyses of body image disturbance and psychological distress in burn patients (N=150)**

Note. K = No. of items;  $\alpha$  = alpha; M= mean; SD= Standard deviation.

Variables	2	3	4	5	6	7	8
1. Age	.01	-.23**	.21**	.19*	-.10	-.18*	.01
2. Gender	-	-.08	-.00	.38**	-.06	.11	.01
3. Family system		-	-.22**	-.42**	-.01	-.03	-.15
4. Residence area			-	.15	-.04	-.14	.00
5. Mode of burn				-	.03	.14	.14
6. Surgical intervention					-	.04	-.04
7. Body image disturbance						-	.37**
8. Psychological Distress							-

**Table-II. Inter correlation between body image disturbances and psychological distress (N=150)**

\*p < .05, \*\* p < .001

Variables	Psychological distress		
	B	SE	95% CI
Constant	17.20	5.20	[6.91, 27.48]
Age	.02	.51	[-.08, .12]
Gender	-1.09	1.32	[-3.71, 1.51]
Family system	-1.73	1.38	[-4.46, 1]
Residence area	.14	1.31	[-2.46, 2.74]
Mode of burn	1.10	1.49	[-1.86, 4.06]
Surgical intervention	-1.08	1.33	[-3.71, 1.54]
Body image disturbance	.47***	.10	[.27, .67]
F	4.09***		
R2	.16		

**Table-III. Multiple linear regression analyses predicting body image disturbance and psychological distress (N=150)**

Multiple Linear Regression Analyses Predicting psychological distress (N=150)

Note:  $R^2$ = R- square; \*p< .05, \*\*p< .01, \*\*\*p< .001.

Variable	Males n=81 M SD	Females n= 69 M SD	t(df)	p	95%CL LL UP	Coheh's d
Body image disturbance	12.17 6.39	13.62 5.95	-1.43(148)	.56	-3.45 .55	0.23
Psychological distress	19.37 7.51	19.59 8.35	-.17(148)	.95	-2.80 2.36	0.02

**Table-IV. Body image disturbance and Psychological distress among gender n = (150)**

Note: CI= Confident Interval, LL=Lower limit, UL= Upper limit, (M) Mean and (SD) Standard deviation for each group, (t) t value, (df) degree of freedom, and (p) significance value.

We also predicted gender differences for all study variables, which were tested through independent samples t-test. To conduct t-test, assumptions of Independence of observation, absence of significant outliers, Normality and homogeneity of variance was checked. Non-significant Levene's value was observed to check the assumption that variance of the outcome variable should be equal in each group. After positive fulfillment of these assumptions, analysis of Independent Sample t-test was performed. No significant mean difference is found between Body image disturbance and Psychological distress Men (M= 12.17, SD= 6.39) and Women (M= 13.62, SD= 5.95)  $t = -1.42(148)$ ,  $p = (.15) > .01$  on the basis of Gender. (Table-IV)

## DISCUSSION

Burn patients need regular psychological support and sessions in order to reduce the risk of psychological problems in them and make them able to play positive role in the society.<sup>19</sup> All the scales and sub-scales meet adequate value of internal consistency (more than .70) which found the scales are reliable for current sample. Body image disturbance and age are found negatively correlated. Body image disturbance is negatively predicting psychological distress. Result of t-test indicates that gender differences were not found in Psychological distress. In a study by Kundu et al no differences on the basis of gender were found to be significant in QoL. Moreover psychological impact in facial burn patients with scar were found. Furthermore psychological well-being of patients was found to be positively influenced by the level of education; whereas the extent of scar negatively affects the psychological and physical domains of QoL.<sup>20</sup>

Thombs et al body investigated image dissatisfaction among burn survivors and to

longitudinally investigate the role of body image in overall psychosocial functioning, predicted Female sex ( $P < .05$ ), total surface area of body burned ( $P < .01$ ), and importance of appearance ( $P < .01$ ) predicted body image dissatisfaction. In the path analysis, body image dissatisfaction was the most salient predictor of psychosocial function at 12 months ( $\beta = .53$ ,  $P < .01$ ) and mediated the relationship between pre-burn and 12-month psychosocial function.<sup>6</sup> We also hypothesized in this study that Body image disturbance will predict Psychological distress of burn patients. Mean psychological distress score among males was 12.17 + 6.39 and in females was 13.62 + 5.95 ( $t = -1.42$ ,  $p = > .01$ ). Other studies have also found different disorders among burn patients. Psychological impairment was found to be 45.5 and psychological impairment was found to have association with the extent of burn. The disorders of psychiatric reached 46.6% at both follow-up and baseline examinations. Posttraumatic stress disorder prevalence is 17-20.0% of burn survivors. Logistic regression analysis shows that disfigurement of face was the only characteristic of burns which has significant association with psychiatric morbidity. Supportive psychotherapy, Behavior therapy, counseling and socio-occupational rehabilitation of the patient should be carried out. Awareness should be spread; moreover support groups should be organized at primary health centers.<sup>21,22</sup> A finding from our study suggests that there is importance of screening patients psychologically during their inward stay and after being discharged.

## CONCLUSION

We concluded that there is a strong correlation between body image disturbance and Psychological distress. Psychological distress increased with increasing body image disturbance and psychological distress is



negatively predicting, gender, family system and surgical intervention.

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**AUTHORSHIP AND CONTRIBUTION DECLARATION**

No.	Author(s) Full Name	Contribution to the paper	Author(s) Signature
1	Anam Tahir	Major Author, Compiled the results and did write-up.	
2	Bushra Akram	Data collection.	
3	Zohaib Qureshi	Data analysis.	