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A Cross-Sectional Survey of Emotional Intelligence Relating to Binge Eating Disorder in Unemployed Population: A Mediation Study

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ABSTRACT

Aim: To examine the associations between emotional intelligence (EI) and Binge Eating Disorder (BED) with a mediating role played by post-traumatic stress disorder (PTSD) in the unemployed population, thus performance in an integrated manner.
Study design: A Cross-sectional study
Place and duration of Study: Rural and urban areas of Punjab, Pakistan during the months of December 2020-2021
Methodology: For this purpose, Wong and Law Emotional Intelligence Scale, Binge Eating Scale and PTSD Check List–Civilian Version was used to measure EI, BED, and PTSD score, respectively. The assumptions were tested using non-linear regression-based partial least squares path modelling (PLS-SEM).
Results: The results revealed that unemployed individuals are at enhanced risk to develop BED. High levels of EI help to cope the stress of unemployment and overcome BED and vice versa. In this study, PTSD, a cause of unemployment, was found to be negatively related to EI and positively related to BED. However, no mediation of PTSD between EI and BED was observed.
Conclusions: Our findings suggest that enhanced emotional abilities are directly associated with lower levels of work-related stress and BED. However, a diagnostic study is needed to validate the findings and establish BED diagnosis in individuals with low EI. This study helps in validation of emotional intelligence as a factor in the development of binge eating disorder. It helps in the development of programs based on prevention of binge eating disorder in unemployed population on the basis of emotional intelligence level understanding.
Keywords: Unemployment, eating behaviour, emotional stability, stress disorder, mediation analysis

INTRODUCTION

Unemployment is a psychosocial stressor with several significant deleterious and long-term effects on physical and mental health[1]. Negative social and eating behaviours are adopted by unemployed individuals such as smoking, alcohol abuse, eating disorders, etc. Among the other coping mechanisms, Binge Eating Disorder (BED) is most prevalent and less considered. It is adapted deliberately in response to negative emotions, which helps in decreasing the stress level and handling the negative emotions temporarily that they are suffering and as one finds relief from their anxious state[2].

Identifying factors that have close interaction between emotional dysregulation, disordered or unhealthy eating behaviour is a compulsion for further theoretical advancement and research in this respect[2]. Emotional intelligence (EI) is related to the individual competencies and functioning. Higher levels of EI are supposed to have positive impact on an individual's psychological and physical well-being. It is evident that EI plays a central role in unemployment, contributing towards positive well-being[3].

Post-traumatic stress disorder (PTSD) is one of significant factor following trauma in the development of psychological disorders[4]. An employment study was done in mental health services and 50% of veterans with PTSD were found to be unemployed. More severe cases of PTSD are associated with enhanced tendency of unemployment. Even a modest reduction in PTSD symptoms with treatment could help employment prospects.

Trauma exposure is supposed to be linked with disordered eating behaviour looking at previous studies, but PTSD alone, emerges specifically as a significant mediator in relation with unhealthy eating habits. People with PTSD adapts BE behaviour as a strategy to cope with distress[5]. Experiencing trauma in the past leading to PTSD tend to have reduced ability to perceive and manage emotions, thus can be termed as low EI[6]. Taken together, PTSD may be considered as an important mediator of the relationship between BED and EI in unemployed population. Many

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previous studies have shown the link between EI and BED but very limited data is available on PTSD as a mediator in these two variables in unemployed population. This study is significant in providing information regarding inverse relationship of BED and EI with PTSD as a mediator.

Hypothesis formulation
H1: Emotional Intelligence has a negative association with Binge eating Disorder.
H2: Post traumatic stress disorder associated negatively with Emotional Intelligence
H3: Post traumatic stress disorder associated positively with Binge Eating Disorder.
H4: Post traumatic stress disorder mediates the relationship between Emotional Intelligence and Binge Eating Disorder.

RESEARCH METHODOLOGY

The survey was conducted in completely randomised fashion. The sample size (n=220) depends on the willingness of the selected unemployed population.
Sampling strategies: The study focuses on the relationship of EI and BED with the mediation of PTSD among unemployed people (Figure 1). This research found that a sample size of about 200 respondents was adequate for the investigation. Therefore, in this study, sample consisted of 220 unemployed people. The questionnaire was made using google forms and shared online with the volunteer participants. The detailed demographic characteristics of the participants are given in Table 1.
Instrument
Wong and Law Emotional Intelligence Scale, WLEIS: Wong and Law Emotional Intelligence Scale (WLEIS) was developed by Wong and Law [7] as 16-item scale for measuring EI. The WLEIS in its Hebrew version shows adequate Cronbach's alpha internal reliability ranging from 0.72 to 0.85[8].
Binge Eating Scale: Behavioural and cognitive aspects of people with BED are assessed by Binge Eating scale designed by Gormally, Black, Daston and Rardin[9]. The scale is comprised of 16 items and each item further have three or four statements. The BES has discriminant validity and reliability (r = 0.87). Moreover, a

study has shown internal consistency (α = 0.88 to 0.90) for the BES[10].

PTSD Checklist – Civilian Version (PCL-C): The Post-Traumatic Stress Checklist-Civilian Version (PCL-C) developed by Weathers, Litz, Herman, Huska and Keane [11]. The PCL-C compiles a total score by summing up all 17 items and categorize by using a cut-off value score of 50. So, 50 or above suggests probable diagnosis of PTSD. PCL-C has an excellent reliability (Cronbach's alpha=0.90)[12].

Procedure: Data collection in this research was based on an online questionnaire survey. Questionnaire was developed on the google forms and sent to unemployed people. SPSS version 22 was used for analysis of data. Association among variables was checked by Pearson correlation. Variables impact on one another was checked by linear regression. Variables were also tested based on gender differences by applying t-test.

Data Analysis: Each response from the participants were scored on the basis of standard principles of WLEIS, BES and PCL-C. Partial least squares path modelling (PLS-SEM) based on linear regression was used to analyse hypothesis. It is a methodology based on classical least-squares regression analysis for estimating parameters and minimize the difference between a model prediction matrix and sample matrix[13]. One important application of SEM is to empirically confirm or reject hypothesized relationships. The use of PLS-SEM is referred to as a second-generation application of structural equation analysis. PLS-SEM is used to explain the variance in the dependent variables within the path model. In addition, PLS-SEM is particularly useful in developing predictive models of behaviour.

RESULTS

Demographic analysis: Tables 1 display the age information of the respondents, respectively. In age demographic variable, 63.6% respondents belong to 18-25 years, 32.7% respondents belong to 26-32 years and 3.2% belong to 33 to 40 years age group. Area wise demographic distribution shows 28.6% belong to rural area and 71.4% belong to urban area. In marital status, 23.6% respondents were married and 76.4% respondents were unmarried. In gender demographic variable, 67.3% respondents were female and 32.7% respondents were male.

Construct Reliability and Validity: Cronbach's alpha is related to a number of indicators which sometimes overcome the construct reliability. Table 2 elaborates that each construct value exceeds 0.8 for both composite reliability and Cronbach's alpha among unemployed population, which indicates good reliability [14]. Following that, convergent validity is defined as the ability of the model to explain variation in the variance of the indicator. It has been suggested that the average variance extracted (AVE) may be used to demonstrate convergent validity and that the AVE threshold should be set at 0.5[15]. According to this study, all AVEs doesn't meet the 0.6 minimum convergent validity criteria and all indicator loadings were 0.4 threshold value that is acceptable[15], indicating a high degree of global convergent validity.

Discriminant Validity: In checking for discriminant validity, Table 3 shows that the square root of the average variance of all variables outperforms any of the other associations related to that particular variable[16]. Each variable's AVE squared root exceeds its maximum squared connection with any latent variable (Table 3). Discriminant validity is evident when the correlation between the two constructs is not higher than their respective composite reliabilities.

Path Coefficients and Mediation: The path coefficients, the p values and the results for the present model are illustrated in Table 4, Figure 2. For unemployed people, EI and BED (β = -0.282, p = 0.00) were negatively associated hence hypothesis H1 were supported. Likewise, EI and PTSD (β = -0.041, p = 0.785) were negatively associated hence hypothesis H2 is supported. PTSD and BED (β = 0.309, p = 0.00) were positively associated hence hypothesis H3 was supported.

The PLS-SEM analysis can weigh the indirect and direct effect of all the variables under study among each other. A direct effect refers to a direct relation among variables, whereas an indirect effect refers to a mediation role played by another variable among two variables[17]. Net effect is the sum of the direct and indirect effects of all variable under study. In this study, we noted that the variable used as mediator between independent and dependent variable shows no mediation. The indirect effect of PTSD on other variables did not show any significance so we can count it as no mediation at all.

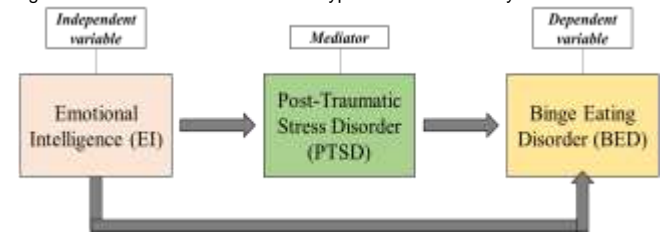Figure 1: Theoretical framework and hypotheses of the study
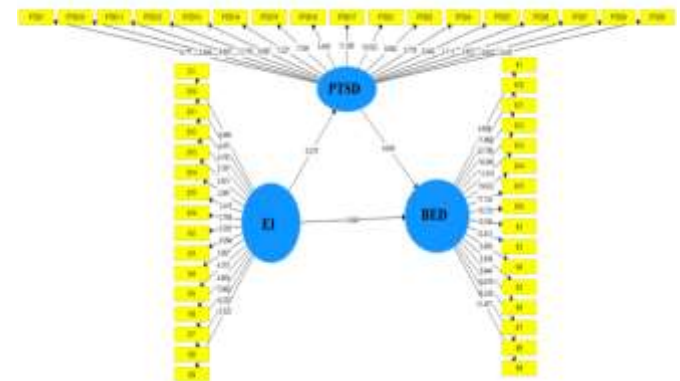

Figure 2: Structural Model with factor loadings.

Table 1: Demographic variables of the studied population.

Variables	Frequency	Percent
Age		
18-25	140	63.6
26-32	72	32.7
33-40	8	3.6
Gender		
Female	148	67.3
Male	72	32.7
Marital status		
Married	52	23.6
Unmarried	168	76.4
Area		
Rural	63	28.6
Urban	157	71.4

Table 2: Composite reliability, Cronbach's alpha, and AVE coefficients.

Variables	Cronbach's Alpha	rho_A	Composite Reliability	AVE
BE	0.884	0.904	0.902	0.4
HI	0.896	0.887	0.900	0.4
PTSD	0.897	0.907	0.906	0.4

Table 3: Correlation matrix and squared roots of AVE.

Variables	BE	EI	PTSD
BE	0.612		
EI	-0.295	0.604	
PTSD	0.320	-0.041	0.605

Table 4: Path Coefficients of research model and mediation effect.

Variables	ß Sample (O)	Sample Mean (M)	SD	T Statistics	P Values	
EI -> BE	-0.282	-0.297	0.077	3.649	0.000	Supported
EI -> PTSD	-0.041	-0.076	0.150	0.273	0.785	Supported
PTSD -> BE	0.309	0.326	0.067	4.634	0.000	Supported
EI -> PTSD -> BE	-0.013	-0.022	0.050	0.251	0.802	No mediation

DISCUSSION

Unemployment has deleterious negative effects on the mental and physical health[18]. The BED prevalence is highly found among unemployed individuals as found in a study done on overweight individuals in Primary Health Care[19]. This study also covered the EI factor in unemployed individuals and showed that individuals who ranked high on EI scale have better strategies to manage the psychological effects of unemployment like stress, depression, anxiety, etc. than those ranked low. Unemployment seems to be an outcome of PTSD as found in veterans of Vietnam era as PTSD causes social distancing and avoidance[20].

BE and EI: Results obtained from this study supported our hypothesis (H1) that low levels of EI are associated with higher level of binge eating problem. People low in EI find difficulty in emotional regulation and management of the eating attitudes, thus they have very high probability to develop disordered eating behaviour as compared to high levels of EI. Previously, research was conducted among college students to check the prevalence of BED and it was found that emotionally disturbed individuals exhibited higher levels of binge eating and poor control over eating behaviour[21]. Thus, EI could be taken as a protective mechanism in maintaining healthy eating attitudes**.**

PTSD and EI: This study has also brought in light the effect of PTSD on EI i.e., individuals suffering from PTSD have low levels of EI. This result is comparable to the previous studies showing that EI moderates the relationship between exposure to traumatic events, cognitive appraisal and an individual's coping ability [22], which indicates that EI can be protective in alleviating PTSD and depression symptoms. Another study in this respect supports the hypothesis that there exist low levels of EI in PTSD suffering individuals[23].

PTSD and BE: In this study, the ratio of BED in PTSD suffering individuals was tested. Several studies support this hypothesis as trauma exposure/distress influences emotional regulation and thus supports to emotional eating and satisfying the psychological distress[24]. In this study, for the very first time, PTSD is supposed to act as a mediator between EI and BED in unemployed population and this research shows that no mediation role is being played by PTSD. Each variable has a separate positive and negative link with PTSD which is also in line with the hypothesis but no mediation with PTSD is being proved through this study. However, future studies are warranted measuring stress variables in unemployed to fully understand the binge eating copying mechanism in stressed populations relating to EI.

Practical implications: This study helps in further research in the field of the conceptual validation of emotional intelligence in the study of binge eating disorder. Certainly, more research work is necessary in both clinical and non-clinical settings with a large sample size in different regions to authenticate this association. Understanding the role of emotional intelligence in the development of binge eating disorder helps in developing more effective psychotherapeutic interventions. Our study provides insightful information in the development of programmes for the prevention of binge eating disorder on the basis of emotional intelligence level understanding in unemployed population.

CONCLUSION

From the current study it was concluded that unemployment induced stressful state that can led to binge eating disorder. Evidently, it was found that higher emotional intelligence has a strong negative association with BED in unemployed. Individuals low in EI are more prone to BED than those with high EI. PTSD developing anti-social behaviour leads to unemployment, thus can develop BED as a coping mechanism by the individuals to cope with distress related to PTSD. Individuals suffering from PTSD are seem to have low EI levels. But PTSD plays no role as a mediator between EI and BED. However, stress variables in unemployed are not measured in the current study which should be considered in future studies.

Conflict of interest: Nil

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